

Draft
Revised EXAMINATION GUIDELINES
FOR
COMPUTER SOFTWARE RELATED
INVENTION

ATTENTION

This is a provisional translation of Japanese text of “ Draft revised EXAMINATION GUIDELINES FOR COMPUTER SOFTWARE INVENTION”. When any ambiguity of interpretation is found in this translation, the Japanese text shall prevail.

JAPANESE PATENT OFFICE
EXAMINATION STANDARDS OFFICE

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Chapter 1. Computer Software Related Invention

This Chapter mainly explains matters which require special judgment and treatment in examining patent applications relating to computer software related inventions (hereinafter referred to as "software related inventions").

Refer to PartI or PartII for those matters not explained in this Chapter in relation to description requirements of the specifications (Claims and Description of the Invention), determination of statutory invention and inventive step.

Explanation of the terms used in this Chapter:

Information processing:

an arithmetic operation or manipulation of information to accomplish an application purpose.

Software:

a program relating to the operation of a computer.

Program listings:

representation of program codes by means of printing them on paper, displaying on a screen, etc..

Program:

a sequence of instructions suitable for a computer to perform a particular processing.

Computer-readable storage medium having a program recorded thereon:

a computer-readable medium having a program recorded thereon to install, execute or distribute the program.

Procedures:

a sequence of processing steps or operations connected in time sequence to achieve a desired object.

Data structure:

logical structure of data defined by the interrelationship of data elements.

Hardware resources:

physical devices or physical elements used for processing, operation or realization of a function. For example, a computer as a physical system (hardware), and its constituent elements used as CPU, memory, input device, output device, or other physical devices connected to the computer.

I. Description Requirements of Specifications

1. Claims

This section deals with description requirements of claims, especially focuses on “categories” of “software related inventions” which require special judgment and treatment in examining patent applications.

1.1 Categories of “Software Related Inventions”

(1) Process category

When software related invention is expressed in a sequence of processes or operations connected in time series, or a procedure, the invention can be defined as a process invention (including a method invention to produce a product) by specifying the procedure.

(2) Product category

When software related invention is expressed as a combination of multiple functions performed by the invention, the invention can be defined as a product invention by specifying those functions.

A program or data can be defined in following manners:

- (a) “A computer-readable storage medium having a program recorded thereon” can be defined as “a product invention”. “A computer-readable storage medium having structured data recorded thereon” can also be defined as a product invention, where processing performed by a computer can be specified by structure of data recorded thereon.

[Example 1] A computer-readable storage medium having a program recorded thereon; where the program make the computer execute procedure A, procedure B, procedure C, ...

[Example 2] A computer-readable storage medium having a program recorded thereon; where the program make the computer operate means A, means B, means C, ...

[Example 3] A computer-readable storage medium having a program recorded thereon; where the program is to provide function A, function B, function C...

[Example 4] A computer-readable storage medium having structured data recorded thereon; where the structured data comprises portion A, portion B, portion C, ...

(b) A program which specifies a multiple of functions performed by a computer can be defined as “a product invention”.

[Example 5] A program which makes the computer execute procedure A, procedure B, procedure C, ...

[Example 6] A program which make the computer operate means A, means B, means C, ...

[Example 7] A program which make the computer realize function A, function B, function C, ...

1.2 Notes

(1) When if the invention is claimed by using a term other than “a program”, when it is clear by taking into consideration the common general knowledge as of the filing date the claimed invention is substantially a program which specifies functions performed by a computer, the claimed invention shall be dealt as “a program”. However,

(a) When a patent is sought for "program signal(s)" or "data signal(s)," it violates Section 36(6)(ii) of the Patent Law, since the category it falls into is unclear;

(b) When the invention is claimed by using a term of ‘a program product’ or ‘a program “se-i-hi-n” (Japanese pronunciation of “a product”’, since it is using the term whose technical scope is not clear, it violates Section 36(6)(ii) of the Patent Law. However, if the meaning of the term is clearly defined in the specifications without surpassing a ordinary meaning of the term, the scope of the claimed invention can be clear.

(2) Inventions claimed as "shi-su-te-mu" (Japanese pronunciation of "system") or "hoshiki" (Japanese translation of "system") is deemed to be a product invention (see Guidelines, Part I, Chapter 1.1.2.2.2.1 (I) (3)).

1.3 Examples of Unclear Claimed Inventions

Section 36(6)(ii) of the Patent Law prescribed that "an invention for which a patent is sought must be clearly stated". Examples of unclear claimed inventions violating the law are shown below.

(1) Examples where description of matters to specify the invention is unclear

(a) When the description of a claim itself is unclear, so that the invention is unclear (see Guidelines, Part I, Chapter 1.1.2.2.2.1(I)(1)).

[Example 1]

(Claimed invention)

An order-receiving method using a computer to execute a step to accept a commodity order from a customer, a step to check the inventory of the ordered commodity, and a step to respond the customer if the commodity can be delivered or not depending on the inventory condition.

(Explanation)

Expression "using a computer ... a step to" does not necessarily specify the subject for the operation in each step. Therefore, the claim can be interpreted in following two manners:

- as an operating method of a computer as a mere calculation tool, in that "using a computer (as a calculation tool), an order-receiving method to execute a step to accept a commodity order from a customer (by human operation of the computer), a step to check the inventory of the ordered commodity (by human operation of the computer), and a step to respond the customer if the commodity can be delivered or not depending on the inventory condition (by human operation of the computer); or

- as an information processing method by a computer software, in that "using a computer (in the constructed order-receiving system), an order-receiving method to execute a step to accept a commodity order from a customer (by the means A equipped with the computer) , a step to check the inventory of the ordered commodity (by the means B equipped with the computer) , and a step to respond the customer if the commodity can be delivered or not depending on the inventory condition (by the means C equipped with the computer). Consequently, since two different concepts of "an operating method of a computer as a mere calculation tool" and "an information processing method by using a computer software" are both included, the claimed invention identified on the basis of the definition in the claim can not be clearly grasped.

Remark: According to the gist of Section 36(6)(ii) of the Patent Law, a single invention must be clearly grasped from a single claim. For details, see Guidelines, Part I, Chapter 1 "Description Requirements of Specifications".

[Example 2]

(Claimed invention)

A program equipped with an order-receiving means to accept a commodity order from a customer, an inventory search means to check the availability of the ordered commodity, and a customer responding means to respond the customer if the commodity can be delivered or not depending on the inventory condition.

(Explanation)

A program makes a computer operate as a means, but the program itself does not operate as a means. Therefore, the program itself is not equipped with an operational means, so that the claimed invention identified on the basis of the definition in the claim can not be clearly grasped.

On one hand, if the invention is claimed as "a program to make the computer operate as an order-receiving means to accept a commodity order from a customer, an

inventory search means to check the availability of the ordered commodity, and a customer responding means to respond the customer if the commodity can be delivered or not depending on the inventory condition", the program is clear as an invention since it makes the computer operate as means.

(b) When the technical meaning of a matter to specify the invention is not understandable.

[Example 3]

(Claimed invention)

A computer to solve a puzzle using the right-brain inference rule. (The right-brain inference rule is not defined in the description of the invention.)

(Explanation)

Since the right-brain inference rule is not defined in the description of the invention nor is the common general knowledge as of the filing date, the technical meaning of the matter to specify the invention is not understandable.

(c) When a matter to specify the invention is related to another matter to specify the invention, but there is no technical relationship between them, so that the invention is unclear.

[Example 4]

(Claimed invention)

An information transmission medium which is transmitting a certain computer program. (See Guidelines, Part I, Chapter 1, 2.2.2.1(I)(1)⑤.)

(Explanation)

"An information transmission medium" usually means the medium having function to transmit information such as "networks for communication". It cannot be said to clearly define "an information transmission medium" as a product invention only by stating that "a certain computer program is being transmitted" anywhere on "the information transmission material" at any moment.

(d) When the category of claimed invention is unclear

[Example 5]

(Claimed invention)

A string of program signals (to make the computer execute procedure A, procedure B, procedure C, ...).

(Explanation)

It is unclear to define whether it falls into the product category or the process category.

(2) Example where the technical scope of claimed invention is unclear

(a) When an expression to define the scope is obscure, so that the scope of claimed invention is unclear.

[Example 6]

(Claimed invention)

A compiler apparatus comprising a means to perform lexical analysis at a high speed and a means to perform syntax analysis, where the both means are enabled to run in parallel.

(Explanation)

Even if taking into consideration the common general knowledge in the technical field as of the filing, comparison criterion or degree of "a high speed" is obscure, so that the scope of claimed invention is unclear.

On one hand, if it is stated as "comprising a means to perform lexical analysis and a means to perform syntax analysis," the technical scope is clear.

(b) When concrete means or procedure pertaining to the scope of claimed invention (concrete method, concrete article, concrete process, etc.) could not be conceived, even if taking into consideration the common general knowledge as of the filing.

[Example 7]

(Claimed invention)

An aircraft controlling computer to predict generation of the "down-burst" phenomena in advance.

Note: "Down-burst" is such phenomena that an air stream explosively blows down from the bottom of a nimbus, and destructively blows up from the ground caused by said stream.

(Explanation)

Even when taking into consideration the common general knowledge as of the filing, it is impossible to conceive concrete software to predict the "down-burst" phenomena, so that the scope of claimed invention is unclear. An excuse that the invention can not be more clearly defined by any other expression in the claim is normally rejected.

On one hand, the invention is clear when the claimed invention is defined by concrete means or procedures stated in the description of the invention.

2. Description of the Invention

2.1 Enabling Requirements

The description of the invention shall be stated... in such a manner sufficiently clear and complete for the invention to be carried out by a person having ordinary skill in the art to which the invention pertains. (Patent Law Section 36 (4))

The description of the invention shall be stated in such a manner that a person who has ability to use ordinary technical means for research and development, and has ability to exercise ordinary creative ability in the field of this “software related invention” can carry out the claimed invention on the basis of matters described in the specification (other than claims) and drawings taking into consideration the common general knowledge at the time of filing.

2.1.1 Examples of violation of enabling requirements

(1) When the meaning of the technical terms, abbreviations, symbols, etc. is unclear because they are not commonly known and are used in the specification without definition.

(2) When the procedure or function corresponding to those stated in a claim is described merely in an abstract or functional manner in the description of the invention, so that it is unclear how the procedure or function is implemented or realized by a hardware or a software.

[Example 1]

While an information processing system to execute a mathematical solution, a business method or a game rule is stated in the claims, how to realize the method or the rule by using a computer is not stated in the description of the invention.

[Example 2]

While an operational procedure of a computer based on a computer display screen (e.g., input format using GUI (Graphical User Interface)) is explained, how to realize said operational procedure by using a computer is unclear.

(3) When a hardware or a software which realizes the function is explained simply with a functional block diagram or a general flow chart in the description of the invention, so that it is unclear from the description of the invention as to how the hardware or the software is structured to implement the invention.

(4) When the claims are defined by matters including function whereas a flow chart is used to explain an embodiment of the invention, so that the corresponding relationships

between said flow charts in the description of the invention and said functions defined in the claims are unclear.

[Example 3]

When a business method is stated as a system consisting of a multiple of functional means in the claim whereas merely a work flow of the business is stated in the description of the invention, so that the relationship between the functional means in a claim and the work flow in the description of the invention is unclear.

2.1.2 Notes

(1) When the description of the invention is described by using the functional or operational terms, particular attention must be given whether the description of the invention is sufficiently clear and complete to the degree that the claimed invention can be carried out by a person skilled in the art based on the common general knowledge at the time of filing. If it is found that a person skilled in the art would not carry out the invention, the examiner should notify the reason for rejection of Patent Law section 36 (4) (violation of enabling requirements) by indicating said function or operation (See Guidelines, Part I, Chapter 1, 3.2.).

(2) When there is no concrete explanation about the matters stated in the description of the invention, particular attention must be given whether the description of the invention is sufficiently clear and complete to the degree that the claimed invention can be carried out based on the common general knowledge at the of the filing. If it is found that a person skilled in the art would not carry out the invention, the examiner should notify the reason for rejection of Patent Law section 36 (4) (violation of enabling requirements).

2.2 Ministerial Ordinance Requirement

Statements of the description of the invention which are to be in accordance with an ordinance of the Ministry of International Trade and Industry under Patent Law Section 36 (4) shall state "the problem to be solved by the invention" and "its solution", or other matters necessary for a person having ordinary skill in the art to understand the technical significance of the invention. (Section 24bis of Regulation under Patent Law (Ministerial Ordinance which is given authorization by Patent Law Section 36 (4))

(1) The problem to be solved by the invention and its solution

The applicant should state "technical field to which the invention pertains", "the problem to be solved by the invention" and "its solution" as matters necessary for a person having ordinary skill in the art to understand the technical significance of the invention. (See Guidelines, Part I, Chapter 1, 3.3.)

In the section of "its solution", how the procedures of means have been embodied should be explained using flow charts, etc.

It is a violation of Ministerial Ordinance Requirement, if a person having ordinary skill in the art cannot understand the technical significance of the invention, such as "the problem to be solved by the invention" and "its solution" based on the description in the specification and drawings taking into consideration the common general knowledge at the time of filing.

(2) Prior Art

Descriptions of prior art are not required under the Ministerial Ordinance Requirement. However an applicant should describe background prior art, as far as the applicant knows, which is deemed to contribute to understanding the technical significance of the claimed invention and examination of patentability of the invention because such descriptions of prior art could substitute the description of "the problem to be solved". If the applicant knows any documents relevant to claimed invention which is important for evaluation of patentability, it is especially invited that a bibliographic information of the documents be provided.

(3) Program Listing

In principle, a program listing is not to be included in a specification or drawings. However, if it is a short excerpt written in a computer language generally known to a person skilled in the art and helpful for understanding the invention, such a listing is allowed to be included. (A program listing can be submitted and filed as a reference material. However, the specification cannot be amended based on the reference material.)

II. Requirements for Patentability

This section explains requirements for patentability, particularly, “statutory invention” and “inventive step” which are important in software related inventions.

However, when it can be readily judged based on the guidelines given in Guidelines, Part II, Chapter 1 "Industrially Applicable Inventions" (1." Statutory Invention"), it is not necessary to refer to the following explanation.

1. Inventions Ruled by Patentability Requirements

(1) Patentability requirements are applied to "claimed inventions."

(2) The claimed invention is judged based on the description of claims. In this case, the significance of matters (terms) to specify the claimed invention is interpreted taking into consideration the descriptions of the specification (other than claims) and drawings and the common general knowledge at the time of filing.

2. Statutory Invention

To be qualified as a "statutory invention" prescribed in the Patent Law, the claimed invention shall be a creation of technical ideas utilizing natural laws. (See Guidelines, Part II, Chapter 1.)

2.1 Basic Concept

The basic concept to determine whether software related invention falls under "a creation of technical ideas utilizing natural laws" or not is as follows.


(1) When “information processing by software is concretely realized using hardware resources”, said software deemed to be "a creation of technical ideas utilizing natural laws." (See III. Examples, 2-1 to 2-5.)

[Explanation]

"Information processing by software is concretely realized using hardware resources" means that, as a result of reading the software into the computer, the information processing equipment (machine) or its operational method particularly suitable for the application purpose is constructed by a concrete means in which software and hardware resources are cooperatively working.

Since “said information processing equipment (machine) or its operational method particularly suitable for the application purpose” can be said as "a creation of technical ideas utilizing natural laws", said software can be said as "a creation of technical ideas

utilizing natural laws" when "information processing by the software is concretely realized using hardware resources".

Reference: To be qualified as "a creation of technical ideas utilizing natural laws," claimed Invention must be practical to accomplish a specific purpose. (A technology must be a concrete means to accomplish a certain purpose and can be practically used, ... so that it is objective. [Heisei 9 (line ) No. 206 (Tokyo High Court Ruling as of May 26, Heisei 11)]

(2) Further, the information processing equipment (machine) and its operational method which cooperatively work with the software satisfying the condition of item (1) above and the computer-readable medium recorded with said software thereon can also be "creations of technical ideas utilizing natural laws".

2.2 Actual Procedure for Judgment

The actual procedure to judge whether a software related invention is "a creation of technical ideas utilizing natural laws" (statutory invention) or not is as follows.

(1) Identify the claimed invention based on the definitions in a claim. When the identified invention does not require special judgment and treatment for software related invention in judging whether the claimed invention falls under "a creation of technical ideas utilizing natural laws" or not, "Guidelines, Part II, Chapter 1 'Industrially Applicable Inventions'" shall be referred to. (Note*)

(2) When information processing by software is concretely realized using hardware resources (e.g., an arithmetic unit such as CPU, a storage means such as memory) in the claimed invention, in other words, when an information processing equipment (machine) or its operational method particularly suitable for the application purpose is constructed by realizing arithmetic operation or manipulation of information depending on said application purpose using practical means in which the software and hardware resources are cooperatively working, the claimed invention falls under "a creation of technical ideas utilizing natural laws".

(3) On one hand, when information processing by software is not concretely realized using hardware resources, the claimed invention does not fall under "a creation of technical ideas utilizing natural laws."

Examples where information processing by software is not concretely realized using hardware resources

[Example 1]

(Claimed invention)

A computer comprising an input means to input document data, a processing means to process the inputted document data, and an output means to output the processed document data, wherein said computer prepares a summary of the inputted document using said processing means.

(Explanation)

Though it can be said that a flow of information processing exists with a fact that document data to be processed by the computer is entered in the order of input means, processing means and output means, because the process to prepare a summary of the inputted document and the processing means are not cooperatively working, it can not be said that the information processing is concretely realized. Consequently, the claimed invention does not fall under "a creation of technical ideas utilizing natural laws" which means a non-statutory invention, because the information processing by software is not concretely realized using the hardware resources.

[Example 2]

(Claimed invention)

A computer to calculate the minimum value of y in the range of $a \leq x \leq b$ with formula $y=F(x)$.

(Explanation)

It can not be said that the information processing to calculate the minimum value of formula $y=F(x)$ is concretely realized by the fact that the computer is used "to get the minimum value of 'y' in the range of $a \leq x \leq b$ with formula $y=F(x)$ ". Because, the processing to calculate the minimum value of formula $y=F(x)$ and the computer do not mean cooperatively working by only saying "using the computer". Consequently, the claimed invention does not fall under "a creation of technical ideas utilizing natural laws" which means a non-statutory invention, because the information processing by software is not concretely realized using the hardware resources.

(Note*) Examples where claimed inventions do not require special judgment and treatment for software related inventions and can be judged by referring to Guidelines, Part II, Chapter 1 "Industrially Applicable Inventions" are given below.

(1) Example which does not fall under "a creation of technical ideas utilizing natural laws" When the claimed invention corresponds to one of the "non-statutory inventions" listed in Guidelines, Part II, Chapter 1, "1.1 Types of Non-statutory Inventions", e.g.,

(a) economic rule, artificial arrangement, mathematical formula, mental activity of human being, or

(b) mere presentation of information such as picture data taken by a digital camera, program for sports meeting prepared by word-processing machine, computer program listing, etc.

the claimed invention does not fall under "a creation of technical ideas utilizing natural laws".

(2) Example which falls under "a creation of technical ideas utilizing natural laws"

When the claimed invention concretely performs

(a) control for apparatuses (e.g., rice cooker, washing machine, engine, hard disk drive),
or

(b) information processing based on the physical or technical properties of an object
(e.g., the number of revolutions of engine, rolling temperature)

the claimed invention falls under "a creation of technical ideas utilizing natural laws."

2.3 Notes

(1) It should be noted that since the claimed invention is judged based on the definitions in a claim, even if "information processing by software which is concretely realized using the hardware resources" is stated in the description of the invention and drawings, when the same effect is not stated in the claim, the claimed invention is judged as a non-statutory invention.

(2) Even if the claimed invention does not fall under "a creation of technical ideas utilizing natural laws", when it can be turned into "a creation of technical ideas utilizing natural laws" by amending the definition in the claim based on the statement in the description of the invention, it is recommendable that the examiner suggests the possibility of amendment when notifying the rejection reason.

(3) In examining whether the claimed invention is "a creation of technical ideas utilizing natural laws" or not, attention should be given to understand the technical significance of the matters (terms) to define the claimed invention, rather than the category of invention (a process invention or product invention).

(4) A claimed invention of "a program language" or a "program listing" is deemed as an artificial arrangement or a mere presentation of information, and is not "a creation of technical ideas utilizing natural laws," so that the claimed invention does not constitute a statutory invention. (See Guidelines, Part II, Chapter 1, 1.1 (4) and (5))

[Example]

"A computer program listing for natural number multiplication, comprising:

```
var x, y, z, u : integer ;  
begin  z := 0 ; u := x ;  
  repeat  
    z := z + y ; u := u - 1  
  until u = 0  
end."
```

2.4 "Structured Data" and "Data Structure"

"Structured data" (including "a computer-readable storage medium recorded with structured data thereon") and "data structure" should be judged based on the description of "section 2.1 Basic Concept".

3. Inventive Step (Nonobviousness)

3.1 Basic Concept

(1) Judgment on an inventive step should be made by precisely comprehending the state of the art at the time of filing in the technical field to which the invention pertains, and then trying to reason whether a person skilled in the art would have easily arrived at the claimed invention on the basis of the cited prior art.

(2) More practically, after recognizing the claimed invention and one or more cited inventions, examination should be made by first identifying the common features and different features between the matters defining an invention of the claimed invention and the matters to define the cited prior art suitable for the reasoning, and then considering primarily whether there is anything in the cited prior art (including well known art and/or commonly used art) which is negatively inferring the existence of an inventive step in the claimed invention (Note*). For instance, the examination may include a reasoning if the claimed invention is merely a selection of optimum configuration, a change of designing, or a combination of features from the cited invention, or if there is anything in the cited invention which would have given a person skilled in the art any kind of motivation toward the claimed invention at the time of filing.

(Note*) It is inappropriate in identifying the common features and different features separating the aspects of artificial arrangement and automation technique. It should be required to grasp the identified invention as a whole.

(3) In addition, when advantageous effects over the cited prior art are clearly recognized from the description of the invention etc, these advantageous effects are considered as facts useful for affirmatively inferring the existence of an inventive step. (See Guidelines, Part II, Chapter 2, 2.4 (2).)

(4) As a result, if the reasoning is established to reject the application, the inventive step for the claimed invention is not affirmatively inferred, and if the reasoning is not established, the inventive step is affirmatively inferred. (See Guidelines, Part II, Chapter 2, 2.4 and 2.5.)

(5) Combining methods or means used in another field and applying it to achieve a prescribed purpose is a common practice in the field of software. Consequently, combining technologies used in various fields and applying them to a certain field is usually considered within an exercise of an ordinary creative ability of a person skilled in the art, so that when there is no technical difficulty (blocking factor) for the combination and the application, the inventive step is not affirmatively inferred without a special condition (such as remarkable advantageous technical effect).

3.2 Problems to be Solved by the Invention

Problems in connection with software implementation and computerization are often general problems common to computer technologies. "To improve the level of understanding with AI (Artificial Intelligence) or Fuzzy Logic", or "to make input operation easier by using GUI (Graphical User Interface)" are some of these examples. An inventive step should be judged based on the understanding of these generally known problems at the time of filing.

3.3 A Person Skilled in the Art

A person skilled in the art of software related inventions in specific fields is expected: to have common general knowledge both of applied field and computer technology (e.g., systematization technology);

to understand and use ordinary technical means for making research and development, and to exercise ordinary creative ability such as design modification; and

to be able to comprehend all the state of the art technologies of the related technical field to which the invention pertains (state of the art of applied fields and the computer technologies as well) at the time of filing.

3.4 Examples of Exercise of Ordinary Creative Activity Expected of a Person Skilled in the Art

(1) Application to other fields

A procedure or means for realizing the function used in a computer applied invention relating to the fields of application is often common in function and work or operation, regardless of the field the invention belongs to. In such cases it is natural to expect that a person skilled in the art would have tried to apply a procedure or means of the software related invention relating to one applied field to another field to realize the same function and work or operation. (See Guidelines, Part. II, Chapter II, 2.2 (2).)

[Example 1]

On the assumption that the cited invention of a "file retrieval system" exists, to apply the means for realizing a function, i.e., the specific arrangement for the retrieval used in the "file retrieval system" to a "medical retrieval system", where the function or operation is shared in common by both the systems.

[Example 2]

On the assumption that the cited invention of a "medical information retrieval system" exists, to apply the means for realizing a function used in the known "medical information retrieval system" to a "commodity information retrieval system," where the function or operation is shared in common by both the systems.

(2) Supplement by a commonly known means or replacement by an equivalent means

It is natural for a person skilled in the art to try to supplement what is widely used as a commonly known means for systematization as a constituent element of the system, or to replace part of constituent elements of the system with a well known equivalent.

[Example]

In addition to a keyboard, to supplement, as an input means, means for inputting numerical codes by selecting items displayed on the screen with a mouse, or means for inputting numerical codes by bar codes.

(3) Implementation by software of functions which are otherwise performed by hardware

A person skilled in the art is likely to try to transfer functions performed by hardware such as circuits by means of software.

[Example]

To replace a code comparison circuit with software having a code comparison function..

(4) Systematization of human transactions

There is a situation where the cited prior art describe human transactions but not describe how to systematize said human transactions.

Even in this situation, it is within the exercise of ordinary creative ability expected of a person skilled in the art to systematize existing human transactions in an applied field by means of a computer, if the transactions are such that they can be realized by a routine application of usual system analysis and system design technologies.

[Explanation]

Development of a system is normally performed through the process of:

design planning → system analysis → system design.

In the stage of system analysis, for example, the existing human transactions are analyzed and this is put into a written form. In this stage, the human transactions or elements of clerical work executed by a person are also analyzed for systematization.

In view of the actual process of such a system development, it is within the scope of ordinary creative ability of a person skilled in the art to systematize existing human transaction, provided that this would have been made by a routine work using common system analysis and design technologies.

[Example 1]

To change a process of receiving orders by a telephone or a fax to a method of receiving orders via the home page on the Internet.

[Example 2]

A magazine house changed a way of running the selling and buying information (running so-called "selling and buying information" corner) on a magazine for the readers into a way of running the information via the home page on the Internet.

(5) Reproduction of the commonly well known event on a computerized virtual space

It is within the scope of ordinary creative ability of a person skilled in the art to reproduce the commonly well known event on a computerized virtual space, provided that this would have been made by a routine work by using common system analysis and design technologies.

[Example 1]

In a tennis game machine, merely to set the speed of tennis ball after bouncing on a hard court faster than the speed on a clay court.

[Example 2]

In a racing game machine, merely to change the probability of occurring spinning depending on the condition of the surface on the road.

[Example 3]

Merely to regenerate graphically on the computer screen the commonly well known I/O interface conditions (forms of buttons and display section, and their positional relationship) of an electronic calculator or a copying machine.

(6) Design modification based on the commonly well known fact or custom

When the different feature between the claimed invention and the cited invention is the commonly well known fact or custom, and considering other publicly known cited inventions and the common general knowledge (including remarkable facts), the different feature is of the nature to be decided at the discretion of a person skilled in the art, and there is no blocking factor for combination, the difference is no more than a design modification decided depending on the need of a person skilled in the art, therefore, it is considered as an exercise of ordinary creative ability expected of a person skilled in the art.

[Example 1]

It is the common general knowledge to express one's feeling of gratitude when a contract for sale is concluded, and adding a message-outputting means to an electronic transaction machine is considered to be the supplement of commonly known means. Therefore, in an electronic transaction machine having a display means, to supplement a message-outputting means saying "Thank you for purchasing" after a purchase order is received is considered as an exercise of ordinary creative ability expected of a person skilled in the art.

[Example 2]

It is commonly known that there is a "cooling off system" (the buyer can retract the purchase order in a certain period of time, even after the purchase order placed) in the non-electronic business transaction. It is also commonly known that adding a "cooling off system" is prefer for a electronic transaction as well as a non-electronic transaction from the view point of consumer protection. Therefore, in an electronic transaction machine, to add a "cooling off system" is considered as an exercise of ordinary creative ability expected of a person skilled in the art.

(7) Recording a program or data on a computer-readable storage medium

The inventive step can not be affirmatively inferred, even if a limitation of "recording a program or data on a computer-readable storage medium" is added to the claim, where the different features between the original claimed invention and the cited invention only exist within the scope of the exercise of ordinary creative ability of a person skilled in the art.

(8) A medium which can transmit information

When the claimed invention is only specified by the feature inherent to the medium to transmit information, for example, "a medium which can transmit certain information", the claimed invention lacks the "novelty" or "inventive step".

Because the feature "a medium can transmit information such as a program or data" is the feature inherent to an ordinary communication network or communication lines, when "a medium can transmit information" is not effective to specify the "medium" as a product, there is no difference between the claimed invention and an ordinary communication network.

3.5 Effects of the Invention

Alleged general effects such as "can be processed quickly," "can process a large amount of data," "can obtain uniform results," etc. are often obtained as a result of computerization and normally they are considered as results easily foreseeable from the knowledge of state of the art.

3.6 Notes

(1) Reference of the fact of commercial success or the equivalent

The fact of commercial success or the equivalent can be referenced as the fact effective to affirmatively infer the existence of an inventive step. However, it is limited to the cases where a favorable impression is gained to believe that the fact is based on the feature of the claimed invention according to the assertion or the proof of the applicant, rather than other causes such as selling technique or advertisement.

(2) Treatment of a case where the different feature merely exists in data contents

The novelty of the claimed invention can not be affirmatively inferred, when it is identified that the different feature between the claimed invention and the cited invention merely exists in the data contents.

[Example 1]

On the assumption that the cited invention of a "performance management apparatus to process the data structure A" exists, the feature as a "performance management apparatus to process the data structure A" is not changed, when the "students' performance management data" is stored on the data structure A or the "performance management data for trained horses" is stored thereon.

[Example 2]

On the assumption that a "computer-readable medium having a music by composer C thereon where the data structure is B" exists, "computer-readable medium having a music by composer D thereon where the data structure is B" has no difference from the "computer-readable medium having a music where the data structure is B".

III. Examples

Examples shown below are given as supplemental means to assist understanding of the text of Procedural Guidelines (to be simply called "the text" hereafter) for examination of computer software related inventions and examples should never supersede the text in any case. Therefore, matters not written in the text should not be drawn out by interpreting the statements of the examples.

Further, these examples are only for the purpose of judgment on statutory invention and the inventive step and do not necessarily illustrate models for specifications.

1. Examples for determination of description requirements (in relation to transmission media)

Example	Title of the invention	Remarks
1-1	Medium to transmit a program	Example where the statements of the scope of claims and the description of the invention are not matching
1-2	Information transmission medium	Example where the definition of information transmission medium is unclear
1-3	Information recording transmission media	Example where the recording medium and the transmission medium are alternatively expressed
1-4	Information Providing media	Same as the above
1-5	Computer-readable medium holding a program	Same as the above

2. Examples for determination whether of statutory invention

(a) Examples where information processing by software is concretely realized using the hardware resources

Example	Title of the invention	Remarks
2-1	Calculation method and calculation apparatus	Example where mathematical calculation processing by software is concretely realized using the hardware resources (mathematical area)
2-2	Storage method of network distributed articles	Example where storage processing of network distributed articles by software is concretely realized using the hardware resources (business area)
2-3	Apparatus for predicting daily sales of commodities	Example where predicting processing of daily sales of commodities by software is concretely realized using the hardware resources (business area)
2-4	Point service method	Example where bestowal processing of point service by software is concretely realized using the hardware resources (business area)

		realized using the hardware resources (business area)
2-5	Game machine	Example where calculation processing of scoring hands by software in a game machine is concretely realized using the hardware resources (game area)

(b) Reference examples for determination whether of statutory invention

Example	Title of the invention	Remarks
2-6	Apparatus and method for controlling rate of fuel injection for an automobile engine	Example where: - a control for an apparatus or processing associated with the control is concretely performed, or - information processing based on the physical or technical properties of an object is concretely performed
2-7	Image processing method by computer	Example where information processing based on the physical or technical properties of an object is concretely performed

3. Examples of determination of the inventive step

Example	Title of the invention	Remarks
3-1	Apparatus for retrieving chemical substances	Example where an application to other specific fields is easy
3-2	Invoice approval system	Example where systematization of clerical work performed by person is easy
3-3	Point service method	Example where systematization of clerical work performed by person or modification of design based on artificial arrangement is easy

1. Examples for determination of description requirements (in relation to "transmission media")

Example 1-1 Medium to transmit a program

(Example where the statement of claims and the description of the invention are not matching)

[Title of Invention]

Media to transmit a program

[Scope of Claim]

[Claim 1]

A medium to transmit a program or programs for realizing function A, function B, function C, ... by information processing systems.

[Abstract of Description of the Invention]

A portable information medium 4, which is computer readable such as a CD-ROM, is recorded in it with a program or programs describing processing functions of the preferred embodiment.

Such a medium is traded independently of the information processing system 1 on which it is used or by which it can be distributed in the market, for example, dispatched not only in the domestic market but also to overseas countries when orders are electronically received by means of the Internet, etc.

[Explanation]

In the statement of claim 1, "a medium to transmit" a certain program or programs is at least clear, however, the description of the invention says that a portable information medium 4 is "recorded" with a program. Thus, word "transmit" (Scope of Claim) and word "recorded" (Description of the Invention) which indicate the relationship between the program and the medium do not go hand in hand and the claimed invention is unclear. Therefore, it is a violation of Section 36, 6 (2) of the Patent Law.

Description of the invention also mentions other words such as "traded", "distributed" and "dispatched", but those words imply trading, distribution and dispatch of "a recording medium" such as a CD-ROM on which information is recorded and it should be noted that those words are not in consideration of meaning of "transmit" which is the purpose of the claimed invention.

This example indicates a case where the claim says "a medium to transmit" while the description of the invention says "a medium to record" in definition, however, the same contradiction occurs when the claim says "a medium to record" and the description of the invention says "a medium to transmit."

Example 1-2. Information transmission media

(Example where the definition of information transmission media is unclear)

[Title of Invention]

Information transmission media

[Scope of Claim]

[Claim 1]

Information transmission media used for an information processing system, characterized in transmitting a program or programs to enable operational functions of said system as means A, means B, means C,

[Abstract of Description of the Invention]

Further, the control method of the present invention has been described as an information processing system which uses transmission media to transmit a program or programs expressing the control method, however, said transmission media include recording media such as information storage means (semiconductor memory, floppy disk, hard disk, etc.), which are readable and writable by general-purpose computer systems, or optical reading means (CD-ROM, DVD, etc.), as well as communication media (optical fiber, radio link, etc.) used in computer networks (LAN, WAN such as the Internet, radio communication network, etc.) to supply program information by propagating the information as carrier waves.

[Explanation]

The description of claim 1 is at least clear as media to transmit a certain program or programs, however, the description of the invention states that the information transmission media mentioned in claim 1 include both "recording media" and "communication media." Thus, program transmission mentioned in claim 1 can be interpreted to include both the concepts of program recording and program communication, and it looks as if the word "transmission" uniquely defines the meaning wider than the normal sense. Since it is unclear whether the word should be interpreted in the normal sense or wider meaning, the invention of the patent application is unclear. Therefore, it is a violation of Section 36, 6 (2) of the Patent Law.

Example 1-3. Information recording transmission medium

(Example where the recording medium and the transmission medium are alternatively expressed)

[Title of Invention]

Information recording transmission medium

[Scope of Claim]

[Claim 1]

An information recording transmission medium, characterized in recording or transmission of a computer-readable program or programs to execute procedure A, procedure B, procedure C, in a computer system.

[Abstract of Description of the Invention]

In order to execute a program or programs to realize the processing operation stated in the current specification, first the program or programs are stored in an auxiliary storage device such as a hard disk drive within a computer system, then loaded into the main memory and executed. Also, such a program or programs are stored on a portable recording medium such as a CD-ROM for trading, or stored in a recording device of a computer system connected via the communication network, then transmitted to another computer system via the communication network.

[Explanation]

"Recording of information" and "transmission of information" which can be grasped from claim 1 and the description of the invention are not matters of similar natures nor similar functions each other, and since matters of dissimilar natures and functions are alternatively expressed, one specific technical concept of the invention can not be clearly imagined based on the matter stated in one single claim. Therefore, it is a violation of Section 36, 6 (2) of the Patent Law.

Furthermore, said "auxiliary storage device" and said "recording device" correspond to "a recording medium" to the very end, and even though there is a statement that the program or programs are transmitted therefrom, as far as those devices themselves have no function to "transmit information" it should be noted that those devices do not correspond to wording "a medium to record or to transmit."

Example 1-4. Information providing media

(Example where the recording media and the transmission media are alternatively expressed)

[Title of Invention]

Information providing media

[Scope of Claim]

[Claim 1]

Information providing media to make a computer system function as an information processing equipment provided with means A, means B, means C, , and to provide a computer-readable program or programs to execute processing which includes step a, step b, step c, in said computer system.

[Abstract of Description of the Invention]

In addition, the information providing media to provide computer programs for executing processing of the preferred embodiment to users can be distributed as computer- readable media in a variety of forms, and the present invention can be applied regardless of specific types of media used for actual distribution. Examples of such computer-readable media include recordable type of media such as a floppy disk, CD-ROM, and transmission type of media such as digital and analog communication links.

[Explanation]

The relationship between the information and the media is unclear only by the statement of media "to provide" in claim 1, and considering the statement of the description of the invention with the general common knowledge of a person skilled in the art, it is understood that the media of the claimed invention include information transmission media in addition to the meaning of information recording media. As a result, regarding the matters to specify the claimed invention, matters of dissimilar nature and function are alternatively expressed, and it is not possible to clearly grasp one technical concept of the invention based on the statement of one single claim. Therefore, it is a violation of Section 36, 6 (2) of the Patent Law.

Example 1-5. Computer-readable media holding a program

(Example where the recording medium and the transmission medium are alternatively expressed)

[Title of Invention]

Computer-readable media holding a program

[Scope of Claim]

[Claim 1]

Computer-readable media holding a program or programs for controlling a computer system, characterized in having at least a program or programs to execute procedure A, procedure B, procedure C, in said computer system.

[Abstract of Description of the invention]

A computer program or programs for realizing the preferred embodiment can be supplied to a computer system from media which fixedly hold programs such as hard disk and semiconductor memory and also from media which fluidly hold programs such as communication network.

[Explanation]

It is clear that the word "holding" in claim 1 has a similar meaning with "recording" in normal sense, but Description of the invention says "fluidly hold programs" and its meaning is expanded almost equal to "transmit." As a result, since the claimed invention is interpreted as "media to record or transmit," regarding the matters to specify the claimed invention, matters of dissimilar nature and function are alternatively expressed, and it is not possible to clearly grasp one technical concept of the invention based on the statement of one single claim. Therefore, it is a violation of Section 36, 6 (2) of the Patent Law.

2. Examples for determination whether of statutory invention

2.1 Examples where information processing by software is concretely realized using the hardware resources

Example 2-1 Calculation method and calculation apparatus (mathematical area)

(Example where mathematical calculation processing by software is concretely realized using the hardware resources)

[Title of Invention]

Calculation method and calculation device

[Scope of Claims]

[Claim 1]

A calculation method to calculate multiplication 's' of natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$) by formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

[Claim 2]

A calculation device to calculate multiplication 's' of natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$) by formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

[Claim 3]

A calculation device to calculate formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

by providing an input means to input natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$), an arithmetic means, and an output means to output arithmetic result 's' by said arithmetic means.

[Claim 4]

A calculation device to calculate formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

by providing an input means to input natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$), a square function table wherein 'k' square value k^2 (where, $0 \leq k < 511$) is stored, an arithmetic means comprising of an adder-subtractor and a shift arithmetic unit, and an output means to output arithmetic result 's' by said arithmetic means, by introducing a square value in reference to said square function table, without using a multiplier-divider.

[Description of the Invention]

[Technical field to which the invention pertains]

This invention relates to a calculation device to realized high-speed multiplication even with a calculating device, having an adder-subtractor and a bit shift arithmetic unit such as an 8-bit CPU of early date, using a CPU of small memory space without a multiplier-divider and can be directly managed.

[Prior art]

In order to prepare a program to make multiplication even with a CPU of small memory space which has no multiplier-divider and can be directly managed, it is necessary to process multiplication by software, and to do that, conventionally, there have been such methods like ① add natural number 'm' n-times, or ② refer to a multiplication table of 'm x n'.

[Problems to be solved by the invention]

However, in method ①, a memory space is not largely occupied because a calculation program is relatively small in size, but calculation time may become longer as calculation time depends on value of natural number n.

On the other hand in method ②, calculation time is shorter as processing requires only a table lookup, but memory space is oppressed as table size becomes larger. Especially, when $1 \leq n \leq m < 256$, if the multiplication result is stored in a multiplication table of 255 x 255 in two bytes, the required memory space is about 128 k bytes, creating a problem that the memory space of 64 k bytes which an 8-bit CPU of early date can directly manage is exceeded.

Therefore, the problems to be solved by the present invention is to realize high-speed multiplication of small memory area consumption, even with a calculating device, having an adder-subtractor and a bit shift arithmetic unit such as an 8-bit CPU of early date, using a CPU of small memory space without a multiplier-divider and can be directly managed.

[Means for solving the problem]

A calculating device of the present invention solves said problem by performing calculation of formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

providing a square function table of 0~510, instead of making multiplication provided with a square function table of 255 x 255.

[Mode for carrying out the invention]

The present invention performs calculation of values $(m + n)^2$ and $(m - n)^2$ by referring to values of a square function table of 0~510, without using a multiplier device. Therefore, it requires shorter calculation time than adding natural number m n -times, and guarantees to perform calculation within a certain time. Also, since a memory space required for the square function table is about 1 k bytes (511 x 2 bytes), it is far more smaller than the memory space of about 128 k bytes (256 x 256 x 2 bytes) required for a square function table of 255 x 255, and can be accommodated within a memory space of 64 k bytes which an 8-bit CPU of early date can directly manage.

Further, division by 4 can be realized by performing right bit shift arithmetic 2 times (i.e., for 2 bit columns). For instance, a procedure to right bit shift decimal number 12 (1100 in binary) is as follows.

12=	1	1	0	0	
6=	0	1	1	0	Right bit shift arithmetic (first)
3=	0	0	1	1	Right bit shift arithmetic (second)

As can be seen from this fact, when right bit shift operation is made 2 times, 12 (decimal) becomes 3 (decimal) and division by 4 is realized.

Therefore, multiplication of shorter calculation time and small memory space consumption is realized, even with a calculation device having an adder-subtractor and a bit shift arithmetic unit such as an 8-bit CPU of early date, using a CPU of small memory space without a multiplier-divider and can be directly managed.

[Brief description of drawings]

(Omitted)

[Drawings]

(Omitted)

[Conclusion]

[Claim 1] The invention regarding claim 1 does not constitute a "statutory invention."

[Claim 2] The invention regarding claim 2 does not constitute a "statutory invention."

[Claim 3] The invention regarding claim 3 does not constitute a "statutory invention."

[Claim 4] The invention regarding claim 4 constitutes a "statutory invention."

[Explanation]

[Claim 1]

Claimed invention identified on the basis of the definition in the claim 1 is;

"A calculation method to calculate multiplication 's' of natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$) by formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

Claimed invention identified on the basis of the definition in claim 1 is a calculation of formula itself and corresponds to what does not utilize the laws of nature, therefore claimed invention identified on the basis of the definition in claim 1 does not constitute a "statutory invention."

[Claim 2]

Claimed invention identified on the basis of the definition in the claim 2 is; "A calculation device to calculate multiplication 's' of natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$) by formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

Since only calculating a formula to realize multiplication of formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

by a calculation device can not be said cooperatively working between a formula and a device, claimed invention identified on the basis of the definition in claim 2 is not to concretely realize information processing by software using hardware resources.

Therefore, claimed invention identified on the basis of the definition in claim 2 does not constitute a "statutory invention."

[Claim 3]

Claimed invention identified on the basis of the definition in claim 3 is; "A calculation device to calculate formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

by providing an input means to input natural numbers 'n' and 'm' (where, $1 \leq n \leq m < 256$), an arithmetic means, and an output means to output arithmetic result s by said arithmetic means."

Claimed invention identified on the basis of the definition in claim 3 comprises an input means, an arithmetic means and an output means, but since those hardware resources are not cooperatively working with software for calculating multiplication, it can not be said to concretely realize information processing by software using the hardware resources.

Therefore, claimed invention identified on the basis of the definition in claim 3 does not constitute a "statutory invention."

[Claim 4]

Claimed invention identified on the basis of the definition in claim 4 is;

"A calculation device to calculate

$$s = \frac{(m + n)^2 - (m - n)^2}{4}$$

by providing an input means to input natural numbers n and m (where, $1 \leq n \leq m < 256$), a square function table wherein k square value k^2 (where, $0 \leq k < 511$) is stored, an arithmetic means comprising of an adder-subtractor and a shift arithmetic unit, and an output means to output arithmetic result s by said arithmetic means, by introducing a square value in reference to said square function table, without using a multiplier-divider."

Claimed invention identified on the basis of the definition in claim 4, even with a calculation device provided with an arithmetic means comprising an adder-subtractor and a shift arithmetic unit without a multiplier-divider, by providing a square function table, introduces square values $a = (m + n)^2$ and $b = (m - n)^2$ using said square function table, performs arithmetic operation of said introduced square values according to formula

$$s = \frac{(m + n)^2 - (m - n)^2}{4} = (a - b \gg 2) \text{ (}\gg 2 \text{ is a symbol to make right bit shift 2 times.)}$$

by making the right bit shift operation using the shift arithmetic unit after making the subtraction using the adder-subtractor, so that an information processing is realized using hardware resources cooperatively working with software. Thus, it can be said that information processing by software is concretely realized using hardware resources.

Therefore, claimed invention identified on the basis of the definition in claim 4 is considered as constituting a "statutory invention."

(Note) Judgement whether claim 1 is a "statutory invention" or not was performed based on "the Guidelines for Examination of Industrially Applicable Inventions", since special judgement and treatment for "software related inventions" was not required.

Example 2-2 Storage method of network distributed articles (business area)

(Example where storage processing of network distributed articles by software is concretely realized using the hardware resources)

[Title of Invention]

Storage method of network distributed articles

[Scope of Claim]

[Claim 1]

A storage method of network distributed articles comprising a step by which a receiving means receives articles distributed via communication network, a step by which a display means displays received articles, a step by which users determine if a prescribed keyword exists in sentences of said articles, and if exists, to give a save command to an article store execution means, and a step by which said article store execution means stores an article given with save command into an article storage means.

[Claim 2]

A storage method of network distributed articles comprising a step by which a receiving means receives articles distributed via communication network a step by which a display means displays received articles, a step by which an article storage determination means determines if a prescribed keyword exists in sentences of said articles, and if exists, to give a save command to an article store execution means, and a step by which said article store execution means stores an article given with save command into an article storage means.

[Description of the invention]

[Technical field to which the invention pertains]

The present invention relates to a storage method of articles distributed via communication networks such as the Internet.

[Prior art]

Methods to distribute articles via communication networks such as the Internet are already known, and technologies to store all these articles are also already known.

[Problems to be solved by the invention]

However, there are not much articles which are necessary to be stored among distributed articles, and storing all the distributed articles is waste of memory capacity. The purpose of the present invention is to save the memory capacity by selectively storing only those required among the distributed articles.

[Means for solving the problem]

(Omitted)

[Mode for carrying out the invention]

The first embodiment of the present invention is a method which users determine if the distributed article is necessary to be stored based on the criteria if a prescribed keyword is included in the article.

First, a receiving means such as a modem receives an article distributed via communication network such as the Internet. The received article is stored in a temporary storage means of computer system.

Second, the received article is displayed on a display means such as a display device.

Then, users determine if a prescribed keyword exists in sentences of received and displayed article, and if exists, an article save command is given to an article store execution means. A practical realization method of this can be a configuration that users determine if a prescribed keyword exists or not in the sentences by reading the article, specify the article which include a prescribed keyword using a keyboard or mouse, and give an article save command to said specified article.

Further, an article store execution means stores said specified article in an article storage means, when an article save command is given from an article storage determination means.

The second embodiment of the present invention is a method which a computer determines if the distributed article is necessary to be stored based on the criteria if a prescribed keyword is included in the article.

First, a receiving means such as a modem receives an article distributed via communication network such as the Internet. The received article is stored in a temporary storage means of computer system.

Second, the received article is displayed on a display means such as a display device.

Then, an article storage determination means determines if a prescribed keyword exists in sentences of received and displayed article, and if exists, an article save command is given to an article store execution means. A practical realization method of this can be a configuration that previously stores a prescribed keyword in a storage means such as a memory, makes matching between sentences of received article stored in a temporary storage means and stored prescribed keyword, and determines if the keyword exists or not in the sentences.

Further, an article store execution means stores said specified article in an article storage means, when an article save command is given from an article storage determination means.

[Advantageous effect of the invention]

According to the present invention, a memory capacity for storing articles can be save, since only those required for storage are stored among articles distributed via communication network.

[Brief description of drawings]

(Omitted)

[Drawings]

(Omitted)

[Conclusion]

[Claim 1] The invention regarding claim 1 does not constitute a "statutory invention."

[Claim 2] The invention regarding claim 2 constitutes a "statutory invention."

[Explanation]

[Claim 1]

Claimed invention identified on the basis of the definition in claim 1 is;

"A storage method of network distributed articles comprising of a step by which a receiving means receives articles distributed via communication network, a step by which a display means displays received articles, a step by which users determine if a prescribed keyword exists in sentences of said articles, and if exists, to give a save command to an article store execution means, and a step by which said article store execution means stores an article given with save command into an article storage means."

Claimed invention identified on the basis of the definition in claim 1 is a processing performed based on mind activity which determines if a prescribed keyword exists or not in sentences of articles and stores those articles which include the keyword, and through the invention regarding claim 1 uses a computer communication network, it is not an operational method of an information processing system which is constructed by cooperative working of the software and hardware resources, so that it can not be said that information processing by software is concretely realized using the hardware resources.

Therefore, the invention regarding claim 1 does not constitute a "statutory invention."

[Claim 2]

Claimed invention identified on the basis of the definition in claim 2 is;

"A storage method of network distributed articles comprising a step by which a receiving means receives articles distributed via communication network, a step by which a display means displays received articles, a step by which an article storage determination means determines if a prescribed keyword exists in sentences of said articles, and if exists, to give a save command to an article store execution means, and a step by which said article store execution means stores an article given with save command into an article storage means."

In the claimed invention identified on the basis of the definition in claim 2, processing to determine if a prescribed keyword exists or not in sentences of articles and to store those articles including the keyword is realized by a practical means in which the software and hardware resources are cooperatively working including a storage

determination means, an article store execution means and an article storage means, so that it can be said that information processing by software is concretely performed using the hardware resources.

Therefore, the invention regarding claim 2 constitutes a "statutory invention."

Example 2-3. Apparatus for predicting daily sales of commodities

(Example where predicting processing by software of daily sales of commodities is concretely realized using the hardware resources)

[Title of Invention]

Apparatus for predicting daily sales of commodities

[Scope of Claim]

[Claim 1]

A computer program for predicting daily sales of commodities to make a computer for predicting daily sales of various commodities operate as:

a means for inputting the date of which daily sales is predicted;

a sales data storage means prepared for storing data representing actual daily sales records;

a variable condition rule storage means prepared for storing data representing variable condition;

a correction rule storage means prepared for storing correction data;

a means for getting the first predicted value by reading data representing daily sales records in the past few weeks, each data being of the same day of the week as that of the day of which daily sales is predicted, and calculating the average of said data;

a means for reading variable condition data from the variable condition data storage means, said variable condition data being related to the date of which daily sales of the commodities is predicted, and selecting correction rules to be applied based on said variable condition data, said correction rules being stored in the correction rule storage means;

a means for determining the second predicted value by correcting the first predicting value based on said correction rule to be applied; and

a means for outputting the second predicted value.

[Claim 2]

A computer-readable storage medium containing thereon a computer program for predicting daily sales of commodities to make a computer for predicting daily sales of various commodities operate as:

a means for inputting the date of which daily sales is predicted;

a sales data storage means prepared for storing data representing actual daily sales records;

a variable condition rule storage means prepared for storing data representing variable condition;

a correction rule storage means prepared for storing correction data;

a means for getting the first predicted value by reading data representing daily sales records in the past few weeks, each data being of the same day of the week as that of the day of which daily sales is predicted, and calculating the average of said data;

a means for reading variable condition data from the variable condition data storage means, said variable condition data being related to the date of which daily sales of the commodities is predicted, and selecting correction rules to be applied to be applied based on said variable condition data, said correction rules being stored in the correction rule storage means;

a means for determining the second predicted value by correcting the first predicting value based on said correction rule to be applied; and

a means for outputting the second predicted value.

[Claim 3]

An apparatus for predicting daily sales of various commodities comprising:

a means for inputting the date of which daily sales is predicted;

a sales data storage means prepared for storing data representing actual daily sales records;

a variable condition rule storage means prepared for storing data representing variable condition;

a correction rule storage means prepared for storing correction data;

a means for getting the first predicted value by reading data representing daily sales records in the past few weeks, each data being of the same day of the week as that of the day of which daily sales is predicted, and calculating the average of said data;

a means for reading variable condition data from the variable condition data storage means, said variable condition data being related to the date of which daily sales of the commodities is predicted, and selecting correction rules to be applied to be applied based on said variable condition data, said correction rules being stored in the correction rule storage means;

a means for determining the second predicted value by correcting the first predicting value based on said correction rule to be applied; and

a means for outputting the second predicted value.

[Description of the Invention]

[Technical field to which the invention pertains]

This invention relates to a computer system for predicting daily sales necessary for ordering commodities at a retail shop, and more particularly, to a computer system for predicting daily sales suitable for predicting daily sales of various commodities at a large scale retail shop such as a supermarket whose demand changes largely.

[Prior art]

Daily sales of commodities at a large scale retail shop such as a supermarket changes largely, depending on various factors, e.g., the day of the week, the date, weather, selling status of competing shops (a bargain day, shop closing, etc.), and events held in the local community. Therefore, amounts of commodities to be ordered are determined depending on daily sales prediction based on inventory control caretaker's experience.

Thus, carrying out a prediction took too much time especially in the case inventory caretaker had little experience.

Moreover, overlooking of some factors of change often arose and prediction was not so accurate.

[Problems to be solved by the invention]

The problem to be solved by the invention is to provide a system for predicting daily sales which does not rely on inventory control caretaker's experience and which brings a stable result of prediction in a short time.

[Means for solving the problem]

(Omitted)

[Mode for carrying out the invention]

Fig. 1 shows the system constitution of the apparatus for predicting daily sales, and Fig. 2 shows a flow chart executed by said system.

At first, the worker inputs a date of which daily sales is predicted via an input device such as a keyboard.

Actual daily sales records are stored in advance in the sales data file associated with the date and the day of the week.

The central processing unit (CPU), being instructed by the control program stored in the main memory, reads data of the past few weeks, each being the same day of the week as that of the day of which daily sales is predicted, and calculates the average of said data. The average of said data is utilized as the first predicted value.

It is empirically known that using actual daily sales records in three to four weeks is preferable.

Then the CPU, being instructed by the control program stored in the main memory, reads variable condition data, such as probability of raining obtained from the weather forecast, from the variable condition data file, said variable condition data being associated with the date of which daily sales of commodities is predicted, reads correction rule being stored in the correction rule file in advance.

(Note: Correction rule is such as "If it rains from morning till evening, then 30% decrease of the sales is expected." It is supposed that detail of the correction rules is fully supported by the description of the invention.)

Finally, the CPU, being instructed by the control program stored in the main memory, corrects the first predicted value based on said correction rule corresponding to the variable condition data, and determines the second predicted value.

The second predicted value is used as the final predicted data and is obtained from the output device as a printer.

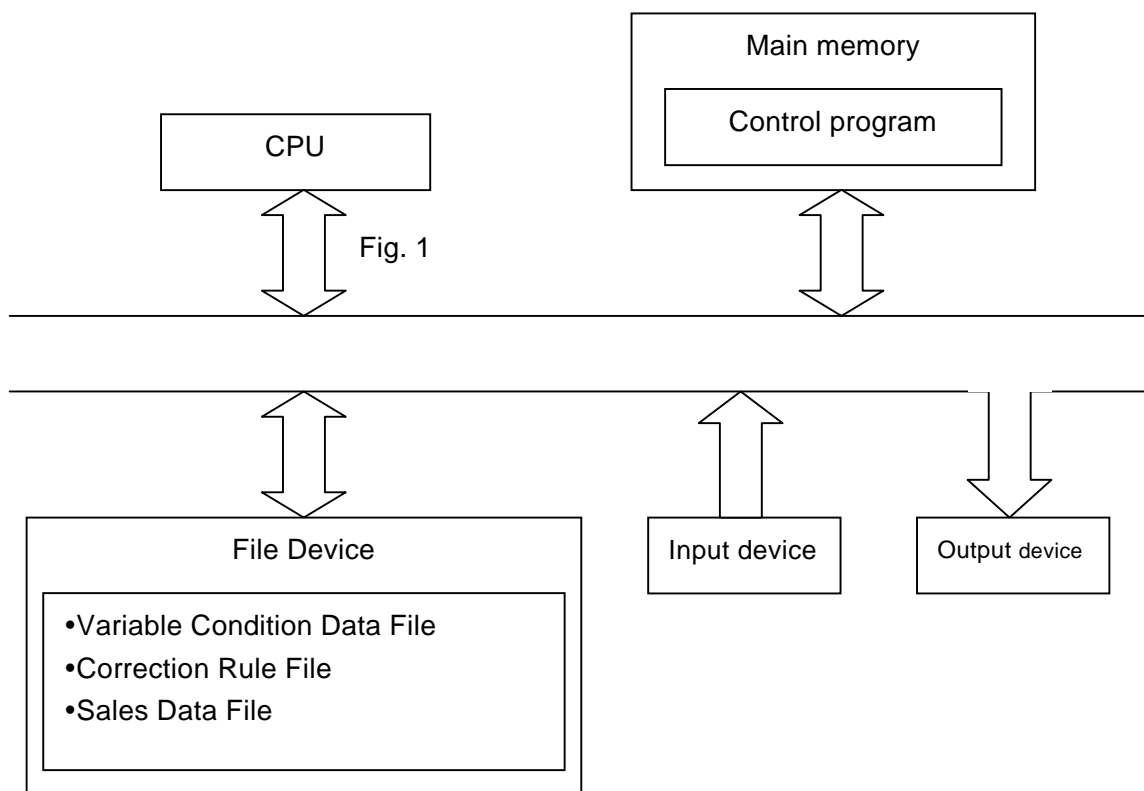
[Working example]

(Note: It is supposed that each components of the mode for carrying out the invention, how to fix correction rules, etc. are fully supported by the working example.)

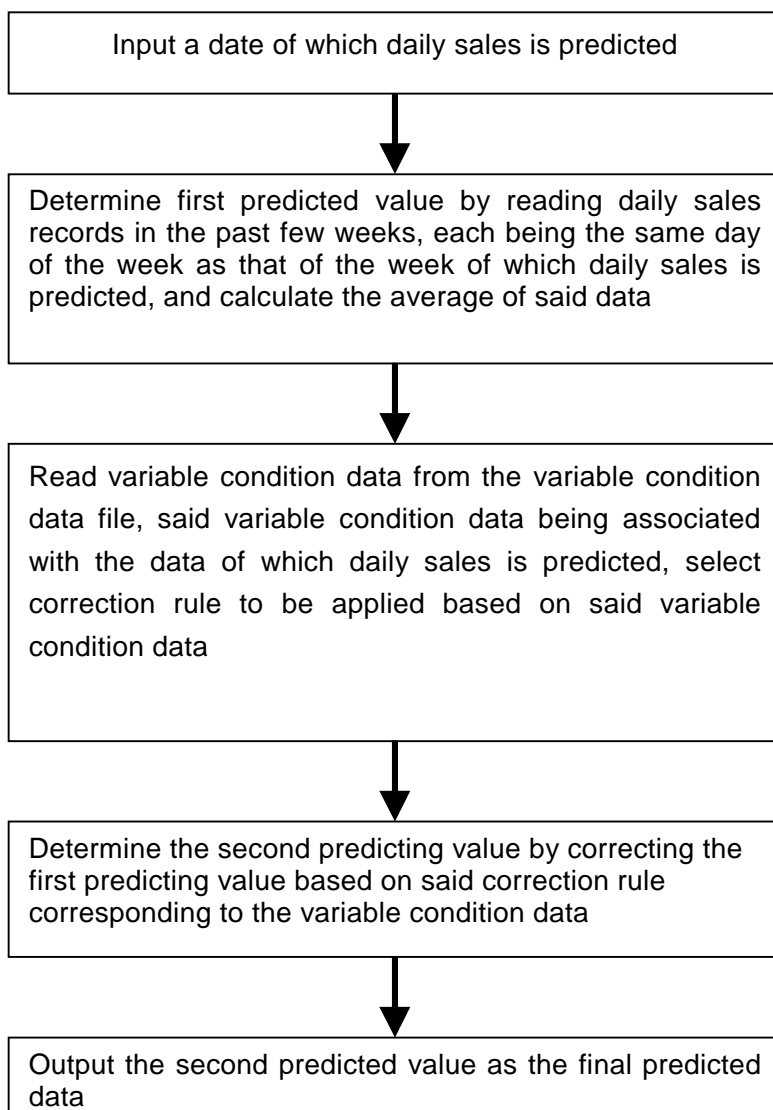
[Brief description of the drawings]
(Omitted)

[Drawings]

[Figure 1] System Constitution of the Apparatus for Predicting Daily Sales



[Figure 2] Flow Chart



[Conclusion]

[Claim 1] The invention regarding claim 1 constitutes a "statutory invention."

[Claim 2] The invention regarding claim 2 constitutes a "statutory invention."

[Claim 3] The invention regarding claim 3 constitutes a "statutory invention."

[Explanation]

[Claim 1]

Claimed invention identified on the basis of the definition in claim 1 is;

"A computer program for predicting daily sales of commodities to make a computer for predicting daily sales of various commodities operate as:

a means for inputting the date of which daily sales is predicted;

a sales data storage means prepared for storing data representing actual daily sales records;

a variable condition rule storage means prepared for storing data representing variable condition;

a correction rule storage means prepared for storing correction data;

a means for getting the first predicted value by reading data representing daily sales records in the past few weeks, each data being of the same day of the week as that of the day of which daily sales is predicted, and calculating the average of said data;

a means for reading variable condition data from the variable condition data storage means, said variable condition data being related to the date of which daily sales of the commodities is predicted, and selecting correction rules to be applied based on said variable condition data, said correction rules being stored in the correction rule storage means;

a means for determining the second predicted value by correcting the first predicting value based on said correction rule to be applied; and

a means for outputting the second predicted value."

Claimed invention identified on the basis of the definition in claim 1, in which processing for predicting daily sales of commodities based on various variable conditions and correction rules is realized by a practical means in which the software and the hardware resources cooperatively working, said practical means comprising a multiple of storage means and control means to read and select data from said storage means, can be said that information processing by software is concretely performed using the hardware resources.

It follows, therefore, the invention regarding claim 1 is considered to constitute a "statutory invention."

[Claim 2]

Claimed invention identified on the basis of the definition in claim 2 is;

"A computer-readable storage medium containing thereon a computer program for predicting daily sales of commodities to make a computer for predicting daily sales of various commodities operate as:

a means for inputting the date of which daily sales is predicted;

a sales data storage means prepared for storing data representing actual daily sales records;

a variable condition rule storage means prepared for storing data representing variable condition;

a correction rule storage means prepared for storing correction data;

a means for getting the first predicted value by reading data representing daily sales records in the past few weeks, each data being of the same day of the week as that of the day of which daily sales is predicted, and calculating the average of said data;

a means for reading variable condition data from the variable condition data storage means, said variable condition data being related to the date of which daily sales of the commodities is predicted, and selecting correction rules to be applied to be applied

based on said variable condition data, said correction rules being stored in the correction rule storage means;

a means for determining the second predicted value by correcting the first predicting value based on said correction rule to be applied; and
a means for outputting the second predicted value."

Claimed invention identified on the basis of the definition in claim 2 is a computer-readable storage means containing thereon a computer program for predicting daily sales (the claimed invention regarding claim 1), therefore, the invention regarding claim 2 is considered to constitute a "statutory invention" as in the case of claim 1.

[Claim 3]

Claimed invention identified on the basis of the definition in claim 3 is;

"An apparatus for predicting daily sales of various commodities comprising:

a means for inputting the date of which daily sales is predicted;

a sales data storage means prepared for storing data representing actual daily sales records;

a variable condition rule storage means prepared for storing data representing variable condition;

a correction rule storage means prepared for storing correction data;

a means for getting the first predicted value by reading data representing daily sales records in the past few weeks, each data being of the same day of the week as that of the day of which daily sales is predicted, and calculating the average of said data;

a means for reading variable condition data from the variable condition data storage means, said variable condition data being related to the date of which daily sales of the commodities is predicted, and selecting correction rules to be applied based on said variable condition data, said correction rules being stored in the correction rule storage means;

a means for determining the second predicted value by correcting the first predicting value based on said correction rule to be applied; and
a means for outputting the second predicted value."

Claimed invention identified on the basis of the definition in claim 3 is an information processing apparatus (a machine) which is cooperatively working with a computer program for predicting daily sales (the claimed invention regarding claim 1), therefore, the invention regarding claim 3 is considered to constitute a "statutory invention" as in the case of claim 1.

Example 2-4. Point service method (business area)

(Example where processing by software for handling bestowal in a point service method is concretely realized using the hardware resources)

[Title of Invention]

Point service method

[Scope of Claim]

[Claim 1]

A service method for offering service points depending on the amount of merchandise purchasing in telephone shopping, comprising:

a step that the amount of service points to be bestowed and the name of the person to receive are notified via a telephone;

a step to acquire the telephone number of the person to receive the bestowed service points stored in a customer list storage means based on the name of the person to receive;

a step to sum up said amount of bestowed service points to the points of the person to receive stored in the customer list storage means; and

a step to notify the fact that the bestowed service points have been received to the person to receive using the telephone number of the person to receive.

[Claim 2]

A service method for offering service points depending on the amount of merchandise purchasing at a store on the Internet, comprising:

a step that the amount of service points to be bestowed and the name of the person to receive are notified via the Internet;

a step to acquire the e-mail address of the person to receive the bestowed service points stored in a customer list storage means based on the name of the person to receive;

a step to sum up said amount of bestowed service points to the points of the person to receive stored in the customer list storage means; and

a step to notify the fact that the bestowed service points have been received to the person to receive by an e-mail using the e-mail address of the person to receive.

[Claim 3]

A service method for offering service points depending on the amount of merchandise purchasing at a store on the Internet, comprising:

a step that the amount of service points to be bestowed and the name of the person to receive are notified to a server via the Internet;

a step that the server acquires the e-mail address of the person to receive the bestowed service points stored in a customer list storage means based on the name of the person to receive;

a step the server sums up said amount of bestowed service points to the points of the person to receive stored in the customer list storage means; and

a step the server notifies the fact that the bestowed service points have been received to the person to receive by an e-mail using the e-mail address of the person to receive.

[Description of the Invention]

[Technical field to which the invention pertains]

This invention relates to a point service method used in mail order business.

[Prior art]

Conventionally, there have been services to offer service points depending on purchase amount of customer (e.g., in a certain rate) and to exchange accumulated service points with goods, gift coupon or cash.

[Problems to be solved by the invention]

Conventional point service methods were not realized in mail order business because of problems of customer management, etc. Also, from the similar problems, only the customer herself or himself could use service points, and a bestowal of service points to another person even a family was not possible.

[Means for solving the problem]

In order to realize point service in mail order business, this invention is structured to manage service points of each customer by providing a customer list (at least including customer names, accumulated service points, and customer addresses) at the store side, and to add service points when a customer purchased goods by mail order business.

And, in order to bestow service points from a customer to another person, when the name of the person to receive and service points to be bestowed are told, the balance the service points of the specified person registered in the customer list is summed up with the bestowed service points, and the registered contact address of the person to receive is notified of the fact that bestowed service points are received.

In this invention, when making the interaction between a customer and the store by telephone, it is better to register the telephone number of the customer as the contact point in the customer list.

On one hand, when making the interaction between a customer and the store via the Internet, it is better to register the e-mail address of the customer as the contact point in the customer list.

Further in this invention, by providing a server at the store side, the following processing can be realized on a computer.

A system is configured in such a way to manage service points of each customer by providing a database which stores a customer list (at least including customer names,

accumulated service points, and e-mail addresses of the customers) in a server possessed by the store on the Internet, and to add service points when a customer purchased goods by mail order business.

And, when a customer wants to bestow service points to another person, by notifying the name of the person to receive and bestowed service points to said server by an e-mail, the server retrieves the database of customer list by the name of the person to receive, adds up the bestowed service points as well as retrieving the e-mail address, and automatically notifies the address of person to receive of the fact that bestowed service points are received.

[Mode for carrying out the invention]

(Omitted)

[Working example]

(Omitted)

[Advantageous effect of the invention]

By this point service method, it is possible to easily offer point services for customers even in mail order business. Also, as service points can be bestowed to another person, the use value of service points is increased.

[Brief description of the drawings]

(Omitted)

[Drawings]

(Omitted)

[Conclusion]

[Claim 1] The invention regarding claim 1 does not constitute a "statutory invention."

[Claim 2] The invention regarding claim 2 does not constitute a "statutory invention."

[Claim 3] The invention regarding claim 3 constitutes a "statutory invention."

[Explanation]

[Claim 1]

Claimed invention identified on the basis of the definition in claim 1 is;

"A service method for offering service points depending on the amount of merchandise purchasing in telephone shopping, comprising:

a step that the amount of service points to be bestowed and the name of the person to receive are notified via a telephone;

a step to acquire the telephone number of the person to receive the bestowed service points stored in a customer list storage means based on the name of the person to receive;

a step to sum up said amount of bestowed service points to the points of the person to receive stored in the customer list storage means; and

a step to notify the fact that the bestowed service points have been received to the person to receive using the telephone number of the person to receive.

The invention regarding claim 1 is a method which uses means such as "a telephone" and "a customer list storage means," but considered as a whole, it is a artificial arrangement to use those means per se, so that it does not constitute "a creation of technical ideas utilizing natural laws."

It follows, therefore, the invention regarding claim 1 is considered as not constituting a "statutory invention."

[Claim 2]

Claimed invention identified on the basis of the definition in claim 2 is;

"A service method for offering service points depending on the amount of merchandise purchasing at a store on the Internet, comprising:

a step that the amount of service points to be bestowed and the name of the person to receive are notified via the Internet;

a step to acquire the e-mail address of the person to receive the bestowed service points stored in a customer list storage means based on the name of the person to receive;

a step to sum up said amount of bestowed service points to the points of the person to receive stored in the customer list storage means; and

a step to notify the fact that the bestowed service points have been received to the person to receive by an e-mail using the e-mail address of the person to receive."

The invention regarding claim 2 is a method which uses means such as "the Internet," "a customer list storage means" and "an e-mail," but considered as a whole, it is a artificial arrangement to use those means per se, so that it does not constitute "a creation of technical ideas utilizing natural laws."

It follows, therefore, the invention regarding claim 2 is considered as not constituting a "statutory invention."

[Claim 3]

Claimed invention identified on the basis of the definition in claim 3 is;

"A service method for offering service points depending on the amount of merchandise purchasing at a store on the Internet, comprising:

a step that the amount of service points to be bestowed and the name of the person to receive are notified to a server via the Internet;

a step that the server acquires the e-mail address of the person to receive the bestowed service points stored in a customer list storage means based on the name of the person to receive;

a step the sever sums up said amount of bestowed service points to the points of the person to receive stored in the customer list storage means; and

a step the server notifies the fact that the bestowed service points have been received to the person to receive by an e-mail using the e-mail address of the person to receive."

The invention regarding claim 3 is a processing method comprising steps which are executed by the server, so that it can be said as execution of information processing by software.

Also, the invention regarding claim 3 can be said as an "information processing by software which is concretely realized using the hardware resources," because it is an operation method of information processing system which is concretely realized using the hardware resources, in which the server is to retrieve the customer list storage means to acquire the E-mail address of the person to receive the bestowed service points, to sum up the amount of bestowed service points to the points of the person to receive stored in the customer list storage means, and to notify the fact that the bestowed service points have been received to the person to person to receive.

It follows, therefore, the invention regarding claim 3 is considered as constituting a "statutory invention."

(Note) Judgement whether claim 1 and claim 2 and "statutory inventions" or not was performed based on "the Guidelines for Examination of Industrially Applicable Inventions", since special judgement and treatment for "software related inventions" was not required.

Example 2-5. Game machine

(Example where information processing by software of the hand in a game machine is concretely realized using hardware resources)

[Title of Invention]

Game machine

[Scope of Claim]

[Claim 1]

A computerized card game machine, comprising:
means for assigning specific points of a score to a set of cards dealt, according to the complexity of the hand involved.

[Claim 2]

A computerized card game machine, comprising:
means for memorizing a data table for a scoring hand (i.e., a hand of cards dealt that scores points) in which a given set of cards is matched to specific scoring hand data, and a score data table in which the scoring hand data are matched to the score data;
means for assigning corresponding scoring hand data by retrieving said scoring hand data table based on a set of cards selected, assigning corresponding score data by retrieving the score data table on the basis of the applicable scoring hand data, and outputting all of the scoring hand data and total points scored.

[Brief description of the invention]

[Technical field to which the invention pertains]

This invention relates to computerized game machines.

[Prior art]

Conventional computerized card game machine extract a hand of cards dealt, score the points from among a given set of five cards dealt by the computer, determine the scores based simply on the number of scoring hands, and display the results obtained.

[Problems to be solved by the invention]

In fact, the degree of difficulty varies according to the type of "scoring hand."

In this respect, the conventional practice of scoring the same points for any types of hands reduces the attractiveness of the game and players' enthusiasm for the game. Accordingly, the object of this invention is to create a card game machine that makes the game more exciting and arouses players' enthusiasm by assigning different points of scores to a set of cards depending on the complexity of the hand involved.

[Means for solving the problem]

The card game machine invented here separately stores the scoring hand data table, which keys a set of cards to specific scoring hand data, and the score data table,

which keys scoring hand data to score data. The invention solves the problem described by using the scoring hand data table and the score data table in turn, and by presenting to players all the types of scoring hands and total scores in a set of cards dealt.

[Mode for carrying out the invention]

Figure 1 shows the configuration of the card game machine. Display unit 1 and input facilities 2, such as a keyboard, mouse, etc., are connected to a bus 9. The central processing unit (CPU) 3 specifies the image data to be displayed during execution of the game machine, and retrieves the scoring hand data and the corresponding score data based on a set of cards dealt, etc.

RAM 4 temporarily stores the image data to be displayed, and the image processing unit 5 generates the image data required according to the instructions from CPU 3, and displays image on the display unit 1.

The card game machine stores three types of files in the memory.

The first file 6 stores the game program 61, the card image data 62, the random number table 63, etc. The second file 7 stores the scoring hand data table, which keys the scoring hand data to card sets. In addition, the third file 8 stores the score data table, which keys the scoring hand data to the score data. The second file 7 and third file 8 can be separately updated.

Figure 2 shows an example of display screen. The screen illustrates five cards. At the top, it also displays the scoring hand data [A and B] retrieved from the scoring hand data table, and the score "6 points" that is output after retrieval of the score data table based on the scoring hand data.

The flowchart in Figure 3 explains the way in which the invented game program runs. When a prompt for "game start" is entered, the system selects (S1) five cards using the random number table, in accordance with the game program. The system retrieves (S2) a hand of cards that scores points by selecting an existing stored set of cards, and reads out the applicable scoring hand data detected.

In order to fetch the score data corresponding to the scoring hand data, the system retrieves (S3) the scoring hand data based on the score data table, fetches the corresponding score data, and adds up the total scores earned. On the screen of display unit 1, the system displays (S4) the five cards selected, the retrieved scoring hand data, and the total scores earned, as shown in Figure 2.

The system checks (S5) whether the card change frequency has reached the maximum limit, and either aborts if the limit has been reached, or else proceeds to (S6). The system inquires (S6) from a player if he/she prefers to specify cards to be changed, and either aborts if no cards are specified, or else proceeds to (S7) if cards are specified. The system selects (S7) new cards using the random number table and replaces specified cards with selected cards, with system control returning to (S2).

The second file 7 and third file 8 can be separately updated as appropriate.

Consequently, if scoring hand data and score data are changed to meet the specific needs of the countries or regions in which the card game machines are installed or marketed, the table can be rewritten to allow common use of the data in the first file 6 and

a reduction in the number of processes in proportion to a reduction in the size of rewritten table.

[Advantageous effect of the invention]

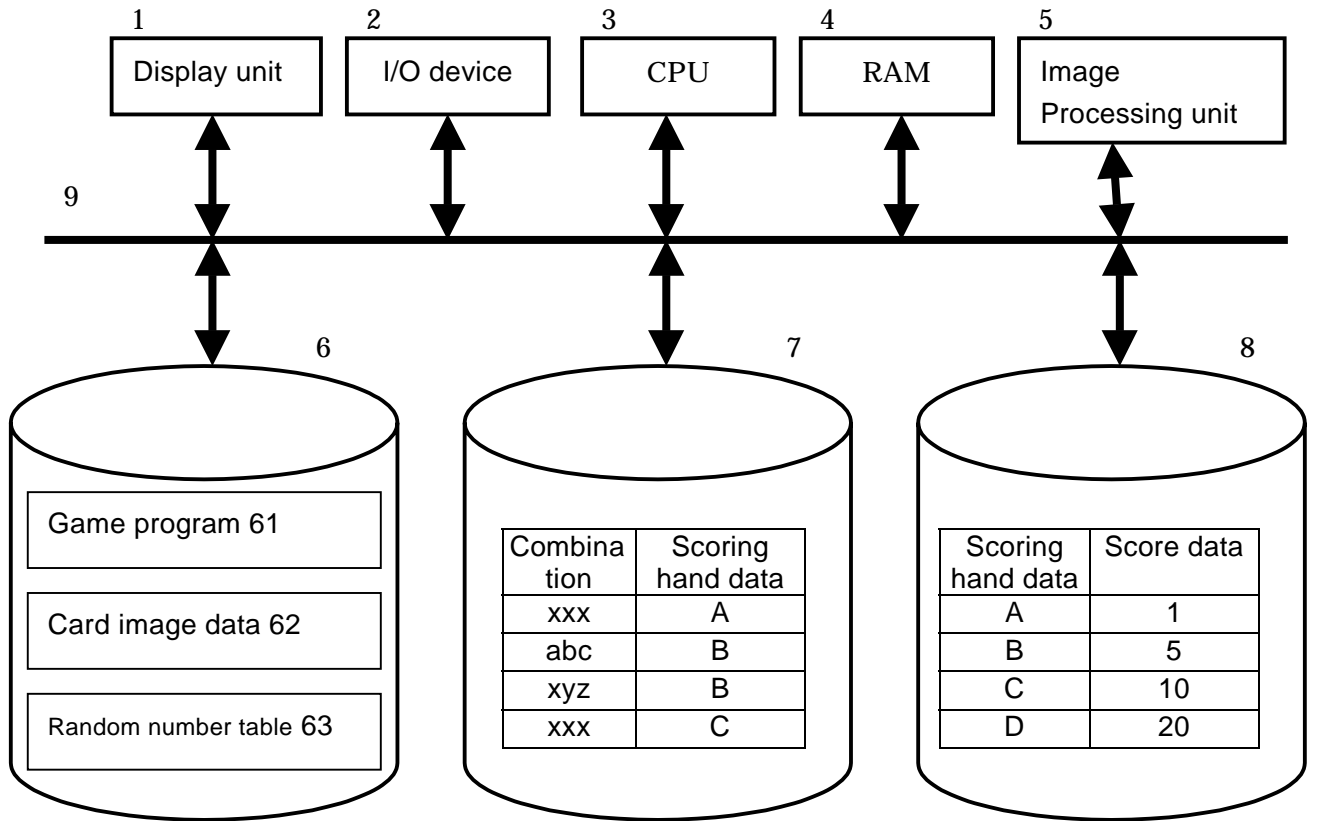
Since the invented card game machine extracts all scoring hands, and computes and displays the total points scored for respective hands, the total scores vary with type and number of scoring hands involved. The invention thus provides players with exciting games. Also, as a changeable scoring hand data table and score data table are separately provided, card game machines operating according to different rules can be installed and marketed flexibly in different situations of countries and regions by modifying the scoring hand table or the score data table.

[Brief description of drawings]

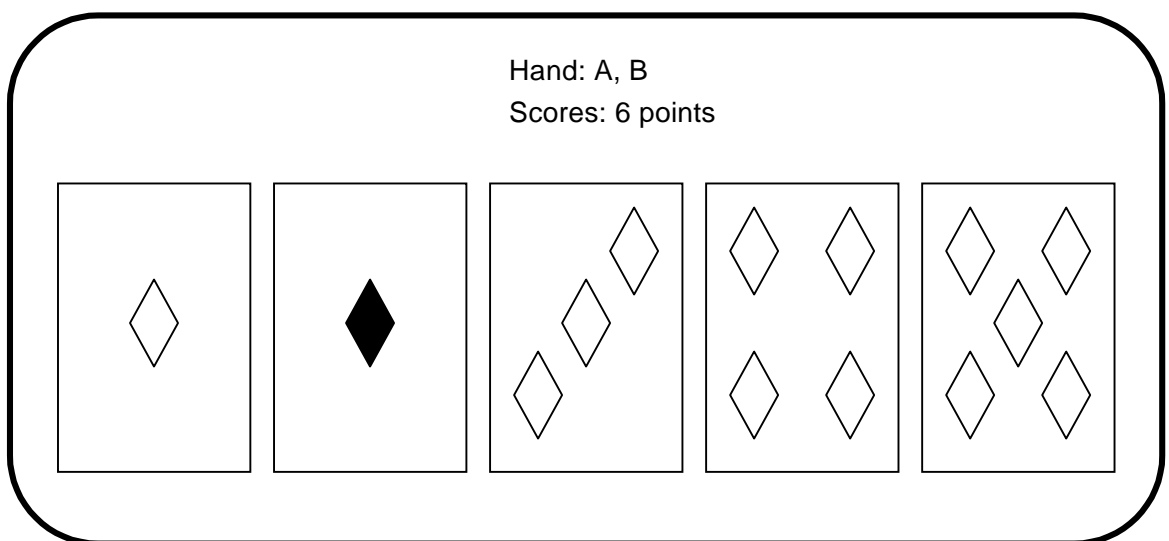
(Omitted)

[Drawings]

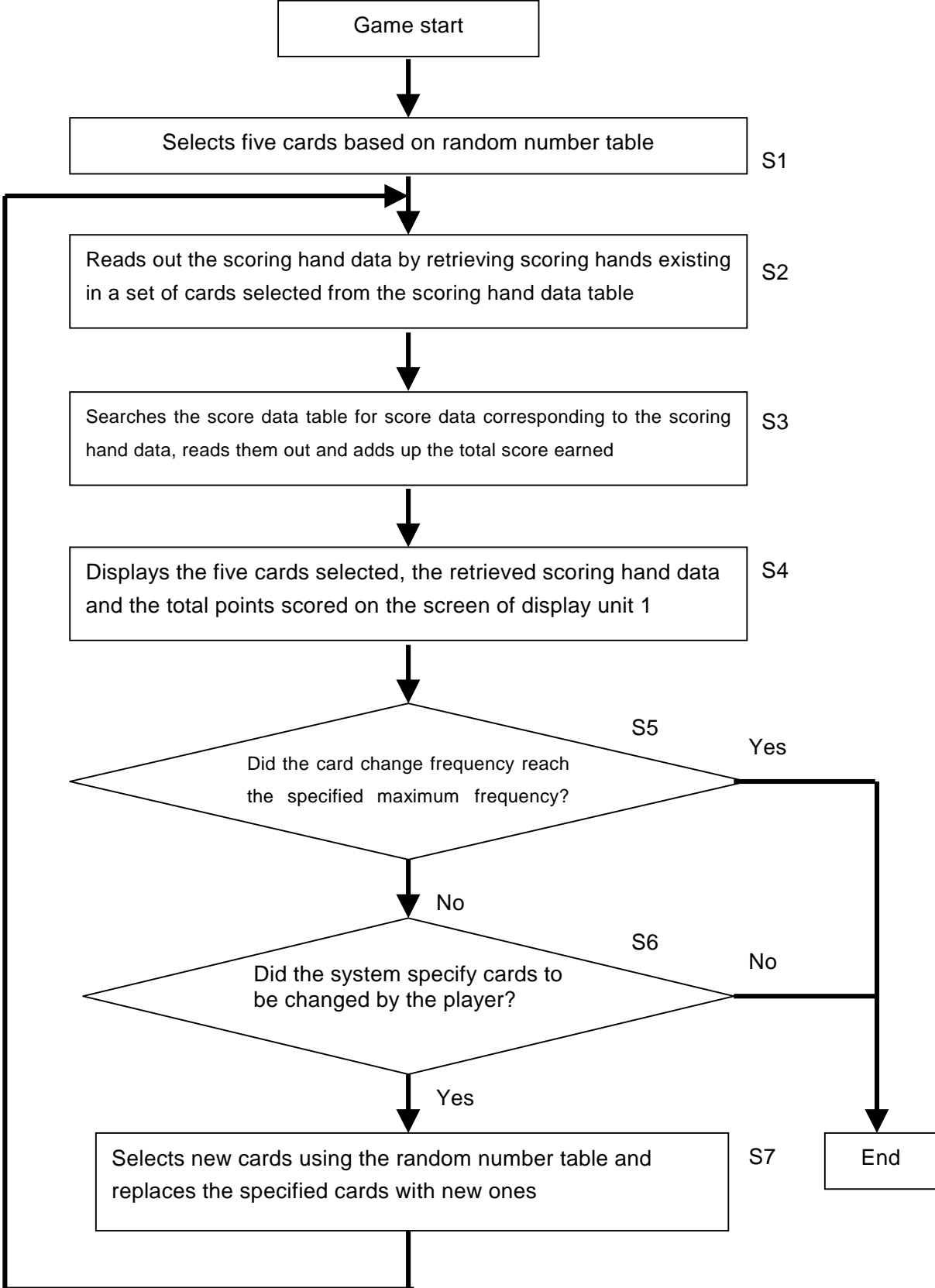
[Figure 1] Configuration of card game machine



[Figure 2] Typical screen display



[Figure 3] Processing flowchart



[Conclusion]

[Claim 1] is inappropriate as "invention."

[Claim 2] is appropriate as "invention."

[Explanation]

[Claim 1]

Claimed invention identified on the basis of the definition in the claim 1 is;

"A computerized card game machine, comprising:

means for assigning specific points of a score to a set of cards dealt, according to the complexity of the hand involved."

Claimed invention identified on the basis of the definition in claim 1 is processing for computing scores using hardware resources assigning different scores to a set of cards dealt according to the complexity of the hand involved (called "score calculation processing" hereafter), but it can not be said that a card game machine in which the score computing processing and hardware resources are cooperatively working is constructed, and information processing for score computing is not concretely realized, so that it can not be said that information processing by software is concretely realized using hardware resources.

It follows, therefore, the invention regarding claim 1 is not considered to be "a creation of technical ideas utilizing natural laws" and does not constitute a "statutory invention."

[Claim 2]

Claimed invention identified on the basis of the definition in claim 2 is;

"A computerized card game machine, comprising:

means for memorizing a data table for a scoring hand (i.e., a hand of cards dealt that scores points) in which a given set of cards is matched to specific scoring hand data, and a score data table in which the scoring hand data are matched to the score data;

means for assigning corresponding scoring hand data by retrieving said scoring hand data table based on a set of cards selected, assigning corresponding score data by retrieving the score data table on the basis of the applicable scoring hand data, and outputting all of the scoring hand data and total points scored."

Claimed invention identified on the basis of the definition in claim 2 is to provide a card game machine as a practical means, in which software and hardware resources are cooperatively working, to perform processing for assigning corresponding scoring hand data by retrieving the scoring hand data table based on a set of cards selected, assigning corresponding score data by retrieving the score data table on the basis of the applicable scoring hand data, and outputting all of the scoring hand data and total points scored, so that it can be said that information processing by software is concretely realized using hardware resources.

It follows, therefore, the invention regarding claim 2 is not considered to be "a creation of technical ideas utilizing natural laws" and does not constitute a "statutory invention."

2.2 Reference examples for determination whether of inventive step

Examples 2-6 to 2-7 are those not requiring special judgment unique to software related inventions for determining whether of inventive step.

Example 2-6. Apparatus and method for controlling rate of fuel injection for an automobile engine

[Title of Invention]

Apparatus and method for controlling rate of fuel injection for an automobile engine

[Scope of Claim]

[Claim 1]

An apparatus for controlling rate of fuel for an automobile engine by a programmed computer, comprising:

the first detector means for detecting the rate of engine revolutions;

the second detector means for detecting transition of the rate of engine revolution;

and

fuel injection rate decision means for determining the rate of fuel injection by said control program in accordance with the values detected in the first and second detector means.

[Claim 2]

A method for controlling rate of fuel for an automobile engine by a programmed computer, comprising the steps of:

detecting the rate of engine revolutions;

detecting transition of the rate of engine revolutions; and

determining the rate of fuel injection by said control program in accordance with the rate of engine revolutions and transitions of the rate of engine revolutions.

[Description of the Invention]

[Technical field to which the invention pertains]

This invention is related to a fuel injection rate controller for an automobile engine operated by a programmed computer.

[Prior art]

The existing models of electronic controller for controlling the rate of fuel injection for an automobile engine determine the rate of fuel injection on the basis of the detected rate of engine revolutions. This type of fuel injection controller is prone to supply a leaner fuel/air mixture than the theoretical ratio of optimum mixture at the transition stage during sudden increase of rate of revolutions as in the case of hard acceleration since the intake of air cannot be increased as fast due to friction against the inner walls of intake manifolds. Conversely, richer fuel/air mixture often prevails at the transient stage during sudden increase of rate of revolutions as in the case of hard deceleration since the intake

of air cannot be decreased as fast because of the inertia of airflow. This kind of behavior during sudden increase or decrease of the rate of engine revolutions deteriorates the combustion efficiency of the engine and leads to lower engine output than expected.

[Problems to be solved by the invention]

This invention will improve the combustion efficiency and output power of the engine during the transition stages of hard acceleration or deceleration.

[Means for solving the problem]

In view of the above, this invention intends to achieve the optimum fuel/air mixture ration by controlling fuel injection rate in accordance with changing conditions so as to improve the combustion efficiency and the power output of the engine.

Specifically, in addition to a first detection means for detecting the rate of engine revolutions, the second detector means for detecting transition of the rate of revolutions, or the differential value of the rate of engine revolutions, has been established to enable detecting sudden increase or decrease of the rate of engine revolutions. Furthermore, the rate of fuel injection is to be determined by a control program electronically stored on the memory (e.g., ROM) of the fuel injection rate controller, in accordance with the detected values from the first and second detector means.

The actual procedures for determining the rate of fuel injection are as follows:

A two dimensional map is prepared in advance with the rate of engine revolutions on the X-axis and transition of the rate of engine revolutions on the Y-axis to plot corresponding values of experimentally obtained optimum rates of fuel injection on the respective intersections. The two dimensional map is then electronically stored on the memory (e.g., ROM) of the said fuel injection rate controller. The control program calculates the rate of engine revolutions and transition of the rate of engine revolutions from the values detected by the first and second detector means, and then, it determines the optimum rate of fuel injection by referring to the above-mentioned two dimensional map using the respective calculated values of the rate of engine revolutions and transition of the rate of engine revolutions.

[Mode for carrying out the invention]

(Omitted)

[Working example]

(Omitted)

[Advantageous effect of the invention]

The combustion efficiency has been improved since the optimum fuel/air mixture can be maintained even during hard acceleration or deceleration of engine revolutions.

[Brief description of the drawings]

(Omitted)

[Drawings]

(Omitted)

[Conclusion]

[Claim 1] The invention regarding claim 1 constitutes a "statutory invention."

[Claim 2] The invention regarding claim 2 constitutes a "statutory invention."

[Explanation]

[Claim 1]

Claimed invention identified on the basis of the definition in claim 1 is;

"An apparatus for controlling rate of fuel for an automobile engine by a programmed computer, comprising:

the first detector means for detecting the rate of engine revolutions;

the second detector means for detecting transition of the rate of engine revolution;

and

fuel injection rate decision means for determining the rate of fuel injection by said control program in accordance with the values detected in the first and second detector means."

Claimed invention identified on the basis of the definition in claim 1 is an apparatus for concretely performing processing associated with the control of an engine as a device, so that it can be said as "a creation of technical ideas utilizing natural laws." Also, since claimed invention is an apparatus for concretely performing processing based on the physical and technical properties of an engine as the object, and it can be said as a "creation of technical concept utilizing the laws of nature."

It follows, therefore, the invention regarding claim 1 is considered to be "a creation of technical ideas utilizing natural laws" and is considered as constituting a "statutory invention."

[Claim 2]

Claimed invention identified on the basis of the definition in claim 2 is;

"A method for controlling rate of fuel for an automobile engine by a programmed computer, comprising the steps of:

detecting the rate of engine revolutions;

detecting transition of the rate of engine revolutions; and

determining the rate of fuel injection by said control program in accordance with the rate of engine revolutions and transitions of the rate of engine revolutions.

Claimed invention identified on the basis of the definition in claim 2 is a method for concretely performing processing associated with the control of an engine as a device, so that it can be said as "a creation of technical ideas utilizing natural laws." Also, since claimed invention is a method for concretely performing processing based on the physical and technical properties of an engine as the object, and it can be said as a "creation of technical concept utilizing the laws of nature."

It follows, therefore, the invention regarding claim 2 is considered to be "a creation of technical ideas utilizing natural laws" and is considered as constituting a "statutory invention."

(Note) In determining whether the invention identified based on the definition in claim 1 or claim 2 falls under "a creation of technical ideas utilizing natural laws" or not, it was judged based on the guidelines stated in the "Industrially Applicable Inventions" as the invention does not require special judgment and treatment for the software related invention.

Example 2-7. Image processing method by computer

(Example where execution of information processing is concretely performed based on the physical or technical properties of an object)

[Title of Invention]

Image processing method by computer

[Scope of Claim]

[Claim 1]

An image processing method by computer for compensating the blurring of optically read image data comprising the steps of:

inputting a pixel matrix A of 3 rows and 3 columns obtained from image data picked up by an optical reading means;

computing a pixel matrix $C = A * B$;

using a matrix B, shown below, which formed by stored filter parameters of 3 rows and 3 columns, and

outputting the pixel matrix C.

$$\mathbf{B} = \begin{pmatrix} 0 & -0.5 & 0 \\ -0.5 & 3 & -0.5 \\ 0 & -0.5 & 0 \end{pmatrix} \quad \text{又は} \quad \mathbf{B} = \begin{pmatrix} 0 & -0.5 & 0 \\ -0.5 & 2.75 & -0.5 \\ 0 & -0.5 & 0 \end{pmatrix}$$

[Description of the invention]

[Technical field to which the invention pertains]

This invention relates to a picture quality improvement method in image processing by a computer.

[Prior art]

Generally, a blur depending on the characteristics of the reading means is produced in the image data which was picked up with an optical reading means.

Conventionally, each picked up pixel was multiplied by a digital filter (a kind of high-pass filter which passes high frequency ingredient) with parameters such as:

$$\begin{pmatrix} 0 & -1 & 0 \\ -1 & 4 & -1 \\ 0 & -1 & 0 \end{pmatrix} \quad \begin{pmatrix} 0 & -1 & 0 \\ -1 & 5 & -1 \\ 0 & -1 & 0 \end{pmatrix}$$

in accordance with the 3 * 3 filtering method, for instance. But the compensation became strong in the case of an image having an extensive area of half tone density, so that an improvement in the picture quality could not be achieved.

[Problems to be solved by the invention]

An object of this invention is to provide an image processing method which can achieve a required compensation sufficiently and easily.

[Means for solving the problem]

When executing digital computation of the filter and detected image using a computer, experiments were conducted by setting various parameters under the condition that the total energy of the image should not differ substantially before and after the arithmetic processing and that the values other than the center parameter should not be smaller than the center parameter, so that the image after the processing should not appear unnatural.

[Mode for carrying out the invention]

As a result of these experiments, a picture quality was improved when a filter having the following parameters was used.

$$\begin{pmatrix} 0 & -0.5 & 0 \\ -0.5 & 3 & -0.5 \\ 0 & -0.5 & 0 \end{pmatrix} \quad \begin{pmatrix} 0 & -0.5 & 0 \\ -0.5 & 2.75 & -0.5 \\ 0 & -0.5 & 0 \end{pmatrix}$$

Digital computation of such a filter is realized by an image processing program and said program is provided by recording on a recording medium.

[Advantageous effect of the invention]

According to the present invention, it is possible to provide a high quality image picture image with a simple arrangement.

[Brief description of drawings]

(Omitted)

[Drawings]

(Omitted)

[Conclusion]

[Claim 1] The invention regarding claim 1 constitutes a "statutory invention."

[Explanation]

Claimed invention identified on the basis of the definition in the claim 1 is;

"An image processing method by computer for compensating the blurring of optically read image data comprising the steps of:

inputting a pixel matrix A of 3 rows and 3 columns obtained from image data picked up by an optical reading means;

computing a pixel matrix $C = A * B$;

using a matrix B, shown below, which formed by stored filter parameters of 3 rows and 3 columns, and outputting the pixel matrix C.

$$\mathbf{B} = \begin{pmatrix} 0 & -0.5 & 0 \\ -0.5 & 3 & -0.5 \\ 0 & -0.5 & 0 \end{pmatrix} \quad \text{又は} \quad \mathbf{B} = \begin{pmatrix} 0 & -0.5 & 0 \\ -0.5 & 2.75 & -0.5 \\ 0 & -0.5 & 0 \end{pmatrix}$$

In relation to matrix B which is a filter parameter, it is clear that absolute values of parameters other than the central parameter are smaller than the absolute value of the central parameter, and by comprehensively grasping from the description of the invention, parameters of such a matrix B have been set based on the reversed spatial frequency characteristics when blurring of image occurred and the physical characteristics of total energy of image before and after arithmetic operation.

In other words, considering the characteristics of said matrix B, claimed invention identified on the basis of the definition in claim 1] can be said processing that utilizes the physical characteristics to output image data C from image data A obtained as data from an optical reading means by compensating blurring of image using matrix B as a filter parameter.

Then, since Claimed invention identified on the basis of the definition in claim 1 is a method to concretely performing processing utilizing the physical characteristics related to an image obtained as data by an optical reading means, it can be a creation of technical concept utilizing the laws of nature.

Therefore, claimed invention identified on the basis of the definition in claim 1 as a whole is "a creation of technical concept utilizing the laws of nature," and it is appropriate as an "invention."

With regard to claim 1, identifying comprehensively on the basis of the description of the Invention, it is clear that the matrix B as a set of filter parameters has the physical properties in that the absolute values of the parameters other than the central parameter are smaller than that of the central parameter, and such parameters of the matrix B have been set based on the physical properties involving the inverse characteristics of the optical reading means when a bur occurs and the total energy of the image before and after the arithmetic processing.

In other words, claimed invention regarding claim 1, taking into consideration the properties of said matrix B, can be said a processing utilizing the physical properties of an object for compensating the blur of the image data A obtained by the optical reading means using the filter parameters of the matrix B and for outputting the compensated data as the image data C.

Then the claimed invention regarding claim 1 is a method to concretely perform a processing utilizing the physical properties on the image data obtained by the optical reading means, so that it can be said as "a creation of technical ideas utilizing natural laws."

It follows, therefore, the invention regarding claim 1 is considered to be "a creation of technical ideas utilizing natural laws" and is considered as constituting a "statutory invention."

(Note) In determining whether the invention identified based on the definition in claim 1 falls under "a creation of technical ideas utilizing natural laws" or not, it was judged based on the guidelines stated in the "Industrially Applicable Inventions" as the invention does not require special judgment and treatment for the software related invention.

3. Examples for Determination of Inventive Step

Example 3-1. Apparatus for retrieving chemical substances

(Example where an application to other field is easy)

[Title of Invention]

Apparatus for retrieving chemical substances

[Scope of Claim]

[Claim 1]

An apparatus for retrieving chemical substances, comprising:

a chemical substance characteristics data storage means for storing names, purposes and structure formulae of a multiple of chemical substances in their correspondence;

a chemical substance trading data storage means for storing names, prices per 1 gram, and vendor names of a multiple of chemical substances in their correspondence;

an input means for inputting a purpose of chemical substance or a structure formula as a retrieval key;

a chemical substance characteristics data retrieval means for extracting the name, the purpose and the structure formula of the chemical substance corresponding to the retrieval key inputted from said chemical substance characteristics data storage means based on the retrieval key inputted by said input means;

a chemical substance trading data retrieval means for extracting the price per 1 gram and the vendor name of the corresponding chemical substance from said chemical substance trading data storage means based on the name of chemical substance extracted from said chemical substance characteristics data retrieval means; and

a display means for displaying the name, the purpose and the structure formula of the chemical substance extracted by said chemical substance characteristics data retrieval means, and the price per 1 gram and the vendor name of the chemical substance extracted from said chemical substance trading data retrieval means in their correspondence on a display screen.

[Claim 2]

An apparatus for retrieving chemical substance of claim 1, in which "detergent for circuit boards" as the purpose of chemical substance B represented by chemical structure formula A is stored in said chemical substance characteristics data storage means.

[Description of the invention]

[Technical field to which the invention pertains]

This invention relates to a system for retrieving and ordering chemical substances to be used for specific purposes in the chemical industry, pharmacies, and others.

[Prior art]

The information retrieval technology in general is applied for various purposes, and also in the field of retrieving chemical substances, the technology is known to store names of chemical substances, chemical structure formulae, purposes, etc. in correspondence to stored items, to retrieve them by one item as a retrieval key and to extract other related information.

However, in the conventional chemical substance retrieval system, since trading information such as prices and vendors which have no direct relationship with the chemical substance characteristics have not been stored, so that these information had to be acquired using other systems.

[Problems to be solved by the invention]

The purpose of this invention is to provide a chemical substance retrieval system, which is useful for ordering required chemical substances, enabled to extract trading information such as prices and vendors, by retrieving chemical substances based on required use purpose of chemical substance and chemical structure formula.

Further, by including a new use purpose "detergent for circuit boards" for a chemical substance B which had been found by the applicant in the retrieval object data, convenience of ordering, etc. can be increased.

[Means for solving the problem]

A chemical substance retrieval system of this invention is structured in such a manner that a storage means to store names of chemical substances, use purposes of chemical substances and chemical structure formulae in their correspondence and a storage means to store names of chemical substances, prices and vendors in their correspondence are separately provided, and after retrieving a name of chemical substance based on a use purpose of chemical substance or chemical structure formula as the retrieval, a price and vendor are retrieved by the retrieved name of chemical substance. This configuration is decided taking into consideration easiness of data transfer from a conventional type of chemical substance retrieval system and easiness of data maintenance.

[Mode for carrying out the invention]

This invention realizes a chemical substance retrieval system using a computer system constituted of a CPU, memory means, an input device such as a keyboard and a display means such as a display unit. A conceptual drawing is shown in Fig. 1.

A flowchart of the chemical substance retrieval system is as described below.

First, a storage means of the computer system is stored with chemical substance characteristics data including names of chemical substances, use purposes of said chemical substances, and chemical structure formulae in their correspondence, and another storage means is stored with chemical substance trading data including names of chemical substances, prices of said chemical substances per 1 gram and vendor names in their correspondence. These storage means can use memory means such as a RAM and ROM or recording media such as a magnetic disk and/or CD-ROM.

Then, when a chemical structure formula or a component of chemical substance is inputted from an input means, the CPU of the computer system retrieves the chemical substance characteristics data stored in one storage means of the computer system by the inputted retrieval key and extracts the data which includes the retrieval key.

Further, the CPU of the computer system, using the name of chemical substance existing in the extracted chemical substance characteristics data as the retrieval key, retrieves the chemical substance trading data stored in another storage means of the computer system, extracts the data which includes the retrieval key, and displays the name of chemical substance, use purpose of chemical substance, chemical structure formula, price per 1 gram and dealing vendor name on the display means.

[Advantageous effect of the invention]

According to this invention, by retrieving a use purpose of chemical substance or chemical structure formula for a certain chemical substance, and enabling to extract trading information such as prices, dealing vendors, it is possible to provide a chemical substance retrieval system which offers convenience for ordering or other trading activities of required chemical substance.

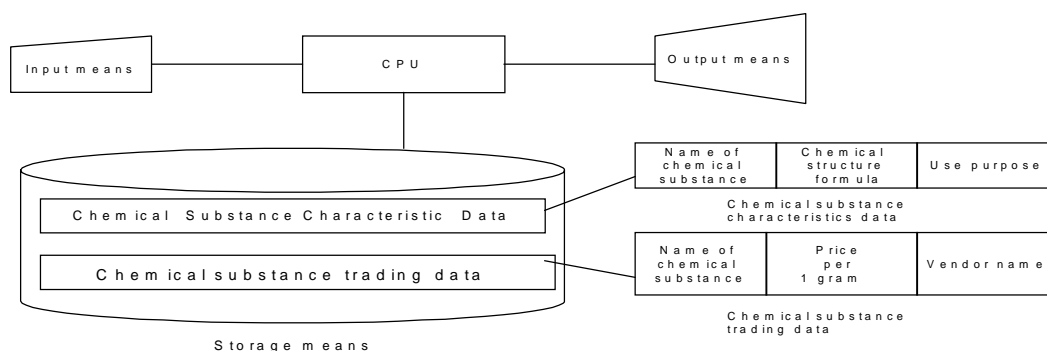
Furthermore, since a chemical substance retrieval system of this application is stored with a use purpose "detergent for circuit boards" newly found for a chemical substance B as chemical substance characteristics data, it is expected to increase the sales of chemical substance B by trading the chemical substance B as detergent for circuit boards.

[Brief description of drawings]

(Omitted)

[Drawing]

[Fig. 1]



<Examination of inventive step>

(1) Premise for determination of inventive step

(i) Problems to be solved by the invention

- to provide an apparatus for retrieving information of chemical substances by retrieving the database based on the use purpose or chemical structure formula and extracting trading information such as price, vendor name, etc. to offer convenience for ordering required chemical substances

- to include a newly found use purpose "detergent for circuit boards" in the database and to offer increased convenience for trading activities

(ii) A person skilled in the art

A person skilled in the art of the invention in this example has knowledge in chemical substance retrieval technology and computer technology, and an ordinary creative ability.

(2) State of the art (cited invention, well known art, etc.)

(I) Cited inventions

The cited inventions listed below have been publicly known before the application.

Cited invention 1:

An apparatus for retrieving chemical substances, comprising:

a retrieval means to retrieve a chemical substance storage means for storing names of chemical substances, structure formulae of chemical substances and use purposes of chemical substances in their correspondence by a structure formula of chemical substance or use purpose of chemical substance as the retrieval key; and

a means to display the retrieval result.

Cited invention 2:

An apparatus for retrieving books, comprising:

a book information storage means to store names of books, genres of said books and keywords in their correspondence;

a book marketing data storage means to store names of books, prices and publisher names in their correspondence;

an input means to input a genre of book or keyword as the retrieval key;

a book information retrieval means to extract a name of book, a genre of book and a keyword matching to the retrieval key from said book information storage means based on the retrieval key inputted by said input means;

a book marketing data retrieval means to extract the price of corresponding book and the publisher name from said book marketing data storage means based on the name of book extracted by said book information retrieval means; and

a display means to display the name of book, the genre of said book and the keyword extracted by said book information retrieval means and to display the price of book and the publisher name extracted by said book marketing data retrieval means in their correspondence on the display screen.

(II) Well known art, etc.

- A chemical substance B represented by chemical structure formula A was publicly known before the application.
- The fact that said chemical substance B is useful for the purpose of "detergent for circuit boards" was not publicly known nor of public use, thus it would have not been easily perceived by a person skilled in the art.

(3) Practical procedures of decision

(i) Claimed invention identified on the basis of the definition in claim 1:

By contrasting the claimed invention identified on the basis of the definition in claim 1 with the cited invention 1, the points in common and points of difference are as follows.

Point of difference 1: Claimed invention identified on the basis of the definition in claim 1 is an apparatus comprising "a chemical substance trading data retrieval means for extracting the price per 1 gram and the vendor name of the corresponding chemical substance from said chemical substance trading data storage means based on the name of chemical substance extracted from said chemical substance characteristics data retrieval means," while the cited invention 1 is not comprising a means for retrieving information based on the name of chemical substance extracted by another retrieval means.

Point of difference 2: Claimed invention identified on the basis of the definition in claim 1 is an apparatus comprising "a display means for displaying the name, the purpose and the structure formula of the chemical substance extracted by said chemical substance characteristics data retrieval means, and the price per 1 gram and the vendor name of the chemical substance extracted from said chemical substance trading data retrieval means in their correspondence on a display screen, and displays the price per 1 gram of the chemical substance and the vendor name as trading information, which the cited invention 1 does not display the trading information. This point is only the difference between them, and the rest of matters are in common.

Point of difference 1: Examination on easiness of constructing a "retrieval means of chemical substance marketing data"

Viewing from the standpoint of computer technology, the cited invention 2 is identified as a technology to retrieve the second storage means further by the name of retrieval object (book name) as the retrieval key extracted from the first storage means,

and to extract the marketing information (price of book and publisher name) corresponding to said extracted information.

Here, the point in common both in the cited inventions 1 and 2 is that they are retrieval systems, and there is no special technical difficulty to apply the constructing technology of retrieval system of the cited invention 2 to the chemical substance retrieval system of the cited invention 1.

Furthermore, what and how the extracted trading information would be is a matter to be decided accordingly by a person skilled in the art depending on the category of retrieval object, when the retrieval system of the cited invention 2 is applied to the chemical substance retrieval system, thus the selection of "price of chemical substance per 1 gram" and "vendor name" as trading information in the field of chemical substances is nothing more than an exercise of normal creative ability of a person skilled in the art.

Therefore, to apply the constructing technology of retrieval system of the cited invention 2 to the chemical substance retrieval system of the cited invention 1, and to provide a means for extracting "price of chemical substance per 1 gram" and "vendor name" as trading information from said chemical substance trading data storage means based on the name of chemical substance as one of retrieval objects are matters that a person skilled in the art could easily perceive.

Point of difference 2: Examination on easiness of constructing "a display means to display price of chemical substance per 1 gram and vendor name" as trading information

Taking into consideration the technical properties of "retrieval" operation performed to get information, displaying the obtained information as the result of retrieval is a matter that a person skilled in the art could naturally perceive, and there is no special technical difficulty to display said trading information, therefore, constructing a system to display trading information obtained as the result of retrieval is a matter that a person skilled in the art could easily perceive.

(Reference of advantageous effect)

Advantageous effect "can extract trading information" of the invention regarding claim 1 would have been easily perceived by a person skilled in the art from the cited inventions 1 and 2.

(Conclusion)

Therefore, the claimed invention identified on the basis of the definition in claim 1 is an invention that a person skilled in the art could easily achieve from the cited inventions 1 and 2.

(ii) Claimed invention identified on the basis of the definition in claim 2:

By contrasting the claimed invention identified on the basis of the definition in claim 2 and the cited invention 1, in addition to said points of difference 1 and 2, the claimed invention identified on the basis of the definition in the claim 2 is an apparatus which has a chemical substance characteristics data storage means for storing the use purpose

"detergent for circuit board" for chemical substance B represented by chemical structure formula A, while the cited invention 1 does not describe this point which is only a difference between them, and they are common in other points.

But, the fact that a chemical substance characteristics data storage means stores the use purpose "detergent for circuit boards" for chemical substance B represented by chemical structure formula A" is only mentioning about the contents of data, thus the novelty and inventive step of the claimed invention identified on the basis of the definition in claim 2 can not be positively inferred only by this fact.

(Conclusion)

The claimed invention identified on the basis of the definition in claim 2 is an invention that a person skilled in the art could easily perceive from the cited inventions 1 and 2.

Example 3-2. Invoice approval system

(Example where systematization of performed by person can be easily realized)

[Title of Invention]

Invoice approval system

[Scope of Claim]

[Claim 1]

Invoice approval system comprising an invoice input preparation device which has the first input module for inputting the invoice data, the first output module which displays and prints out the invoice based on the data input to said first input module, the first communication control module, and the first control module which controls the entire device, and an invoice approval device which has a second output module which displays the invoice, the second input module for the approval data, the second communication control module, and the second control module which controls the entire device, characterized in that:

said first control module obtains the data for each item on the invoice from said first input module, checks each item on the invoice data obtained, transmits the invoice data requiring approval from said first communication control module to said invoice approval device, receives the approved invoice data transmitted from said invoice approval device via said first communication control module, and outputs from said first output module; and

said second control module receives via said second communication control module the invoice data requiring approval transmitted from said invoice input preparation device, inputs the approval data to be approved or disapproved from said second input module, and transmits the invoice data including said approval data from said second communication control module to said invoice input preparation device.

[Claim 2]

Invoice approval system of claim 1, characterized in that said second output device has a display screen and means for automatically indicating information that an incoming invoice has been received in a part of said display screen when an invoice requiring approval is received.

[Claim 3]

Invoice approval system of claim 1 or claim 2, characterized in that said first input module has an ID card reader.

[Description of the invention]

[Technical field to which the invention pertains]

This invention is related to the clerical work of invoices preparation at the counter of a bank, etc.

[Prior art]

In invoice preparation at the counter of a bank, etc., the invoice was conventionally prepared for obtaining approval from a superior for transaction of a large sum, etc. according to their regulations.

[Problems to be solved by the invention]

To obtain approval from a superior, the operation was inefficient, in that it included leaving the counter and delivering the invoice all the way to the superior, this hampered concentration on the paper work, and it took much time, in particular, when the superior was unavailable.

An object of the present invention is to provide a system using a computer which enables obtaining an approval without going to the superior.

A notice of receiving an invoice requiring approval is indicated on the display screen, so that it dispenses with the manual operation of checking the notice.

Furthermore, approval data is inputted using an ID card (individual identification), so that only the person with the approving authority can input the approval data.

[Means for solving the problem]

(Omitted)

[Working example]

(Omitted)

[Advantageous effect of the invention]

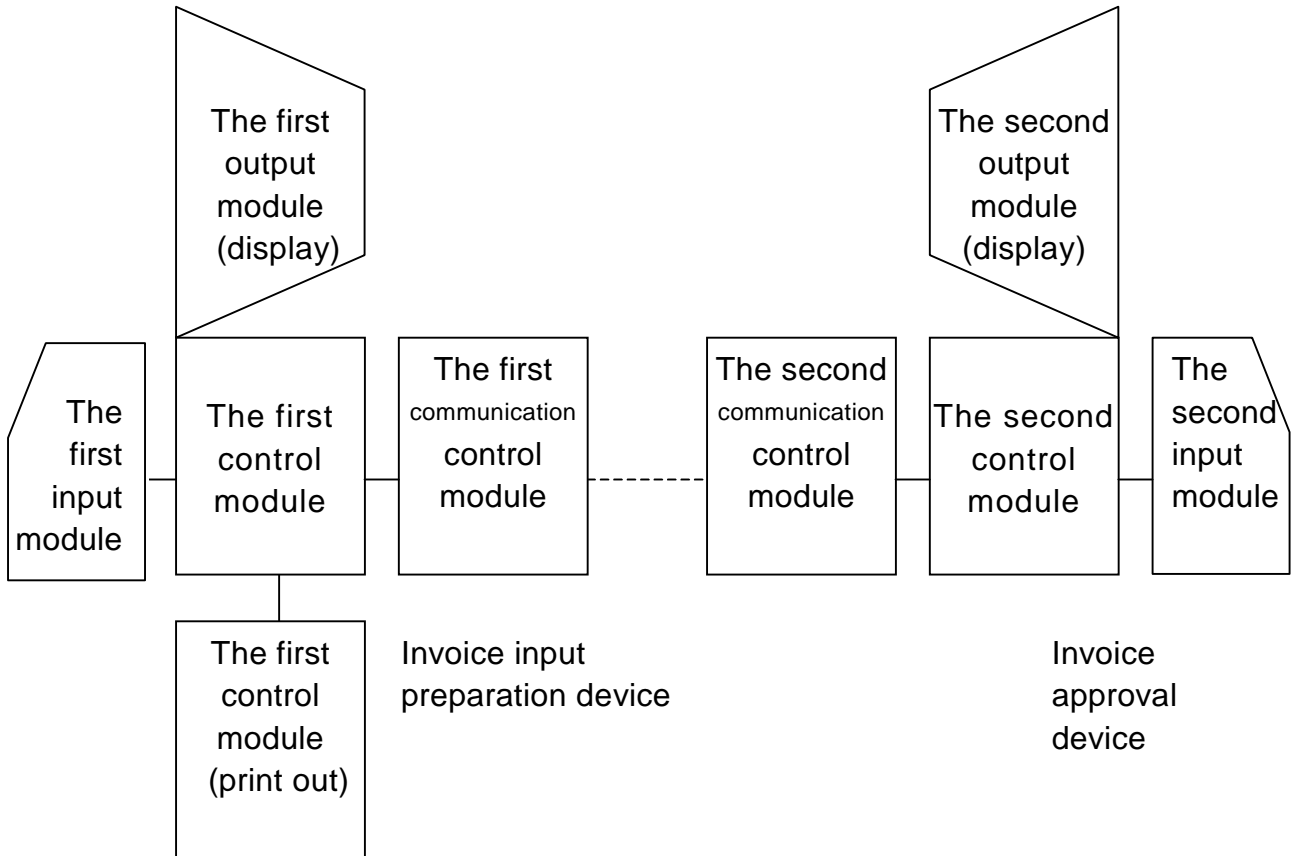
The system of the present invention derives remarkable results, when compared to the conventional operation, such as efficient invoice processing to obtain approval without interrupting work.

[Brief description of the drawings]

(Omitted)

[Drawings]

[Figure 1] Block diagram of invoice approval system



<Examination of inventive step>

(1) Premise for determination of inventive step

(i) A problem to be solved for the invention

To systematize the clerical work process with computer technology is a common general problem publicly known. Invoice approval processing is also clerical work process, so that the attempt to systematize it is a general problem.

(ii) A person skilled in the art

A person skilled in the art of the invention in this example has knowledge in clerical work processing of invoices and computer technology, and an ordinary creative ability.

(iii) Systematization of human transactions (operation of invoice processing)

The inventive step of systematization of human transactions with software is determined, taking into considering the process of developing a system, namely, system analysis → system design.

To systematize human transactions by common system development technology using publicly known computer engineering is considered as an exercise of ordinary creative ability expected of a person skilled in the art.

In the case of this example, the determination of inventive step is made from the viewpoint of the process from the system analysis on invoice processing to the system design based on the analysis.

(2) State of the art (a cited reference, well known art, etc.)

(I) Common business data processing

(i) A preparer's work

- to prepare an invoice by writing the invoice data on the invoice form,
- to hand over the invoice requiring approval to the approver, and
- to complete the invoice preparation by receiving the invoice from the approver.

(ii) An approver's work

- to receive the invoice from the invoice preparer,
- to check the invoice received from the invoice preparer and affix approval, and
- to hand over the approved invoice to the preparer.

(II) Computer technology

(i) Common general knowledge in the field of computers

- (a) to install a computer with I/O modules for each person, connect it with a communication line via the communication control module, and transmit/receive the necessary data
- (b) to edit the data in the computer and display or print out in the format required for the document
- (c) to indicate a notice on the display screen if there is data received, and
- (d) to input one's ID code with the ID card (individual identification) and execute processing.

(ii) Technology disclosed in a publication distributed prior to the application

- (e) The input data is checked and transmitted only if necessary.

(3) Specific determination

Examination is made from the viewpoint whether or not it would be easy for a person skilled in the art to systematize invoice approval processing using the computer software engineering base on the functions required for invoice preparation and approval in invoice approval processing and clerical work which were extracted from system analysis.

(i) Invention in claim 1

(A) It is clear from the analysis of said processing of invoice preparation that data I/O modules are necessary to prepare invoices, and a communication means is necessary for transmitting the invoice data requiring approval to the superior.

The same is necessary when approving the invoices.

Accordingly, from said computer technology ①, it would be easily conceived by a person skilled in the art using ordinary system design technology to select hardware resources for the system configuration, i.e., "invoice approval system comprising an invoice input preparation device which has the first input module for inputting the invoice data, the first output module which displays and prints out the invoice based on the data input to said first input module, the first communication control module, and the first control module which controls the entire device."

(B) Functions executed in each control modules which "obtains the data of each item on the invoice from the first input module, checks each item on the invoice data obtained, transmits the invoice data requiring approval from the first communication control module to the invoice approval device, receives the approved invoice data transmitted from the invoice approval device via the first communication control module, and outputs from the first output module" and "receives via the second communication control module the invoice data requiring approval transmitted from the invoice input preparation device, inputs the approval data to be approved or disapproved from the second input module, and transmits the invoice data including the approval data from the second communication control module to the invoice preparation device" are realized by software, but can be directly derivable by a person skilled in the art by applying said computer technologies (a), (b) and (e) to invoice processing procedure.

In view of consideration to (A) and (B) above, to systematize invoice approval process as an invention in claim 1 would be easily conceived by a person skilled in the art by applying said computer technologies (a), (b) and (e) to the results of the system analysis.

(ii) Inventions in claims 2 and 3

To indicate data reception information on the display screen as receiving data, and to execute processing by inputting one's own ID code with the ID card are commonly used means as indicated in (3) and (4) of said common general knowledge in the field of computers, so that it would be arbitrarily conceived by a person skilled in the art to provide means for indicating information that there is an incoming invoice requiring approval, or to add an ID card reader to the input module.

Besides, the applicant asserts in the specifications to the effect that this invention manifests a remarkable effect, but the effect asserted is found as nothing more than the natural results improvement in the efficiency) accompanying the use of computers, and thus there is no other fact to support to affirmatively infer an inventive step.

Therefore, as stated above, inventions in claims 1, 2 and 3 would have been conceived by a person skilled in the art based on publicly known items (I) and (II) above.

Example 3-3. Point service method

(Example where systematization of clerical work performed by person or modification of design based on artificial arrangement is easy)

[Title of Invention]

Point service method

[Scope of Claim]

[Claim 1]

A service method for offering service points depending on the amount of merchandise purchasing at a store on the Internet, comprising:

a step that the amount of service points to be bestowed and the name of the person to receive are notified to a server via the Internet;

a step that the server acquires the e-mail address of the person to receive the bestowed service points stored in a customer list storage means based on the name of the person to receive;

a step the sever sums up said amount of bestowed service points to the points of the person to receive stored in the customer list storage means; and

a step the server notifies the fact that the bestowed service points have been received to the person to receive by an e-mail using the e-mail address of the person to receive.

[Claim 2]

A service method of claim 1 characterized by that said merchandise purchase amount includes a price of good, a handling fee and a consumption tax.

[Claim 3]

A service method of claim 1 characterized by that a 10-times point is offered once every 20 times of purchases as to points offered depending upon said merchandise purchase amount.

[Claim 4]

A service method of claim 1 characterized by that a server prepares a list of purchasable goods by the bestowed points after accumulation from a commodity list storage means.

[Description of the Invention]

[Technical field to which the invention pertains]

This present invention relates to a point service method used by a store on the Internet.

[Prior art]

Conventionally, services have been made to offer service points depending upon merchandise purchase amount of a customer (e.g., in a certain rate), and exchange accumulated service points with a good, gift coupon or cash.

[Problems to be solved by the invention]

Conventional point service methods were not realized in transactions on the Internet because of problems of customer management, etc. Also, from similar problems, only the customer herself or himself could use service points, and bestowal of service points to another person even a family was not possible.

[Means for solving the problem]

In order to realize point services in transactions on the Internet, the present invention is structured to manage service points of each customer by providing a customer list (at least, including customer names, accumulated service points, and e-mail addresses of the customers) in a server possessed by the store on the Internet, and to add service points when a customer purchased goods on the Internet.

And, when a customer wants to bestow service points to another person, by said server being notified of the name of the person to receive and bestowed service points by an e-mail, the server retrieves the database of customer list by the name of the person to receive, adds up the bestowed service points, retrieves the e-mail address, and automatically notifies the address of the person to receive of the fact that bestowed service points are received.

This invention can be modified as follows.

Firstly, the function as stated in the invention regarding claim 2 can be added for calculating service points from a purchase amount including not only a price of good, but also a handling fee and a consumption tax.

Secondly, the function as stated in the invention regarding claim 3 can be added for offering service points of 10 times of a normal rate in a certain frequency (for instance, once every 20 times) in order to increase repetitive customers. For this purpose, a field to store number of purchases can be provided, for instance, in the customer list storage means.

Thirdly, the server can be added with the function as stated in the invention regarding claim 4 for providing a commodity list storage means which makes a correspondence between the accumulated service points and the commodities which can be exchanged with the accumulated service points, and when the accumulated service points increased by commodity purchase, for retrieving commodities which can be exchanged depending with the accumulated service points from said commodity list storage means, so that the services can be enhance by preparing a commodity list and delivering it to the customer by an e-mail. Also, when service points are bestowed to another person, a commodity list can be delivered to that person, but in this case, the commodity list is delivered as an attached file of the e-mail to notify the bestowal of service points.

[Mode for carrying out the invention]

Omitted

[Working example]

Omitted

[Advantageous effect of the invention]

By this point service method, it is easily possible to implement point services for customers in transactions on the Internet. And, as service points can be bestowed to another person, use value of service points increased. Further, by offering service points of 10 times once every 20 times of purchase occasions, for instance, the buying incentives of the customers are stimulated and buying on the Internet becomes a fun of the customers.

[Brief description of the drawings]

Omitted

[Drawings]

Fig. 1 A system configuration

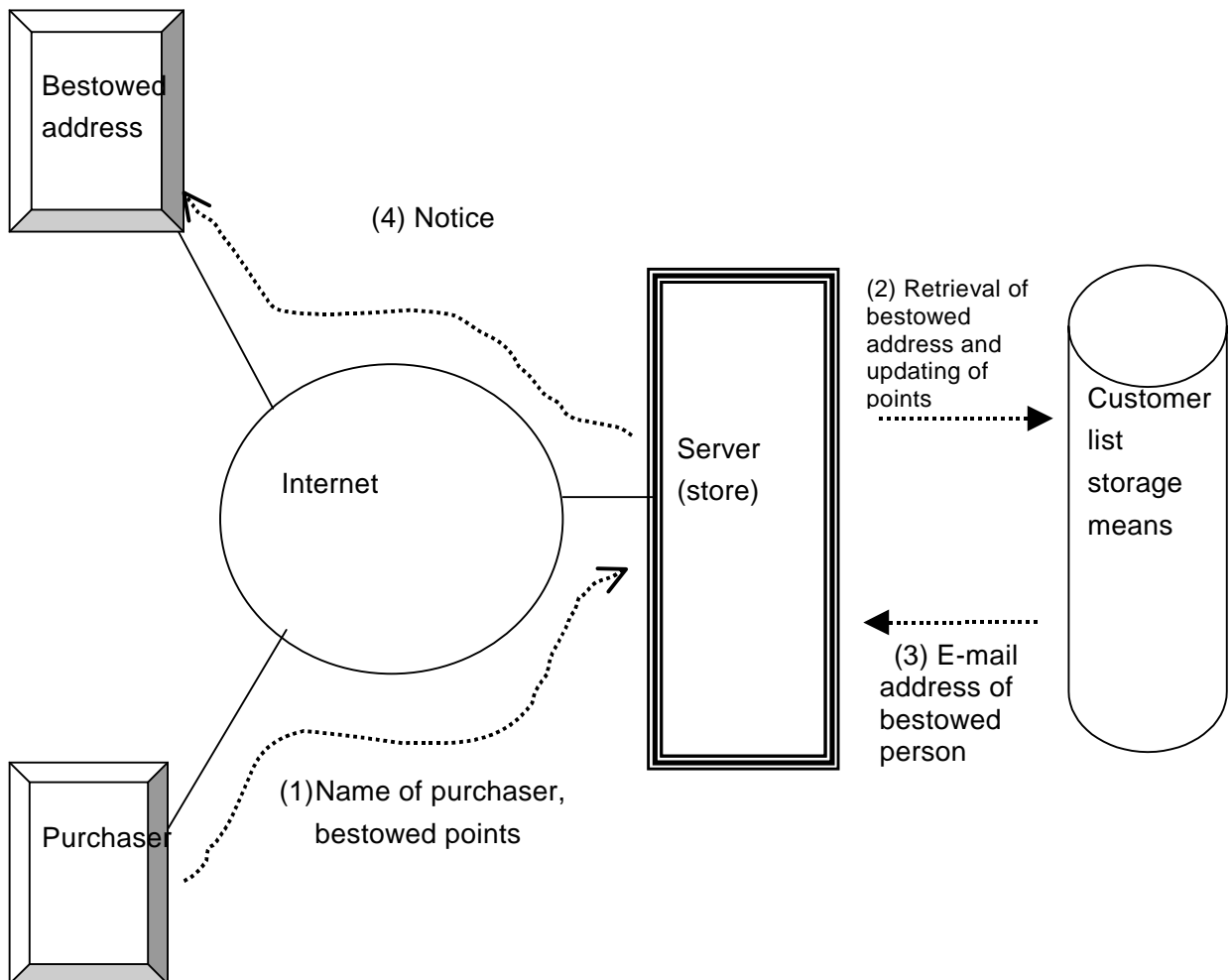


Fig. 2 A structure of customer list storage means

Customer name	Authentication information	E-mail address	Points	Number of purchases
A	XX△	<u>A@efg.com</u>	100	5
B	XX□	<u>B@hij.com</u>	200	10
C	XX○	<u>C@klm.com</u>	500	15

Fig. 3 Second embodiment

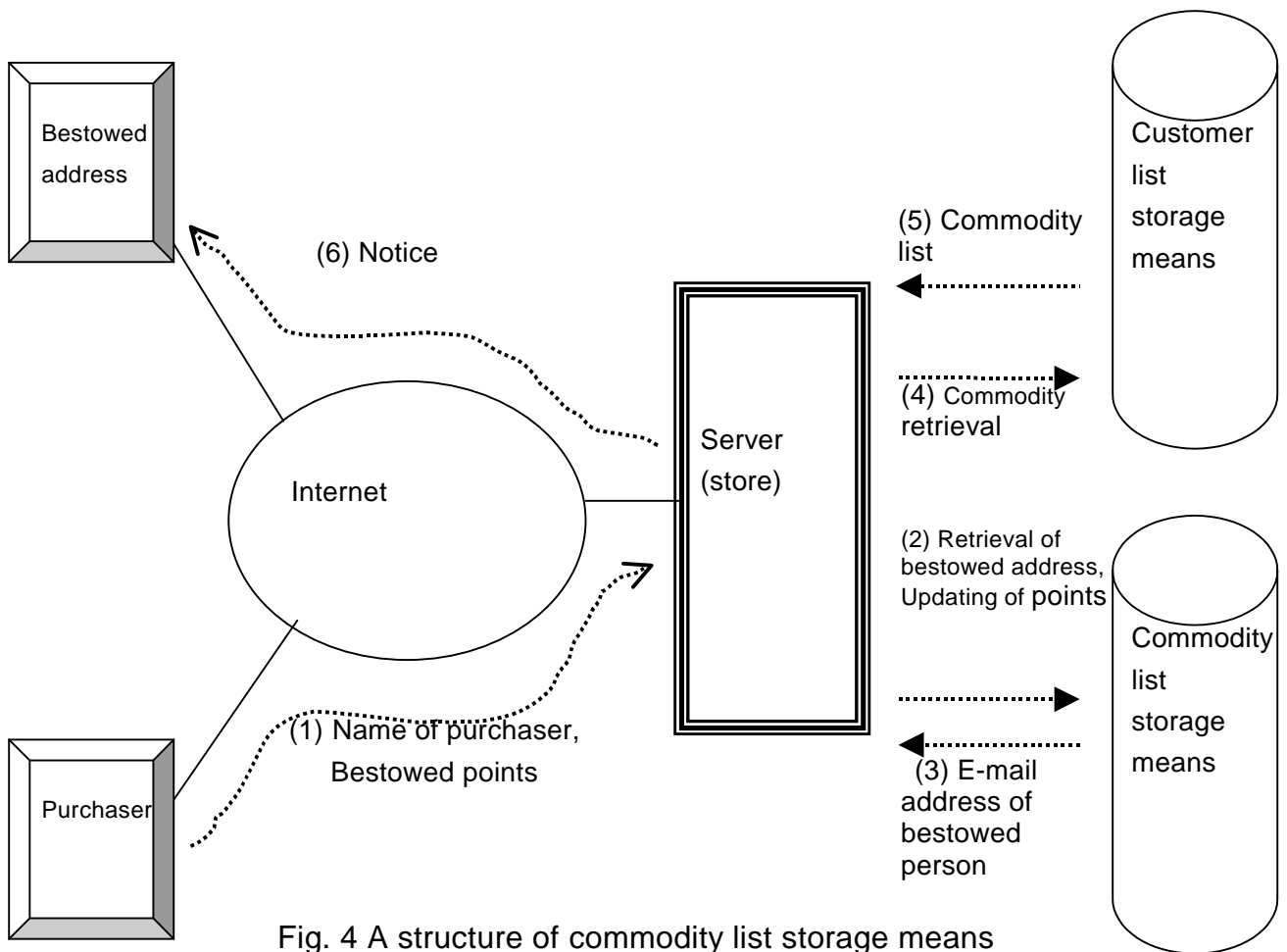


Fig. 4 A structure of commodity list storage means

Commodity name	Exchange points
Commodity 1	30
Commodity 2	120
Commodity 3	210
Commodity 4	300

<Examination of inventive step>

(1) Premise for determination of inventive step

(i) Task of the invention

A systematized business processing by computer technology (especially, by the Internet) is one of commonly known tasks. Since point service is one of business processing, its systematization is quite general as a task.

(ii) A person skilled in the art

A person skilled in the art in this example of invention is a person who has the knowledge of business transactions (especially, point service) the knowledge of computer technology.

(iii) Systematization of operations (business transactions) performed by person

Inventive step of operations performed in business transactions is determined from the standpoints of system analysis and system design based on the analysis result.

(2) State of the art (cited inventions, known technologies, etc.)

(I) Cited inventions

The cited inventions listed below have been publicly known before the application.

Cited invention 1:

A service method for offering points depending on the amount of commodity purchase at a store, when the bestowed points and the name of the person to receive have been specified, comprising:

a step for acquiring the address of the bestowed person stored in the customer list based on the name of the person to receive;

a step for summing up said points on the balance of points of the person to receive stored in the customer list; and

a step for mailing a post card for notifying the fact that the bestowed service points are received to the address of the person to receive.

Cited invention 2:

A point service method for calculating service points by a purchase amount including a tax and a handling fee.

However, a matter that the service points of 10 times are offered once every 20 times of purchase occasion is not stated.

(II) Common practices exercised in business transactions

Practices for offering special services to customers, such as giving a free gift or discount sometimes.

(III) Computer technology

(i) General knowledge of computer

(a) to manage information in block stored in a database, retrieve and extract necessary information

(ii) Technical knowledge on the Internet

(b) to communicate with a terminal (including a server) via the network

(c) to exchange thoughts by e-mails. Also, transmit necessary information as an attachment file of e-mail

(3) Specific determination

(i) Claimed invention identified on the basis of the definition in claim 1:

By contrasting the invention regarding claim 1 and the cited invention 1, points in common and points of difference between them are as follows.

(Points in common)

A service method for offering points depending on the amount of commodity purchase at a store, when the bestowed points and the name of the person to receive have been specified, comprising: a step for acquiring the address of the bestowed person stored in the customer list based on the name of the person to receive;

a step for summing up said points on the balance of points of the person to receive stored in the customer list; and a step for mailing a post card for notifying the fact that the bestowed service points are received to the address of the person to receive.

(Points of difference)

In the invention regarding claim 1, a store is on the Internet, and a point service method related to said points in common is systematized using means such as a server, an e-mail and a customer list storage means.

(Examination of points of difference)

In a systematization of a point service method of the cited invention 1 on the Internet, matters for applying state of the art (a) related to computer technology and make a customer list storage means as a means to store/manage the customer list, matters for applying state of the art (b) related to the Internet technology to communicate between a customer and the store via the Internet and automatically process the work performed by person by use of a terminal (i.e., a server), and matters for applying state of the art (c) related to the Internet technology to notify the bestowal of service points by an e-mail instead of a post card are merely the matters of a degree that a person skilled in the art would have been achieved using a routine system design method.

(Conclusion)

Claimed invention identified on the basis of the definition in claim 1 would have been easily perceived by a person skilled in the art, because it is nothing more than a systematization of the work performed by person related to the cited invention 1 by a normal system development method using state-of-the-art computer technology.

(ii) Claimed invention identified on the basis of the definition in claim 2:

By contrasting the invention regarding claim 2 and the cited invention 1, points in common and points of difference between them are as follows.

(Points in common)

A service method for offering points depending on the amount of commodity purchase at a store, when the bestowed points and the name of the person to receive have been specified, comprising: a step for acquiring the address of the bestowed person stored in the customer list based on the name of the person to receive; a step for summing up said points on the balance of points of the person to receive stored in the customer list; and a step for mailing a post card for notifying the fact that the bestowed service points are received to the address of the person to receive.

(Points of difference)

1. In the invention regarding claim 2, a store is on the Internet, and a point service method related to said points in common is systematized using means such as a server, an e-mail and a customer list storage means.

2. In the invention regarding claim 2, service points are calculated from the purchase amount including taxes and a handling fee.

(Examination of points of difference)

a. Point of difference 1:

(Same as the case of claim 1)

In a systematization of a point service method of the cited invention 1 on the Internet, matters for applying state of the art (a) related to computer technology and make a customer list storage means as a means to store/manage the customer list, matters for applying state of the art (b) related to the Internet technology to communicate between a customer and the store via the Internet and automatically process the work performed by person by use of a terminal (i.e., a server), and matters for applying state of the art (c) related to the Internet technology to notify the bestowal of service points by an e-mail instead of a post card are merely the matters of a degree that a person skilled in the art would have been achieved using a routine system design method.

b. Point of difference 2:

Since a fact that service points are calculated from the purchase amount including a taxes and a handling fee is publicly known by the cited invention 2, there is no special

difficulty to limit the calculation method of service points related to the cited invention 1 to the method of the cited invention 2.

(Conclusion)

Claimed invention identified on the basis of the definition in claim 2 would have been easily invented by a person skilled in the art, by a systematization of the work performed by person related to the cited invention 1 by a normal system development method using the state of the art of computer technology and by limiting the calculation method of service points related to the cited invention 1 to the method of the cited invention 2.

(iii) Claimed invention identified on the basis of the definition in claim 3:

By contrasting the invention regarding claim 3 and the cited invention 1, points in common and points of difference between them are as follows.

(Points in common)

A service method for offering points depending on the amount of commodity purchase at a store, when the bestowed points and the name of the person to receive have been specified, comprising: a step for acquiring the address of the bestowed person stored in the customer list based on the name of the person to receive; a step for summing up said points on the balance of points of the person to receive stored in the customer list; and a step for mailing a post card for notifying the fact that the bestowed service points are received to the address of the person to receive.

(Points of difference)

1. In the claimed invention identified on the basis of the definition in claim 3, a store is on the Internet, and a point service method related to said points in common is systematized using means such as a server, an e-mail and a customer list storage means.

2. In the claimed invention identified on the basis of the definition in the claim 3, service points of 10 times are offered once every 20 times of purchase occasions as to service points offered based on the merchandise purchase amount.

(Examination of points of difference)

a. Point of difference 1:

(Same as the case of claim 1)

In a systematization of a point service method of the cited invention 1 on the Internet, matters for applying state of the art (a) related to computer technology and make a customer list storage means as a means to store/manage the customer list, matters for applying state of the art (b) related to the Internet technology to communicate between a customer and the store via the Internet and automatically process the work performed by person by use of a terminal (i.e., a server), and matters for applying state of the art (c)

related to the Internet technology to notify the bestowal of service points by an e-mail instead of a post card are merely the matters of a degree that a person skilled in the art would have been achieved using a routine system design method.

b. Point of difference 2:

Since offering special services to customers are common practices (see The state of art (II)), a practice to offer special points to certain customers in a point service method can be easily perceived by a person skilled in the art. Here, its frequency and/or in what rate to be applied are matters of the nature to be decided accordingly, and they are only design items decided by the need of a person skilled in the art. Therefore, in a point service method of the cited invention 1, adding a special service to offer 10 times of service points once every 20 times of purchases occasions as to points offered based on the merchandise purchase amount is nothing more than the matter of a degree that a person skilled in the art would easily have been perceived.

(Conclusion)

Claimed invention identified on the basis of the definition in claim 3 is a systematization of business performed by person related to publicly known method 1 by a normal system development method using a technology level of computer technology, and an addition of a special service to offer a 10-times point once every 20 times of purchases as to points offered depending upon the merchandise purchase amount, considering business practices on a service point method of publicly known method 1, therefore, it is an invention that a person skilled in the art could easily invent.

(iv) Claimed invention identified on the basis of the definition in claim 4:

The invention regarding claim 4 is an addition on the invention regarding claim 1 with matters to prepare a list of purchasable commodities by the points after adding bestowed points from a commodity list storage means and to notify the bestowed address by an e-mail with an attached file of said commodity list, but those matters can not be drawn from any publicly known methods nor state of the art, so that it is an invention that a person skilled in the art could not easily invent.