

CLAIMS

What is claimed is:

1. A transaction indicator monitoring method, comprising:
specifying, through an interface of a monitoring device, a transaction indicator of
5 transaction data and multiple sets of transaction dimension values to be monitored,
wherein the transaction data of a transaction is stored in a transaction server used by a
transaction client device to perform the transaction;
obtaining, by the monitoring device based on a user specified time range, sampling
sequences of the transaction indicator of the transaction data under the multiple sets of
10 transaction dimension values of the transaction data respectively, wherein each set of
transaction dimension values corresponds to one sampling sequence, wherein the one
sampling sequence comprises values of the transaction indicator at a predetermined
quantity of sampling points under one set of transaction dimension values, and a value
of the transaction indicator at a target sampling point is an actual value;
15 determining, by the monitoring device and for each sampling sequence, an
estimated value of the transaction indicator at the target sampling point in the sampling
sequence based on the sampling sequence;
comparing, by the monitoring device and for each sampling sequence, the
estimated value of the transaction indicator at the target sampling point in the sampling
20 sequence with the actual value, to determine whether the value of the transaction
indicator at the target sampling point under the one set of transaction dimension values
corresponding to the sampling sequence is abnormal; and
displaying, by the monitoring device, an abnormality prompt, wherein the
abnormality prompt includes a value of an abnormal transaction indicator and a
25 corresponding set of transaction dimension values, and wherein the set of transaction
dimension values indicates a cause for the abnormality.
2. The method according to claim 1, wherein a value of the transaction indicator
at an another sampling point in each sampling sequence is a smoothed value, and the
smoothed value is obtained by smoothing the actual value.
- 30 3. The method according to claim 2, wherein obtaining the sampling sequences of
the transaction indicator of the transaction data under the multiple sets of transaction
dimension values of the transaction data respectively comprises:
separately obtaining a set of actual values of the transaction indicator at the
predetermined quantity of sampling points under each of the multiple sets of transaction

dimension values based on a predetermined time interval; and

separately smoothing an actual value at another sampling point except the target sampling point in each set of actual values.

4. The method according to claim 3, wherein separately smoothing the actual value
5 at the another sampling point except the target sampling point in each set of actual values comprises:

separately calculating the smoothed value for the actual value at the another sampling point except the target sampling point in each set of actual values;

10 comparing a difference of the transaction indicator at the another sampling point under each set of transaction dimension values with a first threshold corresponding to the set of transaction dimension values, wherein the difference at the another sampling point is a difference between the actual value and the smoothed value of the transaction indicator at a same another sampling point, and the first threshold corresponding to each set of transaction dimension values is determined based on values of the transaction
15 indicator at multiple sampling points under the set of transaction dimension values; and replacing the actual value for which the difference exceeds the first threshold with the smoothed value.

5. The method according to any one of claims 1 to 4, wherein the target sampling point is a last sampling point in a sampling sequence.

20 6. The method according to claim 5, wherein calculating, for each sampling sequence, the estimated value of the transaction indicator at the target sampling point in the sampling sequence based on the sampling sequence comprises:

calculating, for each sampling sequence, the estimated value of the transaction indicator at the target sampling point in the sampling sequence based on a value at
25 another sampling point except the target sampling point in the sampling sequence.

7. The method according to claim 5, wherein calculating, for each sampling sequence, the estimated value of the transaction indicator at the target sampling point in the sampling sequence based on a value at another sampling point except the target sampling point in the sampling sequence comprises:

30 calculating, for each sampling sequence, a historical average value of the transaction indicator in the sampling sequence, wherein the historical average value is an average of values of the transaction indicator at other sampling points except the target sampling point in the sampling sequence; and

determining, for each sampling sequence, the historical average value of the

transaction indicator in the sampling sequence as the estimated value of the transaction indicator at the target sampling point in the sampling sequence.

8. The method according to claim 5, wherein comparing, for each sampling sequence, the estimated value of the transaction indicator at the target sampling point in the sampling sequence with the actual value, to determine whether the transaction indicator at the target sampling point under the one set of transaction dimension values corresponding to the sampling sequence is abnormal comprises:

comparing a difference of the transaction indicator at the target sampling point under each set of transaction dimension values with a second threshold corresponding to the set of transaction dimension values, wherein the difference at the target sampling point is a difference between the actual value and the estimated value of the transaction indicator at the target sampling point, and the second threshold corresponding to each set of transaction dimension values is determined based on values of the transaction indicator at multiple sampling points under the set of transaction dimension values; and separately determining, based on a comparison result under each set of transaction dimension values, whether a value of the transaction indicator at the target sampling point under the set of transaction dimension values is abnormal.

9. The method according to claim 5, further comprising, wherein before the displaying an abnormality prompt:

calculating an abnormality confidence level of a value of the abnormal transaction indicator; and

the displaying an abnormality prompt comprises:

generating and sending multiple pieces of abnormality prompt information that are sorted based on the abnormality confidence level, wherein each abnormality prompt information corresponds to a value of one abnormal transaction indicator and one set of transaction dimension values.

10. The method according to claim 9, further comprising:

obtaining feedback information of the abnormality prompt information, wherein the feedback information is used to indicate whether the abnormality prompt information is accurate; and

modifying sorting of the abnormality prompt information based on the feedback information.

11. An apparatus for transaction indicator monitoring, comprising:

a sampling sequence acquisition module, configured to specify a transaction

indicator of transaction data and multiple sets of transaction dimension values to be monitored, wherein the transaction data of a transaction is stored in a transaction server used by a transaction client device to perform the transaction, and

5 configured to obtain sampling sequences of the transaction indicator of the transaction data under the multiple sets of transaction dimension values of the transaction data respectively, wherein each set of transaction dimension values corresponds to one sampling sequence, wherein the one sampling sequence comprises values of the transaction indicator at a predetermined quantity of sampling points under one set of transaction dimension values, and a value of the transaction indicator at a
10 target sampling point is an actual value;

an estimated value calculation module, configured to determine, for each sampling sequence, an estimated value of the transaction indicator at the target sampling point in the sampling sequence based on the sampling sequence;

15 an abnormality monitoring module, configured to compare, for each sampling sequence, the estimated value of the transaction indicator at the target sampling point in the sampling sequence with the actual value, to determine whether the value of the transaction indicator at the target sampling point under the one set of transaction dimension values corresponding to the sampling sequence is abnormal; and

20 display an abnormality prompt, wherein the abnormality prompt includes a value of an abnormal transaction indicator and a corresponding set of transaction dimension values, and wherein the set of transaction dimension values indicates a cause for the abnormality.

12. The apparatus according to claim 11, wherein a value of the transaction indicator at an another sampling point in each sampling sequence is a smoothed value,
25 and the smoothed value is obtained by smoothing the actual value.

13. The apparatus according to claim 12, wherein the sampling sequence acquisition module is configured to:

30 separately obtain a set of actual values of the transaction indicator at the predetermined quantity of sampling points under each of the multiple sets of transaction dimension values based on a predetermined time interval; and

separately smooth an actual value at the another sampling point except the target sampling point in each set of actual values.

14. The apparatus according to claim 13, wherein when separately smooth the actual value at the another sampling point except the target sampling point in each set

of actual values, the sampling sequence acquisition module is configured to:

separately calculate the smoothed value for the actual value at the another sampling point except the target sampling point in each set of actual values;

compare a difference of the transaction indicator at the another sampling point
5 under each set of transaction dimension values with a first threshold corresponding to the set of transaction dimension values, wherein the difference at the another sampling point is a difference between the actual value and the smoothed value of the transaction indicator at a same another sampling point, and the first threshold corresponding to each set of transaction dimension values is determined based on values of the transaction
10 indicator at multiple sampling points under the set of transaction dimension values; and
replace the actual value for which the difference exceeds the first threshold with the smoothed value.

15 15. The apparatus according to claim 11, wherein the target sampling point is a last sampling point in a sampling sequence.

16. The apparatus according to claim 15, wherein the estimated value calculation module is configured to:

calculate, for each sampling sequence, the estimated value of the transaction indicator at the target sampling point in the sampling sequence based on a value at another sampling point except the target sampling point in the sampling sequence.

20 17. The apparatus according to claim 15, wherein the estimated value calculation module is configured to:

calculate, for each sampling sequence, a historical average value of the transaction indicator in the sampling sequence, wherein the historical average value is an average of values of the transaction indicator at other sampling points except the target sampling
25 point in the sampling sequence; and

determine, for each sampling sequence, the historical average value of the transaction indicator in the sampling sequence as the estimated value of the transaction indicator at the target sampling point in the sampling sequence.

30 18. The apparatus according to claim 15, wherein the abnormality monitoring module is configured to:

compare a difference of the transaction indicator at the target sampling point under each set of transaction dimension values with a second threshold corresponding to the set of transaction dimension values, wherein the difference at the target sampling point is a difference between the actual value and the estimated value of the transaction

indicator at the target sampling point, and the second threshold corresponding to each set of transaction dimension values is determined based on values of the transaction indicator at multiple sampling points under the set of transaction dimension values; and separately determining, based on a comparison result under each set of transaction dimension values, whether a value of the transaction indicator at the target sampling point under the set of transaction dimension values is abnormal.

19. The apparatus according to claim 15, further comprising a confidence level calculation module, configured to: calculate an abnormality confidence level of a value of the abnormal transaction indicator; and

the abnormality monitoring module is configured to generate and send multiple pieces of abnormality prompt information that are sorted based on the abnormality confidence level, wherein each abnormality prompt information corresponds to a value of one abnormal transaction indicator and one set of transaction dimension values.

20. The apparatus according to claim 19, further comprising a modification module, configured to:

obtain feedback information of the abnormality prompt information, wherein the feedback information is used to indicate whether the abnormality prompt information is accurate; and

modify sorting of the abnormality prompt information based on the feedback information.

21. A transaction indicator monitoring device, comprising:

a memory, configured to store a computer program; and

a processor, configured to execute the computer program to implement the steps of the method according to any one of claims 1 to 10.

22. A computer readable storage medium, wherein the computer readable storage medium stores a computer program, and the computer program is executed by a processor to implement the steps of the method according to any one of claims 1 to 10.