MERCHANT EVALUATION METHOD AND SYSTEM

Technical Field

Embodiments of the specification relate to the field of Internet technologies, and in particular to a merchant evaluation method and system.

Technical Background

With the popularization of smart terminals, people are more and more relying on e-commerce for shopping without going out. In order to improve user satisfaction, to avoid fake commodities as much as possible, and to ensure the safe operation of e-commerce platforms, it is crucial for e-commerce to select and certify merchants. Therefore, merchants need to be evaluated to provide a basis for the certification of the merchants.

Summary of Invention

The embodiments of the specification provide a merchant evaluation method and system.

In a first aspect, the embodiments of the specification provide a merchant evaluation method, including: acquiring multi-dimensional evaluation index data of a merchant to be evaluated; for the multi-dimensional evaluation index data, obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated, and obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated; and outputting the health portrait and the health score of the merchant to be evaluated.

In a second aspect, the embodiments of the specification provide a merchant evaluation system, including: a data acquisition module for acquiring multi-dimensional evaluation index data of a merchant to be evaluated; a portrait evaluation module for obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated for the multi-dimensional evaluation index data; a score evaluation module for

obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated; and an output module for outputting the health portrait and the health score of the merchant to be evaluated.

The beneficial effects of the embodiments of the specification are as follows:

firstly, by setting evaluation indexes in multiple dimensions, all-round evaluation can be conducted on a merchant to be evaluated; secondly, starting from data analysis, for example, obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated and obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated, the driving effect on data is strengthened and the human experience is weakened, making the evaluation results more credible; and in addition, by not only providing the health score but also providing the health portrait, the health conditions of each evaluation index can be more intuitively viewed, and moreover, because the evaluation is conducted based on the merchant historical data (e.g., a black sample and a white sample), data distribution of the merchant to be evaluated among history merchants can be reflected, and the health of the merchant can be measured according to the merchant's position in the score distribution.

Brief Description of the Drawings

Fig. 1 is a schematic diagram of a framework of a merchant evaluation system provided by the embodiments of the specification;

Fig. 2 is a flowchart of a merchant evaluation method according to a first aspect of the embodiments of the specification;

Fig. 3 is a schematic diagram of a merchant health portrait in the merchant evaluation method according to the first aspect of the embodiments of the specification;

Fig. 4 is a flowchart of a merchant evaluation method according to a second aspect of the embodiments of the specification;

Fig. 5 is a schematic structural diagram of a merchant evaluation system according to a third aspect of the embodiments of the specification; and

Fig. 6 is a schematic structural diagram of a merchant evaluation system according to a fourth aspect of the embodiments of the specification.

Detailed Description

In order to better understand the above-mentioned technical solutions, detailed explanation is made below for the technical solutions of the embodiments of the specification through the accompanying drawings and specific embodiments; it should be understood that the embodiments of the specification and the specific features in the embodiments are to explain in detail the technical solutions of the embodiments of the specification, rather than to limit the technical solutions of the specification; and the embodiments of the specification and the technical features in the embodiments can combine with each other if no conflict is caused.

Referring to Fig. 1, it is a schematic diagram of a framework of a merchant evaluation system provided by the embodiments of the specification. In general, the merchant evaluation system includes five parts: an input, a first layer, a second layer, a third layer, and an output, in which the input is merchant related data, the first layer mainly calculates and processes the merchant related data, the second layer obtains a health portrait of the merchant, the third layer obtains a health score of the merchant, and the fourth layer outputs the health portrait of the merchant and the health score of the merchant.

Here, the health portrait of the merchant, as the name implies, can be understood as an image intuitively describing the "health conditions" of the merchant; the health conditions of the merchant are the result of a comprehensive consideration of data of the merchant in all aspects, and are an important basis reflecting the possibility for the merchant to pass the certification; and the "health conditions" can involve many aspects, such as merchant

background, operation history, operation capability, business relationship and operation characteristics, etc. The health score of the merchant is a simple numerical value that is easy to refer to, and the credibility level of the merchant can be determined clearly by means of the magnitude of the numerical value.

In the first aspect, the embodiments of the specification provide a merchant evaluation method, which, referring to Fig. 2, includes steps S201-S203.

S201: multi-dimensional evaluation index data of a merchant to be evaluated is acquired.

A merchant refers to an entity unit engaged in sales business and directly facing external customers, such as merchants of Alipay Koubei and merchants of offline Alipay scan pay. For example, Nike is a company and is an enterprise, but the Nanjing West Road store of Nike in Shanghai is a merchant. In order to conduct all-round evaluation on the merchant, multiple evaluation indexes can be set. It can be appreciated that the more evaluation indexes there are, the more reliable the evaluation result of the merchant becomes. In other words, evaluation indexes in multiple dimensions are set, so as to finally obtain an evaluation result of higher credibility through analysis and processing of the multi-dimensional index data.

In one optional implementation, the above-mentioned multi-dimensional evaluation index data includes any combination of merchant background identity evaluation index data, merchant operation history evaluation index data, merchant operation capability evaluation index data, merchant business relationship evaluation index data and merchant operation characteristics evaluation index data.

Here, the evaluation index data in each dimension is data which is obtained from original information used for describing the index and is used to measure the degree of the index. In one implementation, by inputting the original evaluation index description information into an index model preset for the index, the evaluation index data for describing a score of the index is obtained, thereby reflecting the evaluation index data through the score of each

index. Taking the merchant background identity index as an example, the original description information of the index includes: a merchant certification level/business license completeness, information about whether the merchant is involved in gang/gray, merchant maturity/value information, etc.; and by inputting these pieces of original description information into the preset index model, a score of the index can be obtained, i.e., obtaining the evaluation index data.

The merchant background identity evaluation index data can be obtained through the merchant background identity description information. The merchant background identity description information can be: a merchant certification level/business license completeness: whether the merchant qualification is sound, and whether materials such as industrial and commercial record are complete; whether the merchant is involved in gang/gray: whether the merchant and the natural person behind the merchant have any gang and gray activity; and merchant maturity/value: whether a merchant is a mature merchant on the platform, and the value of the merchant's account.

The merchant operation history evaluation index data can be obtained through the merchant operation history description information. The merchant operation history description information can be: credible operation accumulation: historical trading volume of the merchant, the number of users and business hours; historical complaint conditions: the proportion of transactions involving complaints in the merchant's history; and historical buyer evaluation: the number of good and bad comments received by the merchant on the platform, and an overall evaluation score.

The merchant operation capability evaluation index data can be obtained through the merchant operation capability description information. The merchant operation capability description information can be: a merchant scale: the number of stores under the merchant, an average daily amount, and an average daily number of trading users; capital turnover

capacity: difference between income and expenditure of the merchant, liabilities and performance capabilities; and merchant operation advantages: the amount of year-on-year and chain growth in trading volume of the merchant, and the quantile of the merchant's trading volume among similar merchants.

The merchant business relationship evaluation index data can be obtained through the merchant business relationship description information. The merchant business relationship description information can be: capital relationship: among the users who have conducted financial transactions with the merchant, the proportion of gang/gray involved users, and the proportion of high-value users; social relationships: among social friends, the proportion of gang/gray involved users, and the proportion of high-value users; and merchant contact list: in the merchant's mobile phone contact list, the proportion of gang/gray involved users, and the proportion of high-value users.

The merchant operation characteristics evaluation index data can be obtained through the merchant operation characteristics description information. The merchant operation characteristics description information can be: characteristics of buyers under the merchant: the proportion of new users among the buyers, and the proportion of repurchasing users; risk of the operation content: the proportion of recently complained keywords in the operation content, and whether an illegal and prohibited keyword is contained; and address/time period stability: whether the merchant is operating in its usual geographical position, and whether the business hours are stable.

S202: for the multi-dimensional evaluation index data, a health portrait of the merchant to be evaluated is obtained by calculation based on standard normal distribution.

In Standard Normal Distribution, the expected value μ=0, that is, the normal distribution is denoted as N (0, 1) under the condition that the curve image symmetry axis is the Y axis and the standard deviation σ = 1. In the embodiments of the specification, the historical

merchant data is used as the basis for evaluation to calculate the distribution of each index of the merchant to be evaluated in the history of the above-mentioned data, thereby obtaining the health portrait of the merchant to be evaluated. The health portrait reflects the merchant's position in the historical merchant data distribution in an intuitive image from various dimensions.

S203: a health score of the merchant to be evaluated is obtained by calculation based on a geometric mean.

In order to avoid uneven distribution of the number of indexes corresponding to each dimension of the health portrait, and to ensure that the final health score of the merchant can respond agilely to an extremely abnormal situation of a certain dimension of the merchant's health portrait, the merchant's health score is obtained not simply by way of direct summation, but by way of taking a geometric mean. The geometric mean is the n-th root of the continued product of n observed values. Specifically, a geometric mean is taken for probability values of various evaluation indexes of the merchant to be evaluated, to obtain the health score of the merchant to be evaluated.

S204: the health portrait and the health score of the merchant to be evaluated are output.

In one optional implementation, the evaluation of the merchant can be realized by pre-establishing a merchant evaluation model and inputting data of the merchant to be evaluated into the model.

Therefore, the above-mentioned merchant evaluation method may further include:

(1) determining evaluation indexes in multiple dimensions, and acquiring a merchant black sample and a merchant white sample; and

(2) establishing a logistic regression merchant evaluation model for the evaluation indexes in the multiple dimensions based on the merchant black sample and the merchant

white sample, wherein the health portrait and the health score of the merchant to be evaluated are obtained using the merchant evaluation model.

Here, obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated includes: inputting the multi-dimensional evaluation index data into the merchant evaluation model, obtaining, by calculation based on standard normal distribution, a probability value of evaluation index data in each dimension, and synthesizing the probability value of the evaluation index data in each dimension to obtain the health portrait of the merchant to be evaluated, wherein the health portrait of the merchant to be evaluated reflects normal distribution of the merchant to be evaluated in merchant evaluation historical data.

Obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated includes: obtaining the health score of the merchant to be evaluated, by way of taking an evaluation geometric number of the probability value of the evaluation index data in each dimension of the merchant to be evaluated.

For example, in the process of establishing a merchant evaluation model, by taking a merchant who has been cleared and has been complained and verified in history as a black sample, and a mature merchant without a complaint record as the white sample, a logistic regression model is established using the "supervised" (the black sample and the white sample are respectively used as a reference) method, and the weight of each evaluation index is determined, thus obtaining an absolute score of the merchant in each dimension of the health portrait; meanwhile, the position, in the score distribution, respectively corresponding to the score in each dimension of the merchant's health portrait is respectively calculated, so as to obtain a relative score.

Explanation is made by way of example below.

For the merchant "Xi'an Classic Snacks", scores of 5 dimensions of the health portrait are obtained according to the logistic regression model, which are: background identity 85 points, operation history 71, operation capability 83, business relationship 90, and operation characteristics 66; and from the perspective of overall business, the background identity (average score μ: 72, standard deviation δ: 15) will be converted to standard normal distribution: $\frac{x-\mu}{\delta} = \frac{85-72}{15} = 0.86$, and according to the standard normal distribution, the probability value at this time is 0.8501; the operation history (average score μ: 68, standard deviation δ: 30) will be converted to standard normal distribution: $\frac{x-\mu}{\delta} = \frac{71-68}{30} = 0.1$, and the probability value at this time is 0.5398; in the same manner, it is respectively calculated that the probability value of the operation capability is 0.8340, the probability value of the business relationship is 0.9535, and the probability value of the operation characteristics is 0.5120. In the end, the health portrait of the merchant "Xi'an Classic Snacks" is as shown in Fig. 3. Through the health portrait of Fig. 3, it can be intuitively seen that the three indexes of the merchant's background identity, business relationship and operation capability are in good condition, while the two indexes of the operation characteristics and the operation history are ordinary.

Next, when calculating the health score of the merchant to be evaluated, as described above, in order to avoid uneven distribution of the number of indexes corresponding to each dimension of the health portrait, and to ensure that the final health score of the merchant can respond agilely to an extremely abnormal situation in a certain dimension of the merchant's health portrait, the merchant's health score is obtained not simply by way of direct summation, but by way of taking a geometric mean. The specific formula is as follows.

$$G_n = \sqrt[n]{\prod_{i=1}^{n} x_i} = \sqrt[n]{x_1 x_2 x_3 \cdots x_n}$$

By taking the geometric mean, the unfairness caused by uneven distribution of the number of indexes corresponding to each dimension is avoided.

By way of multiplication, an agile reaction can be made to extremely abnormal behaviors in each dimension; for example, if unlicensed operation of the merchant is detected, the "identity background" in the health portrait is given 0 point; in the case of summation, a large score will still be output for the merchant because of other modules, but after taking the geometric mean, a 0 point will also be output.

Still taking the above "Xi'an Classic Snacks" as an example, the health score of the merchant is calculated as follows.

$$\sqrt[5]{0.8501 * 0.5398 * 0.834 * 0.9535 * 0.512} = 0.7150$$

As to the above-mentioned health portrait and health score (0.7150) obtained through Fig. 3, an all-round evaluation can be comprehensively conducted on the merchant; in this way, not only a health score is provided, but also a health portrait is provided, enabling more intuitive examination of the health status of each evaluation index; and in addition, because the evaluation is conducted based on merchant historical data, data distribution of the merchant to be evaluated among history merchants can be reflected.

It can be seen that, in the merchant evaluation method provided by the embodiments of the specification, firstly, by setting evaluation indexes in multiple dimensions, all-round evaluation can be conducted on a merchant to be evaluated; secondly, starting from data analysis, for example, obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated and obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated, the driving effect on data is strengthened and the human experience is weakened, making the evaluation results more credible; and in addition, by not only providing the health score but also providing the health portrait, the health conditions of each evaluation index can be more intuitively viewed, and

moreover, because the evaluation is conducted based on the merchant historical data (e.g., black sample and white sample), data distribution of the merchant to be evaluated among history merchants can be reflected, and the health of the merchant can be measured according to the merchant's position in the score distribution.

In the second aspect, based on the same inventive concept, the embodiments of the specification provide a merchant evaluation method, which, referring to Fig. 4, includes:

S401: evaluation indexes in multiple dimensions are determined, and a merchant black sample and a merchant white sample are acquired.

A merchant refers to an entity unit engaged in sales business and directly facing external customers, such as merchants of Alipay Koubei and merchants of offline Alipay scan pay. For example, Nike is a company and is an enterprise, but the Nanjing West Road store of Nike in Shanghai is a merchant. In order to conduct all-round evaluation on the merchant, multiple evaluation indexes can be set. It can be appreciated that the more evaluation indexes there are, the more reliable the evaluation result of the merchants becomes. In other words, evaluation indexes in multiple dimensions are set, so as to finally obtain an evaluation result of higher credibility through analysis and processing of the multi-dimensional index data.

In one optional implementation, the above-mentioned evaluation indexes in the multiple dimensions include any combination of merchant background identity, merchant operation history, merchant operation capability, merchant business relationship, and merchant operation characteristics.

In order to realize that the established merchant evaluation model is "supervised", it is necessary to obtain a black sample and a white sample in advance. For example, a merchant who has been cleared and has been complained and verified in history is taken as a black sample, and a mature merchant without a complaint record is taken as a white sample.

S402: a logistic regression merchant evaluation model is established for the evaluation indexes in the multiple dimensions based on the merchant black sample and the merchant white sample.

Logistic regression is a generalized linear model and shares many similarities with multiple linear regression analysis. Logistic regression essentially is the probability of occurrence divided by the probability of no occurrence and then the logarithm thereof being taken. This transformation changes the contradiction between value intervals and the curve relationship between a dependent variable and an independent variable. The reason is that the probability of occurrence and the probability of no occurrence become a ratio, and this ratio is a buffer which expands the value range, and then logarithmic transformation is performed, thereby changing the whole dependent variable.

In the embodiments of the specification, a logistic regression merchant evaluation model is established for the evaluation indexes in multiple dimensions based on the merchant black sample and the merchant white sample, that is, obtaining a logistic regression model for each evaluation index by referring to the probability of occurrence of each evaluation index in the merchant black sample and the merchant white sample.

S403: the multi-dimensional evaluation index data of the merchant to be evaluated is input into the merchant evaluation model, and the health portrait and the health score of the merchant to be evaluated are output.

In one optional implementation, the above-mentioned method can further include: for the multi-dimensional evaluation index data, obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated, and obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated.

Specifically, obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated includes: inputting the multi-dimensional evaluation

index data into the merchant evaluation model, obtaining, by calculation based on standard normal distribution, a probability value of evaluation index data in each dimension, and synthesizing the probability value of the evaluation index data in each dimension to obtain the health portrait of the merchant to be evaluated, wherein the health portrait of the merchant to be evaluated reflects normal distribution of the merchant to be evaluated in merchant evaluation historical data.

Specifically, obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated includes: obtaining the health score of the merchant to be evaluated by way of taking an evaluation geometric number of the probability value of the evaluation index data in each dimension of the merchant to be evaluated.

In the third aspect, based on the same inventive concept, the embodiments of the specification provide a merchant evaluation system. Referring to Fig. 5, it is a schematic structural diagram of the merchant evaluation system.

The merchant evaluation system includes:

a data acquisition module 501 for acquiring multi-dimensional evaluation index data of a merchant to be evaluated;

a portrait evaluation module 502 for obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated for the multi-dimensional evaluation index data;

a score evaluation module 503 for obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated; and

an output module 504 for outputting the health portrait and the health score of the merchant to be evaluated.

In one optional implementation, the system further includes:

an index determination module 505 for determining evaluation indexes in multiple dimensions;

a sample acquisition module 506 for acquiring a merchant black sample and a merchant white sample; and

a model establishment module 507 for establishing a logistic regression merchant evaluation model for the evaluation indexes in the multiple dimensions based on the merchant black sample and the merchant white sample.

In one optional implementation, the portrait evaluation module 502 is specifically used for inputting the multi-dimensional evaluation index data into the merchant evaluation model, obtaining, by calculation based on standard normal distribution, a probability value of evaluation index data in each dimension, and synthesizing the probability value of the evaluation index data in each dimension to obtain the health portrait of the merchant to be evaluated, wherein the health portrait of the merchant to be evaluated reflects normal distribution of the merchant to be evaluated in merchant evaluation historical data.

In one optional implementation, the score evaluation module 503 is specifically used for obtaining the health score of the merchant to be evaluated by way of taking an evaluation geometric number of the probability value of the evaluation index data in each dimension of the merchant to be evaluated.

In one optional implementation, the multi-dimensional evaluation index data includes any combination of merchant background identity data, merchant operation history data, merchant operation capability data, merchant business relationship data, and merchant operation characteristics data.

In the fourth aspect, based on the same inventive concept, the embodiments of the specification provide a merchant evaluation system. Referring to Fig. 6, it is a schematic structural diagram of the merchant evaluation system.

The merchant evaluation system includes:

an index determination module 601 for determining evaluation indexes in multiple dimensions;

a sample acquisition module 602 for acquiring a merchant black sample and a merchant white sample;

a model establishment module 603 for establishing a logistic regression merchant evaluation model for the evaluation indexes in the multiple dimensions based on the merchant black sample and the merchant white sample; and

a model output module 604 for inputting the multi-dimensional evaluation index data of the merchant to be evaluated into the merchant evaluation model, and outputting the health portrait and the health score of the merchant to be evaluated.

In one optional implementation, the system further includes:

a portrait evaluation module 605 for obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated for the multi-dimensional evaluation index data; and

a score evaluation module 606 for obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated.

In one optional implementation, the portrait evaluation module 605 is specifically used for inputting the multi-dimensional evaluation index data into the merchant evaluation model, obtaining, by calculation based on standard normal distribution, a probability value of evaluation index data in each dimension, and synthesizing the probability value of the evaluation index data in each dimension to obtain the health portrait of the merchant to be evaluated, wherein the health portrait of the merchant to be evaluated reflects normal distribution of the merchant to be evaluated in merchant evaluation historical data.

In one optional implementation, the score evaluation module 606 is specifically used for obtaining the health score of the merchant to be evaluated by way of taking an evaluation geometric number of the probability value of the evaluation index data in each dimension of the merchant to be evaluated.

In one optional implementation, the multi-dimensional evaluation index data includes any combination of merchant background identity data, merchant operation history data, merchant operation capability data, merchant business relationship data, and merchant operation characteristics data.

The specification is described with reference to flowcharts and/or block diagrams of the method, device (system) and computer program product according to the embodiments of the specification. It should be understood that computer program instructions may implement each process and/or block in the flowcharts and/or block diagrams and combinations of processes and/or blocks in the flowcharts and/or block diagrams. These computer program instructions may be provided to a general-purpose computer, a special-purpose computer, an embedded processor, or a processor of other programmable data processing devices to produce a machine, so that an apparatus for implementing a specified function in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams is produced by the instructions executed by the processor of the computer or other programmable data processing devices.

These computer program instructions may also be stored in a computer readable memory that can guide a computer or other programmable data processing devices to operate in a particular manner, such that the instructions stored in the computer readable memory produce a manufactured product, including an instruction device. The instruction device implements a function specified in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

These computer program instructions may also be loaded onto a computer or other programmable data processing devices, such that a series of operation steps are performed on the computer or other programmable devices, thus producing computer-implemented processing. Therefore, the instructions executed on the computer or other programmable devices provide steps for implementing a function specified in one or more processes in the flowcharts and/or in one or more blocks in the block diagrams.

Although the preferred embodiments of the specification have been described, those skilled in the art can make other changes and modifications to these embodiments once they learn the basic inventive concept. Therefore, the appended claims are intended to be construed as including the preferred embodiments and all changes and modifications that fall within the scope of the specification.

Obviously, those skilled in the art can make various changes and variations to the specification without departing from the spirit and scope of the specification. In this way, if these modifications and variations of the specification fall within the scope of the claims of the specification and the equivalent technologies thereof, the specification is also intended to include these modifications and variations.

CLAIMS

1. A computer-implemented merchant evaluation method, comprising:

acquiring, by a processor, a merchant black sample and a merchant white sample;

establishing, by the processor, a merchant evaluation model for evaluation indexes in multiple dimensions based on the merchant black sample and the merchant white sample, wherein the merchant evaluation model is established based on supervised machine learning;

acquiring, by the processor, multi-dimensional evaluation index data of a merchant to be evaluated;

obtaining, by the processor, a health portrait and a health score of the merchant to be evaluated using the merchant evaluation model, wherein the obtaining comprises: for the multi-dimensional evaluation index data, obtaining, by calculation based on standard normal distribution, the health portrait of the merchant to be evaluated, and obtaining, by calculation based on a geometric mean, the health score of the merchant to be evaluated, wherein the health portrait is an image graphically presenting a probability value of evaluation index data in each dimension of the multiple dimensions, and the health score is a comprehensive score based on probability values of the evaluation index data in the multiple dimensions; and

displaying, on a screen, the health portrait and the health score of the merchant to be evaluated.

2. The method according to claim 1, wherein establishing, by the processor, a merchant evaluation model comprises:

establishing a logistic regression model as the merchant evaluation model .

3. The method according to claim 2, wherein obtaining, by calculation based on standard normal distribution, the health portrait of the merchant to be evaluated comprises:

inputting the multi-dimensional evaluation index data into the merchant evaluation model, obtaining, by calculation based on standard normal distribution, the probability value of the evaluation index data in each dimension, and synthesizing the probability value of the evaluation index data in each dimension to obtain the health portrait of the merchant to be evaluated, wherein the health portrait of the merchant to be evaluated reflects normal distribution of the merchant to be evaluated in merchant evaluation historical data.

4. The method according to claim 3, wherein obtaining, by calculation based on a geometric mean, the health score of the merchant to be evaluated comprises:

obtaining the health score of the merchant to be evaluated, by way of taking an evaluation geometric number of the probability value of the evaluation index data in each dimension of the merchant to be evaluated.

5. The method according to any one of claims 1-4, wherein the multi-dimensional evaluation index data comprises any combination of merchant background identity evaluation index data, merchant operation history evaluation index data, merchant operation capability evaluation index data, merchant business relationship evaluation index data and merchant operation characteristics evaluation index data.

6. The method according to claim 5, further comprising:

obtaining the evaluation index data in each dimension from original evaluation index description information, wherein the original evaluation index description information is

inputted into an index model preset for the index to obtain evaluation index data used for describing a score of the index.

7. A merchant evaluation system, comprising:

a sample acquisition module for acquiring a merchant black sample and a merchant white sample;

a model establishment module for establishing a merchant evaluation model for evaluation indexes in multiple dimensions based on the merchant black sample and the merchant white sample, wherein the merchant evaluation model is established based on supervised machine learning;

a data acquisition module for acquiring multi-dimensional evaluation index data of a merchant to be evaluated;

a portrait evaluation module for obtaining, by calculation based on standard normal distribution, a health portrait of the merchant to be evaluated for the multi-dimensional evaluation index data, wherein the health portrait is an image graphically presenting a probability value of evaluation index data in each dimension of the multiple dimensions;

a score evaluation module for obtaining, by calculation based on a geometric mean, a health score of the merchant to be evaluated, wherein the health score is a comprehensive score based on probability values of the evaluation index data in the multiple dimensions; and

an output module for displaying, on a screen, the health portrait and the health score of the merchant to be evaluated.

8. The system according to claim 7, wherein the system further comprises:

an index determination module for determining the evaluation indexes in the multiple dimensions;

wherein the model establishment module establishes a logistic regression model as the merchant evaluation model .

9. The system according to claim 8, wherein the portrait evaluation module is specifically used for inputting the multi-dimensional evaluation index data into the merchant evaluation model, obtaining, by calculation based on standard normal distribution, the probability value of the evaluation index data in each dimension, and synthesizing the probability value of the evaluation index data in each dimension to obtain the health portrait of the merchant to be evaluated, wherein the health portrait of the merchant to be evaluated reflects normal distribution of the merchant to be evaluated in merchant evaluation historical data.

10. The system according to claim 9, wherein the score evaluation module is specifically used for obtaining the health score of the merchant to be evaluated by way of taking an evaluation geometric number of the probability value of the evaluation index data in each dimension of the merchant to be evaluated.

11. The system according to any one of claims 7-10, wherein the multi-dimensional evaluation index data comprises any combination of merchant background identity evaluation index data, merchant operation history evaluation index data, merchant operation capability evaluation index data, merchant business relationship evaluation index data and merchant operation characteristics evaluation index data.

12. The system according to claim 11, wherein the evaluation index data in each dimension is obtained from original evaluation index description information, wherein the

original evaluation index description information is inputted into an index model preset for the index to obtain evaluation index data used for describing a score of the index.