CLAIMS

What is claimed is:

1. A method for determining a feature interpretation of a predicted label value of a user, wherein the method is performed after a prediction of a label value of the user is generated by using a gradient boosting decision tree (GBDT) model, wherein the GBDT model is a regression model for predicting the label value that is a fraud risk value, the feature interpretation comprises multiple features of the user that are relevant to the predicted label value of the user and a respective measure of relevance between each of the features and the predicted label value, wherein the GBDT model comprises multiple decision trees arranged in a predetermined order, and the method comprises:

separately obtaining, from a predetermined quantity of decision trees ranked among the top decision trees, a leaf node comprising the user and a score of the leaf node, wherein the score of the leaf node is a score predetermined by using the GBDT model;

determining a respective prediction path of each leaf node, wherein the prediction path is a node connection path from the leaf node to a root node of a decision tree in which the leaf node is located;

obtaining a split feature and a score of each parent node on each prediction path, wherein the score of the parent node is determined based on computing a weighted average value of scores of two child nodes of the parent node, where weights of the scores of the child nodes are determined based on quantities of samples respectively allocated to the child nodes in a training process of the GBDT model;

determining, for each child node on each prediction path based on a score of the child node and a score and a split feature of a parent node of the child node, a feature corresponding to the child node and a local increment of the feature on the child node, wherein the feature corresponding to the child node is a feature relevant to the predicted label value of the user;

obtaining a collection of features respectively corresponding to all child nodes as the multiple features relevant to the predicted label value of the user; and

obtaining, by computing a sum of a local increment of the feature of at least one of the child nodes that corresponds to a same feature, a respective measure of relevance between the feature

corresponding to the at least one child node and the predicted label value.

2. The method for determining a feature interpretation of a predicted label value of a user according to claim 1, wherein the score of the parent node is determined based on the predetermined scores of the leaf nodes of the decision tree in which the parent node is located, comprising: the score of the parent node is an average value of scores of two child nodes of the parent node.

3. The method for determining a feature interpretation of a predicted label value of a user according to claim 1, wherein the determining a feature corresponding to the child node and a local increment of the feature on the child node comprises: obtaining a difference between the score of the child node and the score of the parent node as the local increment of the feature.

4. The method for determining a feature interpretation of a predicted label value of a user according to claim 1, wherein the predetermined quantity of decision trees ranked among the top decision trees are multiple decision trees that are comprised in the GBDT model and that are arranged in a predetermined order.

5. An apparatus for determining a feature interpretation of a predicted label value of a user, wherein the apparatus is implemented after a prediction of a label value of the user is generated by using a gradient boosting decision tree (GBDT) model, wherein the GBDT model is a regression model for predicting the label value that is a fraud risk value, the feature interpretation comprises multiple features of the user that are relevant to the predicted label value of the user and a respective measure of relevance between each of the features and the predicted label value, wherein the GBDT model comprises multiple decision trees arranged in a predetermined order, and the apparatus comprises:

a first acquisition unit, configured to separately obtain, from a predetermined quantity of decision trees ranked among the top decision trees, a leaf node comprising the user and a score of the leaf node, wherein the score of the leaf node is a score predetermined by using the GBDT model;

a first determining unit, configured to determine a respective prediction path of each leaf node, wherein the prediction path is a node connection path from the leaf node to a root node of a decision tree in which the leaf node is located;

a second acquisition unit, configured to obtain a split feature and a score of each parent node on each prediction path, wherein the score of the parent node is determined based on computing a

weighted average value of scores of two child nodes of the parent node, where weights of the scores of the child nodes are determined based on quantities of samples respectively allocated to the child nodes in a training process of the GBDT model;

a second determining unit, configured to determine, for each child node on each prediction path based on a score of the child node and a score and a split feature of a parent node of the child node, a feature corresponding to the child node and a local increment of the feature on the child node, wherein the feature corresponding to the child node is a feature relevant to the predicted label value of the user;

a feature acquisition unit, configured to obtain a collection of features respectively corresponding to all child nodes as the multiple features relevant to the predicted label value of the user; and

a relevance determination unit, configured to obtain, by computing a sum of a local increment of the feature of at least one of the child nodes that corresponds to a same feature, a respective measure of relevance between the feature corresponding to the at least one child node and the predicted label value.

6. The apparatus for determining a feature interpretation of a predicted label value of a user according to claim 5, wherein the score of the parent node is determined based on the predetermined scores of the leaf nodes of the decision tree in which the parent node is located, comprising: the score of the parent node is an average value of scores of two child nodes of the parent node.

7. The apparatus for determining a feature interpretation of a predicted label value of a user according to claim 5, wherein the second determining unit is specifically configured to obtain a difference between the score of the child node and the score of the parent node as the local increment of the feature.

8. The apparatus for determining a feature interpretation of a predicted label value of a user according to claim 5, wherein the predetermined quantity of decision trees ranked among the top decision trees are multiple decision trees that are comprised in the GBDT model and that are arranged in a predetermined order.