

CODE SCANNING PAYMENT METHOD AND APPARATUS

TECHNICAL FIELD

[0001] One or more embodiments of this specification relate to the field of computer technologies, and in particular, to a code scanning payment method and
5 apparatus.

BACKGROUND

[0002] A process in which a user performs offline code scanning payment by using an e-wallet may be as follows: The user scans a payment code of a merchant (briefly referred to as code scanning payment below) by using an e-wallet client (briefly referred
10 to as a wallet client below), and inputs a payment amount on a loaded payment page to complete payment. In some cases, the payment code is an external payment code. In other words, the external payment code is generated in advance by another institution (for example, an acquiring institution or an acquiring outsourcing service institution, which is briefly referred to as an external payment code provider) other than the e-
15 wallet based on the payment page corresponding to the merchant. A common form of the payment code is a two-dimensional code, and the two-dimensional code includes a link of the payment page. With respect to the e-wallet, the payment page is an external payment page on which a payment amount can be input. The acquiring institution is an institution that signs an agreement with some merchants to help the merchants collect
20 funds. Specifically, during payment, if a merchant signs an agreement with an acquiring institution, the money paid by the user to the merchant first reaches an account of the acquiring institution, and then the acquiring institution sends the corresponding money to an account of the merchant. The acquiring outsourcing service institution is an institution that provides technical service support (providing a payment code and a
25 payment page) in a collection process involving the acquiring institution.

[0003] If the user scans an external payment code during the payment, an offline code scanning payment process of the user includes interaction between an external payment page and a wallet client. However, different external payment code providers have different technical requirements for interaction logic between the external payment page and the wallet client. For example, some external payment code providers require back-hopping interception, whereas some external payment code providers have no such requirement. Different e-wallets also have different requirements for the interaction logic between the external payment page and the wallet client. As a result, if the e-wallet wants to cooperate with the external payment code provider, the e-wallet or the external payment code provider needs to adapt to the interaction logic of the cooperator. However, in some cases, the e-wallet needs to actively adapt to interaction logic of a plurality of external payment code providers. Consequently, a great deal of energy needs to be devoted to develop and test the e-wallet in terms of adaptation work.

SUMMARY

[0004] In view of this, one or more embodiments of this specification provide a code scanning payment method and apparatus.

[0005] According to a first aspect of one or more embodiments of this specification, a code scanning payment method is provided, where a proxy server is used to implement interaction between a wallet client and an external payment page, and the method includes: obtaining, by the wallet client through scanning, an external payment code, and displaying an interaction interface used to input a payment amount; receiving a payment amount that is input by a user on the interaction interface; sending information about the external payment code and information about the payment amount to the proxy server; parsing, by the proxy server, the received information about the external payment code, and loading an external payment page corresponding to the external payment code based on a parsing result; simulating, by the proxy server on the loaded external payment page based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount

confirmation operation, so as to send a payment request to an external payment code provider; and obtaining a payment confirmation message from the external payment code provider in response to the payment request, and forwarding the payment confirmation message to the wallet client, so that the wallet client prompts, based on
5 the payment confirmation message, the user to complete payment.

[0006] According to a second aspect of one or more embodiments of this specification, a code scanning payment method is provided, where a proxy server is used to implement interaction between a wallet client and an external payment page, and the proxy server performs the following operations: obtaining information about an
10 external payment code and information about a payment amount that are sent by the wallet client, where the wallet client is preconfigured to: after obtaining, through scanning, the external payment code, display an interaction interface used to input the payment amount, and receive, through the interaction interface, the payment amount input by a user; parsing the received information about the external payment code, and
15 loading an external payment page corresponding to the external payment code based on a parsing result; simulating, on the loaded external payment page based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to an external payment code provider; and obtaining a payment confirmation
20 message from the external payment code provider in response to the payment request, and forwarding the payment confirmation message to the wallet client, so that the wallet client prompts, based on the payment confirmation message, the user to complete payment.

[0007] According to a third aspect of some embodiments of this specification, a
25 code scanning payment method is provided, where a proxy server is used to implement interaction between a wallet client and an external payment page, and the wallet client performs the following operations: obtaining, through scanning, an external payment code, and displaying an interaction interface used to input a payment amount; receiving a payment amount that is input by a user on the interaction interface; sending
30 information about the external payment code and information about the payment

amount to the proxy server, so that the proxy server loads an external payment page corresponding to the external payment code, and simulates the user to perform a payment amount input operation and a payment amount confirmation operation; and obtaining a payment confirmation message forwarded by the proxy server, where the
5 payment confirmation message is a message sent by an external payment code provider in response to the payment request, and prompting, based on the payment confirmation message, the user to complete payment.

[0008] According to a fourth aspect of some embodiments of this specification, a code scanning payment apparatus is provided, where a proxy server is used to
10 implement interaction between a wallet client and an external payment page, and the apparatus is applied to the proxy server, and includes: an information obtaining module, configured to obtain information about an external payment code and information about a payment amount that are sent by the wallet client, where the wallet client is preconfigured to: after obtaining, through scanning, the external payment code, display
15 an interaction interface used to input the payment amount, and receive, through the interaction interface, the payment amount input by a user; a page loading module, configured to parse the received information about the external payment code, and load an external payment page corresponding to the external payment code based on a parsing result; an input module, configured to simulate, on the loaded external payment
20 page based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to an external payment code provider; and a payment message forwarding module, configured to obtain a payment confirmation message from the external payment code provider in response to the payment request, and
25 forward the payment confirmation message to the wallet client, so that the wallet client prompts, based on the payment confirmation message, the user to complete payment.

[0009] According to a fifth aspect of some embodiments of this specification, a code scanning payment apparatus is provided, where a proxy server is used to
implement interaction between a wallet client and an external payment page, and the
30 apparatus is applied to the wallet client, and includes: an interaction interface display

module, configured to obtain, through scanning, an external payment code, and display an interaction interface used to input a payment amount; a payment amount receiving module, configured to receive a payment amount that is input by a user on the interaction interface; an information sending module, configured to send information
5 about the external payment code and information about the payment amount to the proxy server, so that the proxy server loads an external payment page corresponding to the external payment code, and simulates the user to perform a payment amount input operation and a payment amount confirmation operation; and a payment confirmation message obtaining module, configured to obtain a payment confirmation message
10 forwarded by the proxy server, where the payment confirmation message is a message sent by an external payment code provider in response to the payment request, and prompt, based on the payment confirmation message, the user to complete payment.

[0010] According to a sixth aspect of some embodiments of this specification, a code scanning payment system is provided, where a proxy server is used to implement
15 interaction between a wallet client and an external payment page, and the system includes the wallet client and the proxy server; the wallet client performs the following operations: obtaining, through scanning, an external payment code, and displaying an interaction interface used to input a payment amount; receiving a payment amount that is input by a user on the interaction interface; and sending information about the
20 external payment code and information about the payment amount to the proxy server; and the proxy server performs the following operations: parsing, by the proxy server, the received information about the external payment code, and loading an external payment page corresponding to the external payment code based on a parsing result; simulating, on the loaded external payment page based on the received information
25 about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to an external payment code provider; and obtaining a payment confirmation message from the external payment code provider in response to the payment request, and forwarding the payment confirmation message to the wallet client, so that the wallet client prompts,
30 based on the payment confirmation message, the user to complete payment.

[0011] According to a seventh aspect of some embodiments of this specification, a computer-readable storage medium is provided, where the computer-readable storage medium stores a computer instruction, and the instruction is executed by a processor to implement the code scanning payment method according to the second aspect or the third aspect of some embodiments of this specification.

[0012] According to an eighth aspect of some embodiments of this specification, an electronic device is provided, including: a processor; and a memory configured to store a processor-executable instruction, where the processor runs the executable instruction to implement the code scanning payment method according to the second aspect or the third aspect of some embodiments of this specification.

[0013] In one or more embodiments of this specification, a wallet client sends, to a proxy server, scanned information about an external payment code of a merchant, and information about a payment amount that is input by a user through an interaction interface used to input the payment amount. The proxy server simulates the wallet client to load an external payment page corresponding to the external payment code, and simulates the user to input the payment amount, so as to send a payment request to an external payment code provider. After obtaining a payment confirmation message corresponding to the payment request, the proxy server sends the payment confirmation message to the wallet client. After receiving the payment confirmation message, the wallet client interacts with the user to complete payment. The proxy server loads the external payment page and simulates the user to input the payment amount, so that the wallet client does not need to load the external payment page and does not need to adapt to interaction logic of the external payment code provider, thereby reducing a workload for developing and testing the wallet client.

[0014] It should be understood that the above-mentioned general description and the following detailed description are merely examples and explanations, and should not limit this specification.

BRIEF DESCRIPTION OF DRAWINGS

[0015] The accompanying drawings, which are incorporated in and form a part of this specification, illustrate some embodiments consistent with this specification and, together with this specification, serve to explain the principles of this specification.

5 [0016] FIG. 1 is a flowchart of a code scanning payment method according to some example embodiments of this specification;

[0017] FIG. 2 shows a process of interaction between a wallet client and an acquiring institution through a third-party SDK according to this specification;

[0018] FIG. 3 is a flowchart of another code scanning payment method according
10 to some specific embodiments of this specification;

[0019] FIG. 4 is a flowchart of another code scanning payment method according to some example embodiments of this specification;

[0020] FIG. 5 is a flowchart of still another code scanning payment method according to some example embodiments of this specification;

15 [0021] FIG. 6 is a block diagram of a code scanning payment apparatus according to some example embodiments of this specification;

[0022] FIG. 7 is a block diagram of another code scanning payment apparatus according to some example embodiments of this specification; and

[0023] FIG. 8 is a diagram of a hardware structure of a computer device in which a
20 code scanning payment apparatus is located according to some example embodiments of this specification.

DESCRIPTION OF EMBODIMENTS

[0024] Some example embodiments are described in detail here, and examples of the example embodiments are presented in the accompanying drawings. When the
25 following description relates to the accompanying drawings, unless specified otherwise, same numbers in different accompanying drawings represent same or similar elements. Implementations described in the following example embodiments do not represent all

implementations consistent with one or more embodiments of this specification. On the contrary, the implementations are merely examples of apparatuses and methods that are described in the appended claims in detail and consistent with some aspects of one or more embodiments of this specification.

5 [0025] It should be noted that, in some other embodiments, the steps of the corresponding method are not necessarily performed in the order shown and described in this specification. In some other embodiments, the method may include more or fewer steps than those described in this specification. In addition, a single step described in this specification may be decomposed into a plurality of steps in some other
10 embodiments for description; and a plurality of steps described in this specification may be combined into a single step for description in some other embodiments.

[0026] The code scanning payment process of the user usually includes interaction between a wallet client and an external payment page. If an e-wallet wants to exploit a new market (for example, exploit a market in a new country), the e-wallet usually needs
15 to cooperate with an external payment code provider in the new market. However, in most cases, the external payment code provider in the new market is unlikely to actively adapt to interaction logic of the e-wallet. Therefore, the e-wallet needs to actively adapt to interaction logic of the external payment code provider in the new market. Consequently, a great deal of energy needs to be devoted to develop and test the e-
20 wallet to adapt to the interaction logic of the external payment code provider in the new market.

[0027] When the e-wallet performs active adaptation, a specific interaction process between the wallet client and the external payment code provider is as follows: The wallet client receives a code scanning request of the user, parses an external payment
25 code that is obtained through scanning, determines an external payment page link based on a parsing result, loads a payment page corresponding to the payment code based on an interaction method corresponding to the external payment page link, and receives a payment amount input by the user. After the user performs confirmation, the external payment code provider returns order identification information by using the external
30 payment page, and the wallet client obtains order information from a server of the

external payment code provider based on the order identification information, and prompts, based on the order information, to complete payment.

[0028] To resolve the above-mentioned problem, the wallet client sends, to a proxy server, scanned information about an external payment code of a merchant, and
5 information about a payment amount that is input by a user through an interaction interface used to input the payment amount. The proxy server simulates the wallet client to load an external payment page corresponding to the external payment code, and simulates the user to input the payment amount, so as to send a payment request to an external payment code provider. After obtaining a payment confirmation message
10 corresponding to the payment request, the proxy server sends the payment confirmation message to the wallet client. After receiving the payment confirmation message, the wallet client interacts with the user to complete payment. The proxy server loads the external payment page and simulates the user to input the payment amount, so that the wallet client does not need to load the external payment page and does not need to adapt
15 to interaction logic of the external payment page, thereby reducing a workload for developing and testing the wallet client.

[0029] The following describes in detail a code scanning payment method and apparatus provided in this specification.

[0030] First, this specification provides a code scanning payment method. As
20 shown in FIG. 1, compared with a code scanning payment process in a conventional technology in which only a wallet client and an external payment code provider are involved, in the method provided in this specification, a proxy server is newly added and the proxy server acts as an agent for the wallet client to parse an external payment code and load an external payment page, so as to complete interaction between the
25 wallet client and the external payment page. The code scanning payment method includes the following steps: Step 101: The wallet client obtains, through scanning, an external payment code, and displays an interaction interface used to input a payment amount.

[0031] Step 103: The wallet client receives a payment amount that is input by a user
30 on the interaction interface.

[0032] The following describes step 101 and step 103 together.

[0033] The interaction interface used to input the payment amount may be presented in a form of an input box, or may be presented in a form of a page. If the interaction interface is presented in a form of a page, the page is not an external page, but a page provided by the wallet client itself. For example, the interaction interface may be an external payment page, used to input the payment amount after code scanning, of the wallet client itself. The external payment code corresponds to the external payment page, and is provided by an acquiring institution or an acquiring service institution other than the e-wallet. The acquiring institution or the acquiring service institution is an external payment code provider. There are a plurality of e-wallets that cooperate with the proxy server, and there are also a plurality of external payment code providers that cooperate with the proxy server. The e-wallet mentioned in this specification may be any one of the plurality of e-wallets, and the external payment code provider mentioned in this specification may be any one of the plurality of external payment code providers.

[0034] Unlike a related technology in which after an external payment code is scanned, the external payment code is decoded, and a corresponding external payment page is loaded, in some embodiments of this specification, after an external payment code is scanned, the external payment code is not decoded, and no external payment page corresponding to the external payment code is loaded, but an interaction interface used to input a payment amount is loaded. In this way, the wallet client can submit, to the external payment code provider without loading the external payment page, the payment amount input by the user, so that the wallet client does not need to adapt to the interaction logic of the external payment code provider. In addition, when there are a large number of external payment code providers that need to cooperate with the e-wallet, according to the method in some embodiments of this specification, the wallet client does not need to adapt to a plurality of external payment code providers, so that development costs of the e-wallet are greatly reduced, and it is easier for the e-wallet to exploit a new market.

[0035] In addition, considering that the wallet client does not necessarily load the

interaction interface used to input the payment amount after anything is photographed by using a code scanning page, the wallet client needs to first determine whether there is an external payment code for a thing photographed by using the code scanning page and whether the external payment code is an external payment code that cannot be
5 parsed by the wallet client, but can be parsed by the proxy server. The wallet client displays the interaction interface only after determining that there is an external payment code and the external payment code is an external payment code that cannot be parsed by the wallet client, but can be parsed by the proxy server.

[0036] Specifically, when the user obtains a two-dimensional code or another
10 barcode through scanning by using a code scanning function of the wallet client, the wallet client first determines whether the external payment code is an external payment code that can be parsed by the wallet client. If it is determined that the external payment code can be parsed by the wallet client, the wallet client directly displays a corresponding page. If it is determined that the external payment code cannot be parsed
15 by the wallet client, the wallet client may send a query request to the cooperative proxy server, where the query request is used to enable the proxy server to query whether the two-dimensional code included in the query request can be parsed. If the proxy server responds to the query request and returns a query success message to the wallet client, the wallet client loads an interaction interface for the user to input a payment amount,
20 so as to obtain the payment amount input by the user. If the proxy server responds to the query request and returns a query failure message to the wallet client, the wallet client prompts the user that parsing cannot be performed. In other words, step 101 includes: obtaining, by the wallet client through scanning, the external payment code, and sending, to the proxy server, a query request that includes information about the
25 external payment code; sending, by the proxy server, a query success message to the wallet client when the information about the external payment code can be parsed; and in response to the query success information, displaying, by the wallet client, the interaction interface used to input a payment amount.

[0037] Step 105: The wallet client sends information about the external payment
30 code and information about the payment amount to the proxy server.

[0038] After obtaining the payment amount input by the user, to ensure that the external payment code provider can also obtain the payment amount input by the user to complete interaction with the external payment page, the wallet client needs to send the information about the external payment code and the information about the payment amount to the proxy server, so that an entire interaction process is completed without changing an existing method for obtaining the payment amount by the external payment code provider.

[0039] The information about the external payment code may be a photographed picture of the external payment code, or may be a binary value generated after the external payment code is identified. In addition, in step 105, because the proxy server is connected to more than one wallet client, to ensure that the proxy server can identify a specific wallet client that sends each piece of information, the proxy server further needs to send identification information that is used to distinguish between different wallet clients, for example, an identifier of an e-wallet corresponding to the wallet client and identification information that is obtained by combining user identifiers. Certainly, the identification information may alternatively be in another form. A form of the identification information is not limited in this specification.

[0040] Step 107: The proxy server parses the received information about the external payment code, and loads an external payment page corresponding to the external payment code based on a parsing result.

[0041] Step 109: The proxy server simulates, on the loaded external payment page based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to the external payment code provider.

[0042] The following describes step 107 and step 109 together.

[0043] Unlike a method in a related technology in which a wallet client parses an external payment code and loads a corresponding external payment page, in some embodiments of this specification, a proxy server is selected to parse an external payment code and load an external payment page corresponding to the external payment code. In this way, the proxy server acts as an agent for the wallet client to interact with

the external payment page, thereby reducing development costs of the wallet client.

[0044] The external payment page can be loaded by using a headless browser, and the loading performed by using the headless browser can conveniently batch process interaction tasks of a plurality of external payment pages. The external payment page
5 is actually loaded by simulating the wallet client. In this way, the method actually used to interact with the external payment code provider does not change, so that the server of the external payment code provider does not need to be adjusted for the entire interaction process.

[0045] In the interaction process, to ensure that the user can be simulated to perform
10 a payment amount input operation and a payment amount confirmation operation on the loaded external payment page, a meaning of each interactive page element on the external payment page needs to be known. Therefore, the meaning of each interactive page element on the external payment page can be determined by using a pre-trained page element identification model when the external payment page is opened.
15 Alternatively, all external payment pages in the market can be loaded and screenshots can be taken in advance, and the above-mentioned machine learning method can be used to parse the meaning of each interactive page element on the external payment page. After the process is completed, a parsing result is stored. In this case, in step 109, the payment amount can be input based on pre-stored parsing results for different
20 external payment pages. In this way, when an external payment page is loaded each time, parsing of the external payment page is no longer performed, thereby increasing a processing speed. Specifically, step 109 may include: determining a meaning of each interactive page element on the external payment page based on a pre-stored parsing result of the external payment page; determining locations and a tapping order of page
25 elements that need to be tapped to input the payment amount, and inputting the payment amount based on the determined tapping order; and if the input payment amount displayed on the external payment page is the same as the payment amount, tapping a page element that represents confirmation on the external payment page to simulate the confirmation operation of the user. In addition, the external payment page may be
30 updated. Therefore, the proxy server can set a scheduled task to periodically monitor

whether the external payment page changes. After the external payment page changes, the meaning of each interactive page element on the external payment page is re-determined, so as to avoid incorrectly inputting payment amount information.

5 [0046] In addition, for an interaction process between some e-wallets and some external payment code providers, a payment confirmation message may not be obtained after a payment request is sent. In this process, after a payment amount is input and a payment request is sent by using an external payment page, the external payment code provider returns order identification information by using the external payment page, and the server invokes an order identification information parsing interface to perform
10 parsing, so as to obtain order information (a payment confirmation message) from the server of the external payment code provider. The method provided in this specification can also be applied to this scenario. Specifically, after sending the payment request by using the external payment page, the proxy server intercepts the returned order identification information and invokes the order identification information parsing
15 interface, so as to obtain the order information from the server of the external payment code provider.

[0047] Step 111: The proxy server obtains a payment confirmation message from the external payment code provider in response to the payment request, and forwards the payment confirmation message to the wallet client, so that the wallet client prompts,
20 based on the payment confirmation message, the user to complete payment.

[0048] Because the user needs to participate in the payment confirmation, after obtaining the payment confirmation message sent by the server of the external payment code provider, the proxy server needs to send the payment confirmation message to the wallet client, so that the wallet client prompts the user to complete payment.

25 [0049] In addition to selecting the proxy server to simulate the wallet client to load the external payment page, so as to complete interaction with the external payment code provider, the e-wallet may cooperate with a third-party server. In this case, the third-party server provides a software development kit (SDK), where the provided SDK is used to load an external payment page, and is responsible for interacting with an
30 external payment code provider. One e-wallet and one acquiring institution are used as

an example. A specific interaction process is shown in FIG. 2. A user scans a payment code provided by the acquiring institution. A wallet client loads an external payment page by using an integrated SDK, and based on an interaction method required by the external payment page. The user inputs and confirms an amount on the loaded external payment page. After the confirmation, the acquiring institution returns order identification information by using the external payment page. After obtaining the order identification information, the SDK invokes a proxy server to parse the order identification information, and the proxy server obtains order information from the acquiring institution, and forwards the order information to the wallet client, so as to prompt the user to complete payment. However, this method cannot be well adapted to a scenario in which the e-wallet does not allow loading of an external page.

[0050] According to the above-mentioned method, the wallet client does not need to load the external payment page, and the e-wallet does not need to adapt to interaction logic of the external payment page, so that the e-wallet can better exploit a new market.

In comparison with the method in which the wallet client adapts to the interaction logic of the external payment page by using the third-party SDK, the wallet client does not need to integrate the third-party SDK, thereby saving an integration workload of the wallet client. With respect to the user, in comparison with the method in which the proxy server is invoked to decode the order identification information to obtain the order information, in this application, the proxy server acts as an agent for the entire interaction process, thereby reducing invoking initiated by the wallet client, increasing a speed of the entire payment process, and improving user experience. In addition, the user can still use the original code scanning payment method to complete payment, and the user does not need to make a change for the adaptation.

[0051] With reference to some specific embodiments, the following describes the code scanning payment method provided in this specification.

[0052] It is assumed that an e-wallet A in Thailand wants to exploit an overseas market (for example, a Japanese market), so that a user of the wallet client can still use a native e-wallet when traveling to Japan, so as to improve user experience of the wallet client A. To this end, the e-wallet A needs to cooperate with a plurality of external

payment code providers in Japan, and needs to adapt to interaction logic of a plurality of external payment pages. To reduce a development workload, the e-wallet A chooses to cooperate with a proxy server, and the proxy server acts as an agent for the interaction process.

5 **[0053]** For example, the wallet client A scans a payment code provided by an acquiring institution B. As shown in FIG. 3, specifically, in an entire interaction process, a user scans a code first. When the wallet client determines that the scanned code is an external payment code that can be parsed by the proxy server, the wallet client displays an external payment page (a page used to input a payment amount) of the wallet client,
10 receives, by using the external payment page, a payment amount that is input by the user, and sends information about the payment amount and the external payment code to the proxy server. The proxy server determines an interaction method of the external payment page based on the received information about the external payment code so as to load the external payment page, and automatically inputs and confirms the payment
15 amount of the user on the external payment page based on a pre-stored page element parsing result of the external payment page, and further obtains order identification information returned by the acquiring institution by using the external payment page. The proxy server obtains order information from an external payment code provider based on the external payment code, and forwards the obtained order information to the
20 wallet client, so that the wallet client completes a payment process.

[0054] Corresponding to some embodiments of the above-mentioned code scanning payment method, this specification further provides a code scanning payment method that is applied to a proxy server and a wallet client.

[0055] As shown in FIG. 4, this specification further provides a code scanning
25 payment method, where a proxy server is used to implement interaction between a wallet client and an acquiring institution, and the proxy server performs the following steps:

[0056] Step 401: Obtain information about an external payment code and information about a payment amount that are sent by the wallet client, where the wallet
30 client is preconfigured to: after obtaining, through scanning, the external payment code

provided by the acquiring institution, display an interaction interface used to input the payment amount, and receive, through the interaction interface, the payment amount input by a user.

5 **[0057]** Step 403: Parse the received information about the external payment code, and load an external payment page corresponding to the external payment code based on a parsing result.

10 **[0058]** Step 405: Simulate, on the loaded external payment page based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to the acquiring institution.

15 **[0059]** Step 407: Obtain a payment confirmation message from the acquiring institution in response to the payment request, and forward the payment confirmation message to the wallet client, so that the wallet client prompts, based on the payment confirmation message, the user to complete payment.

20 **[0060]** As shown in FIG. 5, this specification further provides a code scanning payment method, where a proxy server is used to implement interaction between a wallet client and an acquiring institution, and the wallet client performs the following steps: Step 501: Obtain, through scanning, an external payment code provided by the acquiring institution, and display an interaction interface used to input a payment amount.

25 **[0061]** Step 503: Receive a payment amount that is input by a user on the interaction interface.

30 **[0062]** Step 505: Send information about the external payment code and information about the payment amount to the proxy server, so that the proxy server loads an external payment page corresponding to the external payment code, and simulates the user to perform a payment amount input operation and a payment amount confirmation operation.

35 **[0063]** Step 507: Obtain a payment confirmation message forwarded by the proxy server, where the payment confirmation message is a message sent by the acquiring institution in response to the payment request, and prompt, based on the payment

confirmation message, the user to complete payment.

[0064] In addition, some embodiments of this specification further provide a code scanning payment system, where a proxy server is used to implement interaction between a wallet client and an acquiring institution, and the system includes the wallet client and the proxy server; the wallet client performs the following operations: obtaining, through scanning, an external payment code provided by the acquiring institution, and displaying an interaction interface used to input a payment amount; receiving a payment amount that is input by a user on the interaction interface; and sending information about the external payment code and information about the payment amount to the proxy server; and the proxy server performs the following operations: parsing, by the proxy server, the received information about the external payment code, and loading an external payment page corresponding to the external payment code based on a parsing result; simulating, on the loaded external payment page based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to the acquiring institution; and obtaining a payment confirmation message from the acquiring institution in response to the payment request, and forwarding the payment confirmation message to the wallet client, so that the wallet client prompts, based on the payment confirmation message, the user to complete payment.

[0065] For an implementation process of functions of the steps in the above-mentioned method and system, references are made to an implementation process of corresponding steps in the above-mentioned code scanning payment method, and details are not described herein again.

[0066] Corresponding to some embodiments of the above-mentioned code scanning payment method, this specification further provides some embodiments of a code scanning payment apparatus and an electronic device to which the code scanning payment apparatus is applied.

[0067] FIG. 6 is a block diagram of a code scanning payment apparatus according to some example embodiments of this specification. The apparatus includes: an

information obtaining module 610, configured to obtain information about an external payment code and information about a payment amount that are sent by a wallet client, where the wallet client is preconfigured to: after obtaining, through scanning, an external payment code provided by an acquiring institution, display an interaction interface used to input a payment amount, and receive, through the interaction interface, a payment amount input by a user; a page loading module 620, configured to parse the received information about the external payment code, and load an external payment page corresponding to the external payment code based on a parsing result; an input module 630, configured to simulate, on the loaded external payment page based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to the acquiring institution; and a payment message forwarding module 640, configured to obtain a payment confirmation message from the acquiring institution in response to the payment request, and forward the payment confirmation message to the wallet client, so that the wallet client prompts, based on the payment confirmation message, the user to complete payment.

[0068] FIG. 7 is a block diagram of a code scanning payment apparatus according to some example embodiments of this specification. The apparatus includes: an interaction interface display module 710, configured to obtain, through scanning, an external payment code, and display an interaction interface used to input a payment amount; a payment amount receiving module 720, configured to receive a payment amount that is input by a user on the interaction interface; an information sending module 730, configured to send information about the external payment code and information about the payment amount to a proxy server, so that the proxy server loads an external payment page corresponding to the external payment code, and simulates the user to perform a payment amount input operation and a payment amount confirmation operation; and a payment confirmation message obtaining module 740, configured to obtain a payment confirmation message forwarded by the proxy server, where the payment confirmation message is a message sent by an acquiring institution in response to the payment request, and prompt, based on the payment confirmation

message, the user to complete payment.

[0069] For an implementation process of functions and roles of each module in any one of the above-mentioned code scanning payment apparatuses, references are made to an implementation process of corresponding steps in the above-mentioned method,
5 and details are not described herein again.

[0070] Because some apparatus embodiments basically correspond to some method embodiments, for related parts, references are made to related descriptions in the method embodiments. The described apparatus embodiments are merely examples. The modules described as separate parts may or may not be physically separate, and parts
10 displayed as modules may or may not be physical modules, that is, may be located in one position, or may be distributed on a plurality of network modules. Some or all of the modules can be selected based on actual needs to achieve the objectives of the solutions of this specification. A person of ordinary skill in the art can understand and implement the solutions without creative efforts.

[0071] FIG. 8 is a diagram of a hardware structure of an electronic device in which a code scanning payment apparatus is located according to some embodiments. The code scanning payment apparatus may be any one of the above-mentioned code scanning payment apparatuses, and a wallet client or a proxy server can be mounted on the corresponding device. The device may include a processor 1010, a memory 1020,
20 an input/output interface 1030, a communication interface 1040, and a bus 1050. The processor 1010, the memory 1020, the input/output interface 1030, and the communication interface 1040 are communicatively connected to each other within the device through the bus 1050.

[0072] The processor 1010 can be implemented in a form of a general-purpose
25 central processing unit (CPU), a microprocessor, an application-specific integrated circuit (ASIC), one or more integrated circuits, etc., and is configured to execute a related program, to implement the technical solutions provided in some embodiments of this specification.

[0073] The memory 1020 can be implemented in a form of a read-only memory
30 (ROM), a random access memory (RAM), a static storage device, a dynamic storage

device, etc. The memory 1020 can store an operating system and another application program. When the technical solutions provided in some embodiments of this specification are implemented by software or firmware, related program code is stored in the memory 1020, and invoked and executed by the processor 1010.

5 **[0074]** The input/output interface 1030 is configured to connect to an input/output module, to implement information input and output. The input/output module can be configured as a component in the device (not shown in the figure), or can be externally connected to the device to provide a corresponding function. The input device may include a keyboard, a mouse, a touchscreen, a microphone, various sensors, etc., and
10 the output device may include a display, a speaker, a vibrator, an indicator, etc.

[0075] The communication interface 1040 is configured to connect to a communication module (not shown in the figure), to implement communication and interaction between the device and another device. The communication module can implement communication in a wired way (for example, a USB flash drive or a network
15 cable) or in a wireless way (for example, a mobile network, Wi-Fi, or Bluetooth).

[0076] The bus 1050 includes a path to transmit information between various components (for example, the processor 1010, the memory 1020, the input/output interface 1030, and the communication interface 1040) of the device.

[0077] It should be noted that, although only the processor 1010, the memory 1020,
20 the input/output interface 1030, the communication interface 1040, and the bus 1050 are shown in the device, in an actual implementation process, the device may further include another component that is necessary for normal operation. In addition, a person skilled in the art can understand that, the device may include only the component that is necessary for implementing the solutions in some embodiments of this specification,
25 and does not necessarily include all the components shown in the figure.

[0078] Some embodiments of this specification further provide a computer-readable storage medium, where the computer-readable storage medium stores a computer program, and the program is executed by a processor to implement the code scanning payment method according to the second aspect or the third aspect of some
30 embodiments of this specification. In other words, the computer-readable storage

medium can store a computer program corresponding to a proxy server, or can store a computer program corresponding to a wallet client.

[0079] The computer-readable medium includes a persistent and a non-persistent, a removable and a non-removable medium, which can implement information storage
5 by using any method or technology. Information may be a computer-readable instruction, a data structure, a program module, or other data. Examples of the computer storage medium include but are not limited to a phase change random access memory (PRAM), a static random access memory (SRAM), a dynamic random access memory (DRAM), a random access memory (RAM) of another type, a read-only memory
10 (ROM), an electrically erasable programmable read-only memory (EEPROM), a flash memory or another memory technology, a compact disc read-only memory (CD-ROM), a digital versatile disc (DVD) or another optical storage, a cassette tape, a cassette magnetic disk storage, or another magnetic storage device, or any other non-transmission media, which can be configured to store information that can be accessed
15 by a computing device. Based on the definition in this specification, the computer-readable medium does not include transitory media such as a modulated data signal and carrier.

[0080] Some specific embodiments of this specification are described above. Other embodiments fall within the scope of the appended claims. In some cases, actions or
20 steps described in the claims can be performed in a sequence different from that in some embodiments and desired results can still be achieved. In addition, processes described in the accompanying drawings do not necessarily need a specific order or a sequential order shown to achieve the desired results. In some implementations, multi-tasking and parallel processing are also possible or may be advantageous.

[0081] It should be further noted that, the terms "include", "comprise", or any other
25 variant thereof are intended to cover a non-exclusive inclusion, so that a process, a method, a product or a device that includes a list of elements not only includes those elements but also includes other elements which are not expressly listed, or further includes elements inherent to such process, method, product or device. Without more
30 constraints, an element preceded by "includes a ..." does not preclude the existence of

additional identical elements in the process, method, product or device that includes the element.

CLAIMS

What is claimed is:

1. A code scanning payment method, wherein a proxy server is used to implement interaction between a wallet client and an external payment page, and the method
5 comprises:

obtaining, by the wallet client through scanning, an external payment code, and displaying an interaction interface used to input a payment amount;

receiving a payment amount that is input by a user on the interaction interface;

10 sending information about the external payment code and information about the payment amount to the proxy server;

parsing, by the proxy server, the received information about the external payment code, and loading an external payment page corresponding to the external payment code based on a parsing result;

15 simulating, by the proxy server on the loaded external payment page based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to an external payment code provider; and

obtaining a payment confirmation message from the external payment code provider in response to the payment request, and forwarding the payment confirmation
20 message to the wallet client, so that the wallet client prompts, based on the payment confirmation message, the user to complete payment.

2. The method according to claim 1, wherein the obtaining, by the wallet client through scanning, an external payment code, and displaying an interaction interface used to input a payment amount comprises:

25 obtaining, by the wallet client through scanning, the external payment code, and sending, to the proxy server, a query request that comprises information about the external payment code;

sending, by the proxy server, a query success message to the wallet client when the information about the external payment code can be parsed; and

in response to the query success message, displaying, by the wallet client, the interaction interface used to input a payment amount.

3. The method according to claim 1, wherein the simulating, on the loaded external payment page based on the received information about the payment amount, the user to
5 perform a payment amount input operation and a payment amount confirmation operation comprises:

determining a meaning of each interactive page element on the external payment page based on a pre-stored parsing result of the external payment page;

determining locations and a tapping order of page elements that need to be tapped
10 to input the payment amount, and inputting the payment amount based on the determined tapping order; and

if the input payment amount displayed on the external payment page is the same as the payment amount, tapping a page element that represents confirmation on the external payment page to simulate the confirmation operation of the user.

15 4. A code scanning payment method, wherein a proxy server is used to implement interaction between a wallet client and an external payment page, and the proxy server performs the following operations:

obtaining information about an external payment code and information about a payment amount that are sent by the wallet client, wherein the wallet client is
20 preconfigured to: after obtaining, through scanning, the external payment code, display an interaction interface used to input the payment amount, and receive, through the interaction interface, the payment amount input by a user;

parsing the received information about the external payment code, and loading an external payment page corresponding to the external payment code based on a parsing
25 result;

simulating, on the loaded external payment page based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to an external payment code provider; and

30 obtaining a payment confirmation message from the external payment code

provider in response to the payment request, and forwarding the payment confirmation message to the wallet client, so that the wallet client prompts, based on the payment confirmation message, the user to complete payment.

5 5. A code scanning payment method, wherein a proxy server is used to implement interaction between a wallet client and an external payment page, and the wallet client performs the following operations:

obtaining, through scanning, an external payment code, and displaying an interaction interface used to input a payment amount;

receiving a payment amount that is input by a user on the interaction interface;

10 sending information about the external payment code and information about the payment amount to the proxy server, so that the proxy server loads an external payment page corresponding to the external payment code, and simulates the user to perform a payment amount input operation and a payment amount confirmation operation; and

obtaining a payment confirmation message forwarded by the proxy server, wherein
15 the payment confirmation message is a message sent by an external payment code provider in response to the payment request, and prompting, based on the payment confirmation message, the user to complete payment.

6. A code scanning payment apparatus, wherein a proxy server is used to implement interaction between a wallet client and an external payment page, and the
20 apparatus is applied to the proxy server, and comprises:

an information obtaining module, configured to obtain information about an external payment code and information about a payment amount that are sent by the wallet client, wherein the wallet client is preconfigured to: after obtaining, through scanning, the external payment code, display an interaction interface used to input the
25 payment amount, and receive, through the interaction interface, the payment amount input by a user;

a page loading module, configured to parse the received information about the external payment code, and load an external payment page corresponding to the external payment code based on a parsing result;

30 an input module, configured to simulate, on the loaded external payment page

based on the received information about the payment amount, the user to perform a payment amount input operation and a payment amount confirmation operation, so as to send a payment request to an external payment code provider; and

5 a payment message forwarding module, configured to obtain a payment confirmation message from the external payment code provider in response to the payment request, and forward the payment confirmation message to the wallet client, so that the wallet client prompts, based on the payment confirmation message, the user to complete payment.

10 7. A code scanning payment apparatus, wherein a proxy server is used to implement interaction between a wallet client and an external payment page, and the apparatus is applied to the wallet client, and comprises:

an interaction interface display module, configured to obtain, through scanning, an external payment code, and display an interaction interface used to input a payment amount;

15 a payment amount receiving module, configured to receive a payment amount that is input by a user on the interaction interface;

an information sending module, configured to send information about the external payment code and information about the payment amount to the proxy server, so that the proxy server loads an external payment page corresponding to the external payment code, and simulates the user to perform a payment amount input operation and a payment amount confirmation operation; and

20 a payment confirmation message obtaining module, configured to obtain a payment confirmation message forwarded by the proxy server, wherein the payment confirmation message is a message sent by an external payment code provider in response to the payment request, and prompt, based on the payment confirmation message, the user to complete payment.

8. A code scanning payment system, wherein a proxy server is used to implement interaction between a wallet client and an external payment page, and the system comprises the wallet client and the proxy server;

30 the wallet client performs the following operations: obtaining, through scanning,

an external payment code, and displaying an interaction interface used to input a payment amount; receiving a payment amount that is input by a user on the interaction interface; and sending information about the external payment code and information about the payment amount to the proxy server; and

5 the proxy server performs the following operations: parsing, by the proxy server, the received information about the external payment code, and loading an external payment page corresponding to the external payment code based on a parsing result; simulating, on the loaded external payment page based on the received information about the payment amount, the user to perform a payment amount input operation and
10 a payment amount confirmation operation, so as to send a payment request to an external payment code provider; and obtaining a payment confirmation message from the external payment code provider in response to the payment request, and forwarding the payment confirmation message to the wallet client, so that the wallet client prompts, based on the payment confirmation message, the user to complete payment.

15 9. An electronic device, comprising:
 a processor; and
 a memory, configured to store a processor-executable instruction, wherein
 the processor runs the executable instruction to implement the code scanning
payment method according to any one of claims 4 and 5.

20 10. A computer-readable storage medium, wherein the computer-readable storage medium stores a computer instruction, and the computer instruction is executed by a processor to implement the code scanning payment method according to any one of claims 4 and 5.