CLAIMS

What is claimed is:

1. A rule mining method, comprising:

obtaining service data, and selecting a numerical computable column associated with a target service scenario from the service data;

constructing a plurality of graph nodes based on a computation operator and the numerical computable column;

inputting the plurality of graph nodes to a rule prediction model, and processing the plurality of graph nodes through a fusion unit and a link prediction unit in the rule prediction model, to obtain a graph node link relationship; and

obtaining a graph node link based on the graph node link relationship, and generating a numerical column computation rule corresponding to the target service scenario based on the graph node link.

2. The method according to claim 1, wherein the obtaining service data, and selecting a numerical computable column associated with a target service scenario from the service data comprises:

extracting the service data from a target database;

selecting a numerical column of an enumeration column type from a numerical column comprised in the service data as a conditional numerical column corresponding to the target service scenario; and

selecting the numerical computable column from the conditional numerical column based on computation distribution information of the conditional numerical column.

3. The method according to claim 2, wherein the selecting a numerical column of an enumeration column type from a numerical column comprised in the service data as a conditional numerical column corresponding to the target service scenario comprises:

traversing the numerical column comprised in the service data based on a preset selection policy; and

selecting the numerical column of the enumeration column type as the conditional numerical column corresponding to the target service scenario based on a traversal result.

4. The method according to claim 1, wherein the constructing a plurality of graph nodes based on a computation operator and the numerical computable column comprises:

constructing an operator feature corresponding to the computation operator and a numerical column feature corresponding to the numerical computable column;

separately performing graphical processing on the operator feature and the numerical column

feature, to obtain an operator feature node and a numerical column feature node; and

generating the plurality of graph nodes based on the operator feature node and the numerical column feature node.

5. The method according to claim 1, wherein the inputting the plurality of graph nodes to a rule prediction model, and processing the plurality of graph nodes through a fusion unit and a link prediction unit in the rule prediction model, to obtain a graph node link relationship comprises:

inputting the plurality of graph nodes to the rule prediction model;

computing a sub-link relationship between an operator node and a numerical column node in the plurality of graph nodes through the link prediction unit in the rule prediction model;

performing fusion processing on the sub-link relationship through the fusion unit in the rule prediction model; and

generating the graph node link relationship based on a fusion processing result.

6. The method according to claim 1, wherein the obtaining a graph node link based on the graph node link relationship, and the generating a numerical column computation rule corresponding to the target service scenario based on the graph node link comprises:

writing the graph node link relationship into a target relationship set; and

when the target relationship set satisfies a rule generation condition, obtaining the graph node link based on a graph node link relationship comprised in the target relationship set, and generating the numerical column computation rule corresponding to the target service scenario based on the graph node link .

7. The method according to claim 1, wherein the obtaining the graph node link based on the graph node link relationship, and the generating the numerical column computation rule corresponding to the target service scenario based on the graph node link comprises:

performing linear combination processing on the graph node link relationship through a generation optimizer, to obtain the graph node link; and

generating the numerical column computation rule corresponding to the target service scenario based on the graph node link.

8. The method according to any one of claims 1 to 7, wherein training of the rule prediction model comprises:

obtaining a sample set, wherein the sample set comprises a labeled sample pair and an unlabeled sample;

processing the labeled sample pair by using an initial rule prediction model, and determining a relationship parameter based on a processing result;

updating the initial rule prediction model based on the relationship parameter, to obtain an

intermediate rule prediction model; and

processing the unlabeled sample by using the intermediate rule prediction model, and adjusting a parameter of the intermediate rule prediction model based on a processing result until the rule prediction model that satisfies a training stop condition is obtained.

9. The method according to claim 8, wherein the processing the unlabeled sample by using the intermediate rule prediction model, and adjusting a parameter of the intermediate rule prediction model based on a processing result until the rule prediction model that satisfies a training stop condition is obtained comprises:

inputting the unlabeled sample to the intermediate rule prediction model;

processing the unlabeled sample through an intermediate fusion unit and an intermediate link prediction unit in the intermediate rule prediction model, to obtain a predicted link relationship;

generating a predicted numerical column computation rule based on the predicted link relationship; and

when determining, based on the predicted numerical column computation rule, that the intermediate rule prediction model satisfies the training stop condition, using the intermediate rule prediction model as the rule prediction model.

10. The method according to any one of claims 1 to 7, wherein after the step of obtaining a graph node link based on the graph node link relationship, and generating a numerical column computation rule corresponding to the target service scenario based on the graph node link is performed, the method further comprises:

deploying and running the numerical column computation rule on a data processing node corresponding to the target service scenario; and

when determining, based on a running result, that the numerical column computation rule satisfies a service condition, inputting the numerical column computation rule to a rule base corresponding to the target service scenario.

11. A rule mining apparatus, comprising:

an obtaining module, configured to obtain service data, and select a numerical computable column associated with a target service scenario from the service data;

a construction module, configured to construct a plurality of graph nodes based on a computation operator and the numerical computable column;

a prediction module, configured to input the plurality of graph nodes to a rule prediction model, and process the plurality of graph nodes through a fusion unit and a link prediction unit in the rule prediction model, to obtain a graph node link relationship; and

a generation module, configured to obtain a graph node link based on the graph node link

relationship, and generate a numerical column computation rule corresponding to the target service scenario based on the graph node link.

12. A computing device, comprising:

a memory and a processor, wherein

the memory is configured to store computer-executable instructions, the processor is configured to execute the computer-executable instructions, and when the computer-executable instructions are executed by the processor, the steps of the method according to any one of claims 1 to 10 are implemented.

13. A computer-readable storage medium, wherein the computer-readable storage medium stores computer-executable instructions, and when the computer-executable instructions are executed by a processor, the steps of the method according to any one of claims 1 to 10 are implemented.