Inventive Step

Act. 29(2)
  a patent shall not be granted for an invention where a person skilled in the art would have been easily able to make the invention based on the prior art.

Subject matter which a person skilled in the art could have easily invent

Excluded from the subject to be patent granted

Granting patent rights for those inventions does not promote the progress of the technology but rather prevents it.

In some cases, it may be appropriate to consider to be a "team of experts."

"A person ordinarily skilled in the art of the invention"＝"**A person skilled in the art**" means a hypothetical person who meets all the following conditions (i) to (iv).
- ✓ (i) having the common general knowledge in the technical field of the claimed invention at the time of filing.
- ✓ (ii) being able to use ordinary technical means for research and development.
- ✓ (iii) being able to exercise ordinary creativity in selecting materials and modifying designs.
- ✓ (iv) being able to comprehend all the matter in the state of the art in the technical field of the claimed invention at the time of filing, and comprehend all technical matters in the field relevant to problems to be solved by the invention.

Determination of Inventive Step

> The examiner determines whether it is possible to **reason** that a person skilled in the art would easily arrive at the claimed invention from the primary prior art.

> Reasoning = Considering whether or not it could be reasoned that a person skilled in the art easily arrives at the claimed invention based on the prior art.

After having got knowledge of the claimed invention
⇒The examiner should take note of the avoidance of hindsight as below.

- ➢ assuming that a person skilled in the art would have easily arrived at the claimed invention
- ➢ understanding that a cited invention is approximate to the claimed invention

Is it possible to reason?

Claimed invention

Primary prior art

The examiner should not regard the combination of two or more independent pieces of prior art as the primary prior art.

- ◆ Primary prior art: generally, an art which is same as or close to the claimed invention from the aspect of technical field or problem to be solved.
- ◆ Selecting the primary prior art of which technical field or problem to be solved is considerably different from that of the claimed invention → being likely to make the reasoning difficult
- ➢ The fact that the problem to be solved is novel and inconceivable by a person skilled in the art → being able to be a factor in support of the existence of an inventive step

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Factors for reasoning

Reasoning in Determination of Inventive Step

Factors in support of the non-existence of an inventive step

Factors in support of the existence of an inventive step
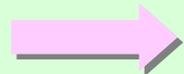
➡️ Comprehensively assessed

Multi-Factor Reasoning (MFR)

Factors in support of the non-existence of an inventive step

1. **Motivation for applying secondary prior art to primary prior art**
   (1) Relation of technical fields
   (2) Similarity of problems to be solved
   (3) Similarity of operations or functions
   (4) Suggestions shown in the content of prior art
2. **Design variation of primary prior art**
3. **Mere aggregation of prior art**

Factors in support of the existence of an inventive step

1. **Advantageous effects**

2. **Obstructive factors**
   Example: where It is contrary to the purpose of the primary prior art to apply the secondary prior art thereto.

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Inventive Step　Overview of Cases (After addition)

|	**Involving Inventive Step**	**Lacking Inventive Step**
Those related to AI application		
Those related to generative AI application	**Additional Case 2 (Claim 2)** 　Case where inventive step is affirmed based on features in the application of generative AI * Claim 1 is an example where inventive step is denied.	**Additional Case 1** 　Case where inventive step is denied because it is a simple systematization of human tasks using generative AI
Those related to simple systematization of human tasks	**Additional Case 4 (Claim 2)** 　Case where inventive step is affirmed based on new features added to a simple systematization of human tasks using artificial intelligence	**Additional Case 4 (Claim 1)**　Case 33 　Case where inventive step is denied because it is a simple systematization of human tasks using artificial intelligence
Those related to change in the means of estimation	**Additional Case 3** 　Case where inventive step is affirmed based on a difference in the learning method of a trained model that estimates output data from input data	Case 34 (Claim 1) 　Case where inventive step is denied because it is a simple change in the estimation method for estimating output data from input data
Those related to modification of training data	Case 34 (Claim 2) 　Case where inventive step is affirmed based on a difference in training data used for learning	Case 35 　Case where inventive step is denied because the modification of the training data used for learning is a combination of known data and no advantageous effect is recognized
Those for preprocessing of training data	Case 36 　Case where inventive step is affirmed based on preprocessing of training data used for learning	

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Claim 1: Case where inventive step is denied because it is a simple systematization of human tasks using generative AI

[Claim 1]
    An automatic response generator for a customer service center for receiving a question text of an inquiry about a financial product from an inquirer and automatically generating a response text to the question text;
    wherein a response text is generated by inputting the question text into large language models.

[Cited invention 1]
    A method of preparing a response text for receiving a question text of an inquiry about a financial product from an inquirer and preparing a response text to the question text by a customer service center employee;
    wherein a response text is prepared by searching a database of accumulated examples of past inquiries and referring to examples matching the question text.

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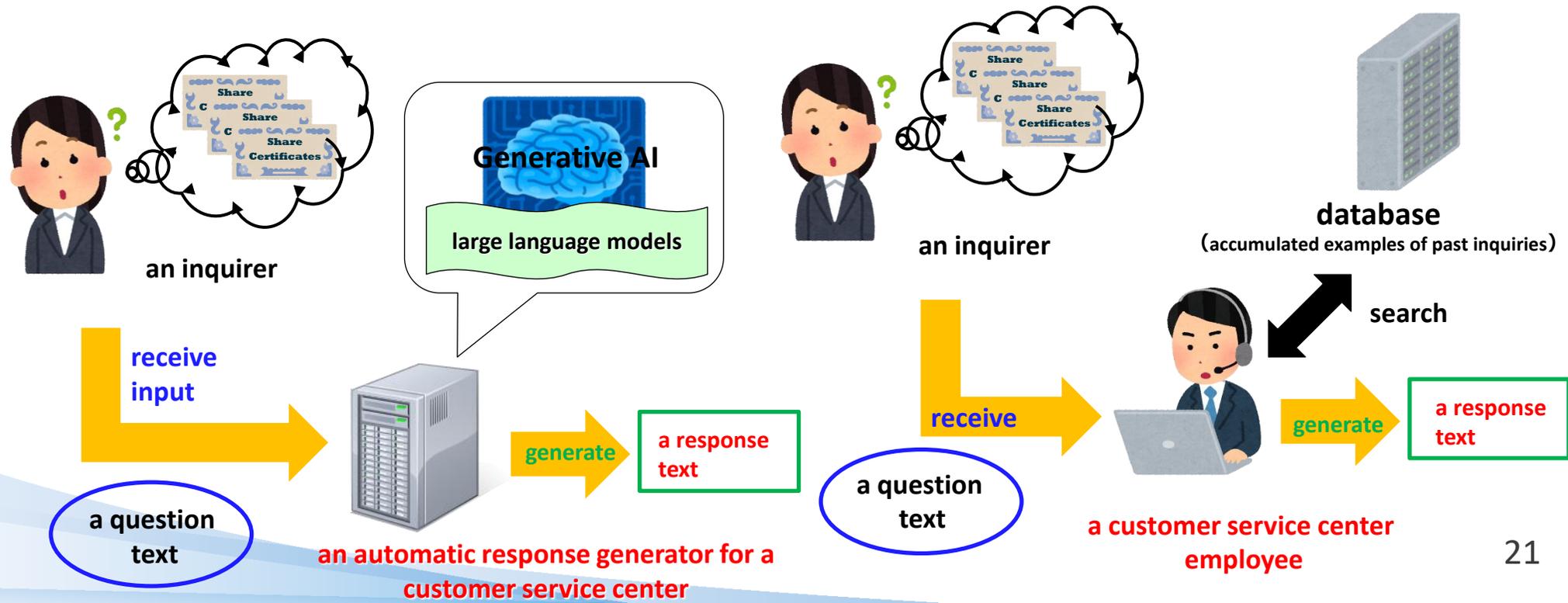
Case Example: Automatic Response Generator for Customer Service Centers (2)

[Commonly Used Art]
In the technical field of information processing, the process of inputting question texts into large language models to obtain response texts is commonly used to improve the efficiency of human tasks.

❌ The invention of claim 1 lacks an inventive step.

[Overview of Reason for Refusal]
The invention of claim 1 differs from the cited invention 1 in the following aspects.

(Difference)
While the invention of claim 1 is an automatic response generator for a customer service center that receives a question text of an inquiry about a financial product from an inquirer and automatically generates a response text by inputting the question text into large language models, the cited invention 1 is a method for preparing a response text, in which a customer service center employee receives an inquiry about a financial product from an inquirer, searches a database of accumulated examples of past inquiries, and refers to examples that match the question text to prepare a response text.

The above difference will be examined.
In many business fields, including customer service, it is a self-evident problem that a person skilled in the art normally takes into consideration to improve efficiency by automating human tasks with computers, and it would also be taken into consideration in the cited invention 1.

In addition, in the technical field of information processing, the process of inputting question texts into large language models to obtain response texts is commonly used to improve the efficiency of human tasks.

Therefore, it has been easily conceivable for a person skilled in the art to provide an "automatic response generator for a customer service center for automatically generating a response text to a question text by inputting the question text into large language models" by applying the commonly used art of "inputting question texts into large language models to obtain response texts," which is the solution for this problem, to the cited invention 1 in order to solve the problem of improving efficiency by automating human tasks with a computer for automatically generating response texts in the cited invention 1.
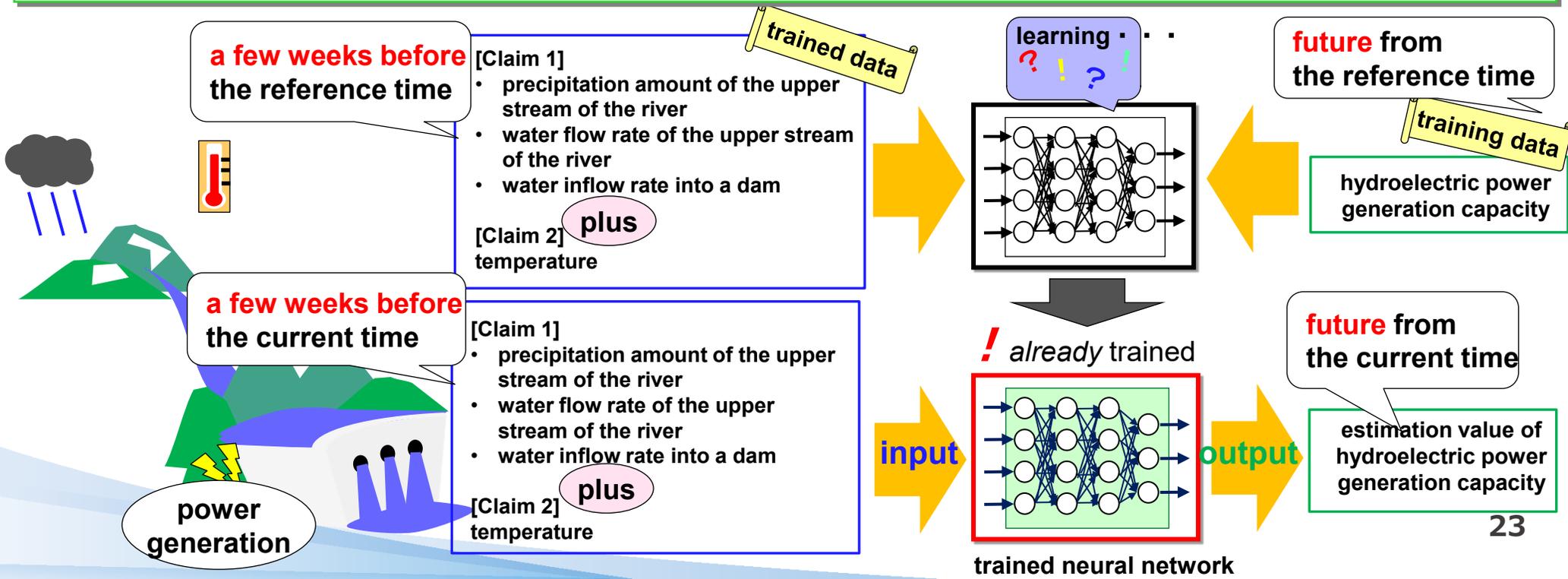In addition, with respect to the task of an automatic response generator receiving inquiries about a financial product from an inquirer, automating such a task by using the automatic response generator is an ordinary creative activity of a person skilled in the art and it could have been appropriately performed by a person skilled in the art.

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Case Example: Estimation System of Hydroelectric Generating Capacity (1)

[Claim 1] An estimation system of a hydroelectric power generating capacity of a dam comprising:

a neural network that is built by means of an information processor, the neural network having an input layer and an output layer, in which an input data to the input layer containing a precipitation amount of the upper stream of a river, a water flow rate of the upper stream of the river, and a water inflow rate into a dam during a predetermined period between a reference time and a predetermined time before the reference time, and an output data from the output layer containing a hydroelectric power generating capacity in the future after the reference time;

a machine learning unit that trains the neural network using a training data corresponding to actual values of the input data and the output data; and

an estimation unit that inputs the input data to the neural network that has been trained by the machine learning unit with setting a current time as the reference time, and then calculates an estimated value of a future hydroelectric power generating capacity based on the output data of which reference time is the current time.

[Claim 2] The estimation system of a hydroelectric power generating capacity as in Claim 1, wherein the input data to the input layer further contains a temperature of the upper stream of the river during the predetermined period between the reference time and the predetermined time before the reference time.

a few weeks before the reference time

[Claim 1]
- **precipitation amount of the upper stream of the river**
- **water flow rate of the upper stream of the river**
- **water inflow rate into a dam**

[Claim 2] **plus**
temperature

trained data

learning · · ·

future from the reference time

training data

hydroelectric power generation capacity

a few weeks before the current time

[Claim 1]
- **precipitation amount of the upper stream of the river**
- **water flow rate of the upper stream of the river**
- **water inflow rate into a dam**

[Claim 2] **plus**
temperature

power generation

! already trained

input

output

future from the current time

estimation value of hydroelectric power generation capacity

trained neural network

[Cited Invention 1]   An estimation system of a hydroelectric power generating capacity that carries out a multiple regression analysis by an information processor, comprising:

a regression equation model, in which explanatory variables are a precipitation amount of the upper stream of a river, a water flow rate of the upper stream of the river, and a water inflow rate into a dam during a predetermined period between a reference time and a predetermined time before the reference time, and an objective variable is a hydroelectric power generating capacity in the future after the reference time;

an analysis unit that calculates a partial regression coefficient of the regression equation model based on actual values corresponding to the explanatory variables and the objective variable; and

an estimation unit that, into the regression equation model to which the partial regression coefficient that has been calculated by the analysis unit is set, inputs data of the explanatory variables with setting a current time as the reference time, and then, calculates an estimated value of a future hydroelectric power generating capacity based on an output data from the objective variable setting a current time as the reference time.

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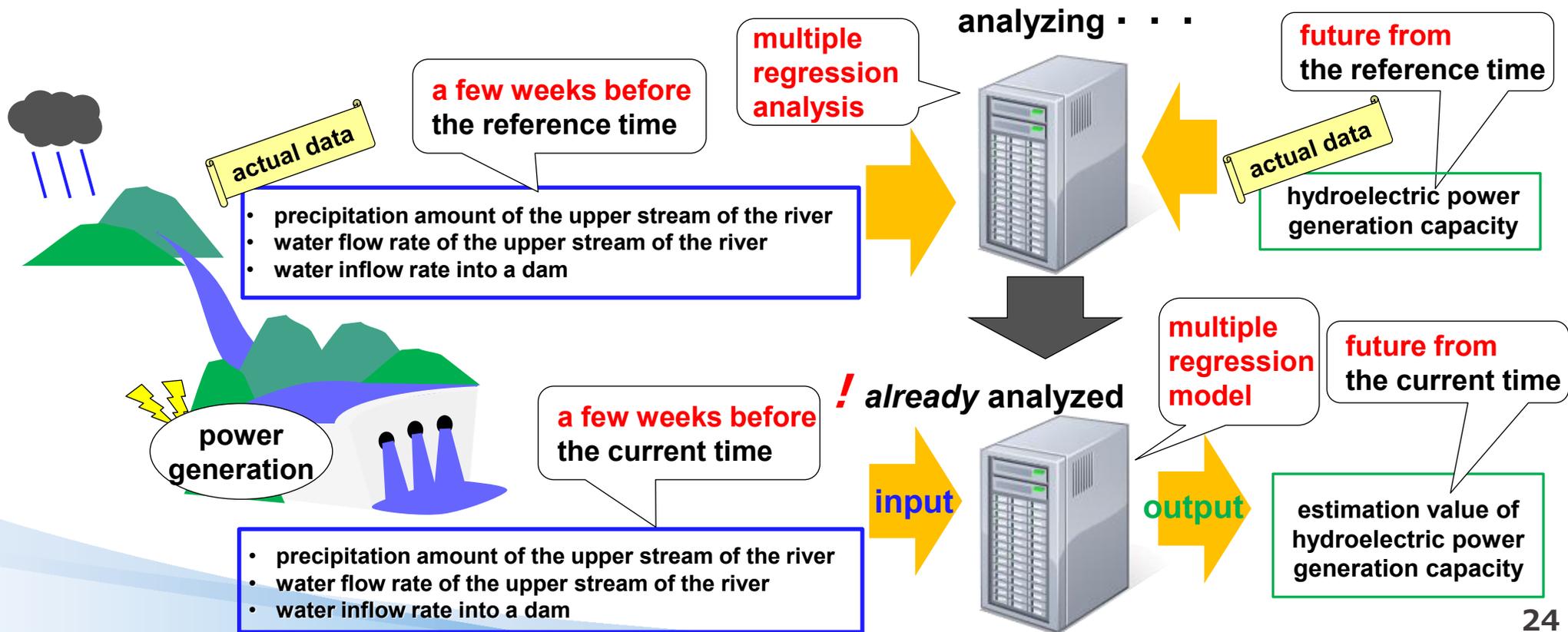
Case Example: Estimation System of Hydroelectric Generating Capacity (3)

The invention of Claim 1 <u>realizes an estimation of a hydroelectric power generating capacity by means of a neural network</u> having an input layer and output layer. Meanwhile, Cited Invention 1 <u>realizes an estimation of a hydroelectric power generating capacity by means of a regression equation model</u>.

❌ The invention of Claim 1 lacks an inventive step.

Claim 1 is mere a modification of estimation method to estimate output data based on input data, and considered to be lack of inventive step

The invention of Claim 2 <u>contains, in an input data into an input layer, a temperature of the upperstream of the river during a predetermined period between a reference time and a predetermined time before the reference time</u>. Meanwhile, Cited Invention 1 <u>does not have such a configuration</u>.

⭕ The invention of Claim 2 has an inventive step.

Claim 2 has a significant effect because of addition of training data for machine learning, and is considered to have inventive step