

ORDER PROCESSING METHOD, SYSTEM, AND STORAGE MEDIUM

TECHNICAL FIELD

[0001] This specification relates to the field of electronic commerce, and in particular, to an
5 order processing method, a system, and a storage medium.

BACKGROUND

[0002] With wide spread and development of the Internet, more small and micro merchants
use the Internet to perform offline service development. In a scenario in which the small and micro
merchants perform offline service development, order code payment is a very common
10 phenomenon. Usually, order processing occurs on a server side. A two-dimensional code of an
order is directly generated by each acquiring institution, and a URL of a picture is returned to a
merchant. Due to a poor network environment of the small and micro merchants, when the
merchant renders the URL, the order code is loaded and rendered very slowly, and cannot be used
sometimes.

15 [0003] Content of the background part is merely information learned of by the inventor, and
neither means that the information has entered a public domain before an application date of the
present disclosure, nor means that the information can become a conventional technology of the
present disclosure.

SUMMARY

20 [0004] This specification provides an order processing method, a system, and a storage
medium, so that an order can be generated on a front-end device in an environment in which a
wireless network signal is poor, thereby accelerating a loading and rendering speed of an order
code in a transaction process, and improving cash collection efficiency and consumer satisfaction
of a merchant.

25 [0005] According to a first aspect, this specification provides an order display method, applied

to a front-end device in a transaction system, and including: obtaining payment information of a payer about a target transaction; sending a first payment instruction to a remote server; receiving content data that is of a two-dimensional code of the target order and that is sent by the server, where the target order corresponds to the target transaction; and locally generating the target order
5 based on the target two-dimensional code content data and a code rule, where the target order includes the two-dimensional code, and the code rule is pre-stored in the front-end device.

[0006] According to a second aspect, this specification further provides a front-end device in a transaction system, including: at least one display; at least one storage medium, storing at least one group of instruction sets, to display an order; at least one communication port, connected to a
10 remote server; at least one processor, communicatively connected to the at least one display, the at least one communication port, and the at least one storage medium, where when running, the at least one processor invokes the at least one group of instruction sets to perform any order display method according to the first aspect.

[0007] According to a third aspect, this specification provides a computer-readable non-volatile storage medium. The storage medium stores at least one group of instruction sets, to display an order. When the at least one instruction set is executed by at least one processor, the order display method is implemented.

[0008] According to a fourth aspect, this specification provides a method for generating content data of a two-dimensional code corresponding to an order, applied to a server in a
20 transaction system, and including: receiving a first payment instruction sent by a front-end device for a target transaction; generating a second payment instruction for a target order based on the first payment instruction, and sending the second payment instruction to an acquiring institution, where the target order corresponds to the target transaction; receiving a payment result sent by the acquiring institution for the target order; and sending content data of a two-dimensional code
25 corresponding to the target order to the front-end device based on the payment result.

[0009] According to a fifth aspect, this specification further provides a server in a transaction system, including: at least one storage medium, storing at least one group of instruction sets, to generate content data of a two-dimensional code corresponding to an order; at least one communication port, connected to a front-end device in the transaction system; and at least one
30 processor, communicatively connected to the at least one communication port and the at least one storage medium, where when running, the at least one processor invokes any method for

generating content data of a two-dimensional code corresponding to an order according to the third aspect.

[0010] According to a sixth aspect, this specification further provides a computer-readable non-volatile storage medium. The storage medium stores at least one group of instruction sets, to
5 display an order. When the at least one instruction set is executed by at least one processor, the method for generating content data of a two-dimensional code corresponding to an order is implemented.

[0011] Other functions of the order processing method, the system, and the storage medium provided in this specification are partially listed in the following descriptions. Creative aspects of
10 the order processing method, the system, and the storage medium provided in this specification can be fully explained by practice or by using the methods, apparatuses, and combinations described in the following detailed examples.

BRIEF DESCRIPTION OF DRAWINGS

[0012] To describe the technical solutions in the embodiments of this specification more
15 clearly, the following briefly describes the accompanying drawings needed for describing the embodiments. Clearly, the accompanying drawings in the following descriptions show merely some embodiments of this specification, and a person of ordinary skill in the art can still derive other drawings from these accompanying drawings without creative efforts.

[0013] FIG. 1 is a schematic diagram of an application scenario of order processing according
20 to an embodiment of this specification;

[0014] FIG. 2 is a diagram of a hardware structure of a computing device according to an embodiment of this specification;

[0015] FIG. 3 is a flowchart of an order processing method according to an embodiment of this specification; and

25 [0016] FIG. 4 is a schematic diagram of a two-dimensional code generation process according to an embodiment of this specification.

DESCRIPTION OF EMBODIMENTS

[0017] Specific application scenarios and requirements of this specification are provided in

the following descriptions, so that a person skilled in the art can manufacture and use content of this specification. For the person skilled in the art, various local modifications to the disclosed embodiments are clear, and the general principles defined herein can be applied to other embodiments and applications without departing from the spirit and scope of this specification.

5 Therefore, this specification is not limited to the shown embodiments, but has a widest scope consistent with that of the claims.

[0018] The terms used herein are only intended to describe a particular example embodiment, but do not impose a limitation. For example, unless otherwise specified in the context, the singular forms "one", "a", and "the" used herein can also include a plural form. When used in this
10 specification, the terms "include", "comprise", and/or "have" indicate/indicates existence of an associated integer, step, operation, element, and/or component, but does not exclude existence of one or more other features, integers, steps, operations, elements, components, and/or groups, or another feature, integer, step, operation, element, component, and/or group can be added to the system/method.

15 **[0019]** In this specification, "X includes at least one of A, B, or C" means that X includes at least A, or X includes at least B, or X includes at least C. In other words, X can include only any one of A, B, and C, or simultaneously include any combination of A, B, and C and other possible content/elements. Any combination of A, B, and C can be A, B, C, AB, AC, BC, or ABC.

[0020] In this specification, unless expressly stated, an association relationship generated
20 between structures can be a direct association relationship or an indirect association relationship. For example, when "A is connected to B" is described, unless it is explicitly stated that A is directly connected to B, it should be understood as that A can be directly connected to B or can be indirectly connected to B. For another example, when "A is above B" is described, unless it is explicitly stated that A is directly above B (A is adjacent to B and A is above B), it should be understood as
25 that A can be directly above B, or A can be indirectly above B (A is separated from B by another element and A is above B), and so on.

[0021] In consideration of the following descriptions, these and other features of this specification, operations and functions of related components of the structure, and economy of combination and manufacturing of components can be significantly improved. With reference to
30 the accompanying drawings, all of these form a part of this specification. However, it should be clearly understood that the accompanying drawings are merely used for the purpose of illustration

and description, and are not intended to limit the scope of this specification. It should be further understood that the accompanying drawings are not drawn to scale.

[0022] The flowchart used in this specification illustrates operations implemented by a system in some embodiments of this specification. It should be clearly understood that operations in the flowchart can be implemented out of sequence. On the contrary, operations can be implemented reversely or simultaneously. In addition, one or more other operations can be added to the flowchart. One or more operations can be removed from the flowchart.

[0023] For ease of description, the terms that appear below in this specification are first explained.

[0024] POS device: POS is short for point of sale. The POS device is a multi-functional terminal. The POS device can be considered as a client in an order management system. The POS device can be a mobile device, for example, a handheld device. A POS device serving as a mobile device can be carried by a worker of a merchant to different locations in a store for operation, and this is relatively convenient. The POS device can alternatively be a non-mobile device. In this case, the POS device is usually placed on a checkout counter in an offline store of the merchant.

[0025] An acquiring institution is a financial institution or payment service provider that signs an agreement with a merchant and is responsible for processing a payment transaction of the merchant. The acquiring institution serves as a bridge between the merchant and a card issuing bank (an issuer, which is usually a bank of a cardholder), and helps the merchant to receive a payment amount from a consumer. A main function of the acquiring institution is to process a payment transaction: receiving a payment request, and forwarding a transaction request to a card issuing institution through a payment gateway for processing. The acquiring institution is interconnected with various banks (card issuing banks) and payment networks, to ensure that a payment procedure is smooth and funds arrive in a timely manner. After the transaction is completed, the acquiring institution transfers the payment amount to a bank account of the merchant based on a settlement cycle agreed upon with the merchant.

[0026] A URL is an address or a path of a resource on the Internet, and is usually used to specify a location of a webpage, a file, a service, etc.

[0027] The following describes an application scenario of this specification.

[0028] Embodiments of this specification can be applied to a scenario in which small and micro merchants perform offline service development, and are used to provide an order processing

service for the small and micro merchants. The small and micro merchants can be merchants that provide various products or services, including but not limited to a catering merchant, a store, a fruit and vegetable store, a flower store, a bookstore, a hotel, a beauty salon, a dry cleaning store, a barber store, etc.

5 **[0029]** Specifically, in the embodiments, a front-end device (POS) in a transaction system initiates a payment request to a remote server, and the server sends the payment request to an acquiring institution and returns a payment result to the front-end device. Because a network communication signal between a front-end device and a server is poor or a network speed is too slow in some areas in which a network is not developed, if a URL is returned by the server, the
10 front-end device opens the URL at a very slow speed, affecting service experience of a consumer. Therefore, in this specification, the server generates content data of an order code instead of returning the URL. The front-end device locally generates a two-dimensional code corresponding to an order based on the content data and a locally pre-stored code rule. The transaction system provided in the embodiments of this specification is applied to an offline transaction. In a scenario
15 of remote communication between the front-end device and the server, an order can be locally generated on the front-end device when a network environment of the small and micro merchants is poor or even when a network cannot be used, thereby accelerating a loading and rendering speed of the order code in a transaction process, and improving cash collection efficiency and consumer satisfaction of the merchant.

20 **[0030]** In this specification, the acquiring institution is an institution that signs with the merchant and is responsible for processing a payment request on a merchant side. In some embodiments, the acquiring institution can be a financial institution of a card issuing bank. In some embodiments, the acquiring institution can be a payment service provider of an electronic wallet. In some embodiments, the acquiring institution can alternatively be an aggregation service
25 provider that aggregates a plurality of financial institutions or a plurality of payment service providers.

[0031] It should be noted that the above-mentioned scenario of the small and micro merchants is merely one of a plurality of use scenarios provided in this specification. A person skilled in the art should understand that when the order processing method provided in this specification is
30 applied to another use scenario, implementations and technical effects thereof are similar.

[0032] FIG. 1 is a schematic diagram of an application scenario of order processing according

to an embodiment of this specification. As shown in FIG. 1, the application scenario 100 can include a user 110, a front-end device (for example, a POS device or a POS machine) 120, a server (SAAS) 130, and a wireless network 140.

[0033] The user 110 can be a cashier, and the user 110 can perform an order placing operation on the front-end device 120.

[0034] The front-end device 120 is a multi-functional terminal. The front-end device 120 can be considered as a client in a transaction system. In some embodiments, the front-end device 120 can be a mobile device, for example, a handheld device. The front-end device 120 can be carried by a worker of a merchant to different locations in a store for operation, and this is relatively convenient. In some embodiments, the front-end device 120 can be a non-mobile device. In this case, the front-end device 120 is usually placed on a checkout counter in an offline store of the merchant.

[0035] The front-end device 120 is an electronic device with a specific computing capability. In some embodiments, the front-end device 120 can include a hardware device with a data processing function and a necessary program needed for driving the hardware device to work. The front-end device 120 can implement order processing by driving the hardware device to execute the foregoing program. For example, the front-end device 120 can be installed with order processing software (or an order processing program). The front-end device 120 can implement order processing by running the order processing software. The order processing software can correspond to an operating system installed in the front-end device 120, or can correspond to an application (APP) or an instruction set installed in the front-end device 120. The order processing software can be software preset in the hardware device of the front-end device 120 (for example, software built in the front-end device 120 when the front-end device 120 is delivered from a factory), or can be software that is later installed in the front-end device 120 by the worker of the merchant. This is not limited in this specification.

[0036] In some embodiments, the front-end device 120 can have a display, or the front-end device 120 can be externally connected to a display. The front-end device 120 can provide an interaction capability through the display. For example, the front-end device 120 displays, on the display, a product or a service sold by the merchant, and generates an offline order based on a product or a service selected by an operator (the worker of the merchant or a consumer). The front-end device 120 can further display a cash collection entry on the display, so that the operator

performs a cash collection operation for the offline order.

[0037] In some embodiments, the front-end device 120 can be a POS machine, a mobile device, a tablet computer, a laptop computer or similar content, or any combination thereof. In some embodiments, the mobile device can include a smart home device, a smart mobile device, a virtual reality device, an augmented reality device or a similar device, or any combination thereof. In some embodiments, the smart home device can include a smart television, a desktop computer, or any combination. In some embodiments, the smart mobile device can include a smartphone, a personal digital assistant, a navigation device, etc., or any combination thereof.

[0038] When cash collection is performed for the order, the front-end device 120 supports a plurality of payment manners, including but not limited to cash payment, card scanning payment, code scanning payment, biological recognition (for example, facial recognition) based payment, near field communication (NFC) based payment, etc.

[0039] In some embodiments, when the front-end device 120 supports cash payment, the front-end device 120 can be provided with a cash box to store cash.

[0040] In some embodiments, a card reading apparatus can be built in or externally connected to the front-end device 120 when the front-end device 120 supports card scanning payment. When a built-in manner is used, the card reading apparatus can be disposed at any possible location of the front-end device 120. This is not limited in this specification. When an externally connected manner is used, the front-end device 120 can be connected to the card reading apparatus in a wired or wireless manner. This is not limited in this specification. A wired connection manner can include but is not limited to a universal serial bus (USB) connection, an Ethernet connection, an optical fiber connection, etc. A wireless connection manner can include but is not limited to a Wi-Fi connection, a Bluetooth connection, etc.

[0041] In some embodiments, a code scanning apparatus can be built in or externally connected to the front-end device 120 when the front-end device 120 supports code scanning payment. When a built-in manner is used, the code scanning apparatus can be disposed at any possible location of the front-end device 120. This is not limited in this specification. When an externally connected manner is used, the front-end device 120 can be connected to the code scanning apparatus in a wired or wireless manner. This is not limited in this specification. The code scanning apparatus is an apparatus with a code scanning capability. For example, the code scanning apparatus can include a camera module. When the consumer chooses to pay the offline

order by using a payment code, the front-end device 120 can control the code scanning apparatus to enter a scanning mode. In response to that the consumer aligns the payment code with the code scanning apparatus, the code scanning apparatus scans code information of the payment code by using the camera module.

5 **[0042]** In some embodiments, a photographing apparatus can be built in or externally connected to the front-end device 120 when the front-end device 120 supports biological recognition based payment. When a built-in manner is used, the photographing apparatus can be disposed at any possible location of the front-end device 120. This is not limited in this specification. When an externally connected manner is used, the front-end device 120 can be
10 connected to the photographing apparatus in a wired or wireless manner. This is not limited in this specification. For example, when the consumer chooses to use facial scanning payment, the front-end device 120 can control the photographing apparatus to enter a photographing mode. In response to that the consumer aligns a face with the photographing apparatus, the photographing apparatus photographs a face image of the consumer.

15 **[0043]** In some embodiments, a near field communication apparatus can be built in or externally connected to the front-end device 120 when the front-end device 120 supports near field communication based payment. The near field communication apparatus can be disposed at any possible location of the front-end device 120. This is not limited in this specification. When the consumer selects near field communication based payment, the front-end device 120 can control
20 the near field communication apparatus to enter a communication mode. When the consumer places a terminal device with a near field communication component close to the near field communication apparatus, payment information of the order is obtained.

[0044] In some embodiments, the front-end device 120 can further include an audio output apparatus. The audio output apparatus can be, for example, a speaker. For example, after the
25 consumer performs a payment operation for the offline order by using the front-end device 120, in response to that the front-end device 120 receives a payment result of the order, the front-end device 120 can output voice information by using the audio output apparatus, to indicate that the order is successfully paid or unsuccessfully paid.

[0045] The server 130 is a computing system with a specific computing capability. The server
30 130 communicates with the front-end device 120, and provides an order processing service to the front-end device 120. The server 130 can correspond to a single computing device, or can

correspond to a computing cluster including a plurality of computing devices. The server 130 can be deployed remotely. For example, the server 130 can be a cloud server. The method for generating content data of a two-dimensional code corresponding to an order can be performed on the server 130. In this case, the server 130 can store data or instructions for performing the method
5 for generating content data of a two-dimensional code corresponding to an order described in this specification, and can execute or be configured to execute the data or the instructions. The server 130 can be communicatively connected to the front-end device 120 in a wireless manner, and receive a payment instruction sent by the front-end device 120. The server 130 can provide the order processing service to the front-end device 120 by driving the hardware device. In some
10 embodiments, the server 130 can provide the order processing service to the front-end device 120 in a software as a service (SaaS) mode.

[0046] In some embodiments, when the server 130 is deployed remotely, the server 130 can be connected to front-end devices 120 of a plurality of merchants, and provide the order processing service to the front-end devices 120 of the plurality of merchants. In this case, the server 130 can
15 perform isolated management on orders of different merchants by using various isolation technologies, to avoid mutual interference between order data of the different merchants and improve security of the order data. A person skilled in the art can understand that content of providing the order management service to front-end devices 120 of different merchants by the server 130 is similar. In the descriptions of this specification, only an example in which the server
20 130 provides the order processing service to a front-end device 120 of one merchant is used for description.

[0047] The wireless network 140 is a medium configured to provide a communication connection between the front-end device 120 and the server 130. The wireless network 140 can facilitate exchange of information or data. As shown in FIG. 1, the front-end device 120 and the
25 server 130 can be connected through the wireless network 140, and transmit information or data to each other through the wireless network 140. In some embodiments, the wireless network 140 can be of any type or a combination thereof. For example, the wireless network 140 can include Wi-Fi, a wireless wide area network (WWAN), Bluetooth, a ZigBee network, LoRa, a near field communication network, a wireless personal area network (WPAN), a satellite communication
30 network, radio, a mobile hotspot, and a portable Wi-Fi device, or a similar network

[0048] An order display method provided in this specification can be performed by the front-

end device 120. The method for generating content data of a two-dimensional code corresponding to an order provided in this specification can be performed on the server 130. The order display method and the method for generating content data of a two-dimensional code corresponding to an order provided in this specification jointly form an order processing method. The user 110, the
5 front-end device (POS) 120, the server (SAAS) 130, and the wireless network 140 jointly form the transaction system.

[0049] For example, with reference to FIG. 1, the server 130 periodically updates a code rule from an acquiring institution, and periodically updates the code rule to the front-end device 120. When the consumer places an order, a target transaction is generated, and the user 110 (the cashier)
10 performs an order placing operation on the front-end device 120. The front-end device 120 obtains payment information of a payer about the target transaction, and sends a first payment instruction to the remote server 130. The server 130 receives the first payment instruction sent by the front-end device 120 for the target transaction, generates a second payment instruction for a target order based on the first payment instruction, and sends the second payment instruction to the acquiring
15 institution. The acquiring institution returns a payment result of the target order to the server 130. The payment result can be a URL, and includes content information (for example, a query parameter) of an order two-dimensional code, and information such as a protocol, a host name, and a path. The payment result can alternatively be pure result data. Based on the payment result, the server 130 obtains content data of a two-dimensional code corresponding to the target order,
20 and sends the content data to the front-end device. For example, if the server 130 obtains the URL from the acquiring institution, the server 130 can extract the content information of the query parameter/order two-dimensional code from the URL, and then send the content information of the query parameter/order two-dimensional code to the front-end device 120. However, if the server 130 obtains data of the payment result from the acquiring institution instead of the URL
25 corresponding to the order two-dimensional code, the server 130 can generate the content information corresponding to the order two-dimensional code based on the first payment instruction and information corresponding to the front-end device locally stored in the server 130 with reference to the payment result, and send the content information to the front-end device 120. The front-end device 120 receives the content data that is of the two-dimensional code of the target
30 order and that is sent by the server, and locally generates the target order based on the target two-dimensional code content data and a code rule pre-stored in the front-end device. The target order

includes the two-dimensional code. In this way, the front-end device 120 locally generates the target order and the order code based on the code rule. Even if the wireless network has a poor network speed or even the network is interrupted, the front-end device 120 can still locally generate the order, thereby reducing a user experience loss caused by a network problem.

5 **[0050]** It should be noted that user data obtained in this specification is authorized by the user, and does not relate to user privacy.

[0051] FIG. 2 is a diagram of a hardware structure of a computing device 200 according to an embodiment of this specification. The computing device 200 can serve as the front-end device 120 in FIG. 1 to perform the order display method described in this specification; or can serve as the
10 server 130 in FIG. 1 to perform the method for generating content data of a two-dimensional code corresponding to an order described in this specification.

[0052] As shown in FIG. 2, the computing device 200 can include at least one storage medium 230 and at least one processor 220. In some embodiments, the computing device 200 can further include a communication port 250 and an internal communication bus 210. The computing device
15 200 can further include an I/O component 240.

[0053] The internal communication bus 210 can be connected to different system components. For example, the internal communication bus 210 can be connected to the storage medium 230, the processor 220, the communication port 250, and the I/O component 240.

[0054] The I/O component 240 supports input/output between the computing device 200 and
20 other components.

[0055] The communication port 250 is used for data communication between the computing device 200 and the outside. For example, the communication port 250 can be used for data communication between the computing device 200 and a wireless network 140. The communication port 250 can be a wired communication port, or can be a wireless communication
25 port.

[0056] The storage medium 230 can include a data storage apparatus. The data storage apparatus can be a computer-readable non-transitory storage medium, or can be a computer-readable transitory storage medium. For example, the data storage apparatus can include one or more of a disk 232, a read-only storage medium (ROM) 234, or a random access storage medium
30 (RAM) 236. The storage medium 230 further includes at least one instruction set stored in the data storage apparatus. The instruction set can include computer program code. The computer program

code can include a program, a routine, an object, a component, a data structure, a process, a module, etc. The storage medium 230 stores at least one group of instruction sets. The instruction sets are computer program code. When being invoked and executed by the processor, these instruction sets can indicate the processor to complete a specific function or step, for example, various methods and steps that are subsequently described in this application.

[0057] The at least one processor 220 can be communicatively connected to the at least one storage medium 230. When the computing device 200 runs, the at least one processor 220 reads the at least one group of instruction sets and performs the method and steps provided in this specification based on an indication of the at least one instruction set. The processor 220 can be in a form of one or more processors. In some embodiments, the processor 220 can include one or more hardware processors, for example, a microcontroller, a microprocessor, a reduced instruction set computer (RISC), an application-specific integrated circuit (ASIC), an application-specific instruction set processor (ASIP), a central processing unit (CPU), a graphics processing unit (GPU), a physical processing unit (PPU), a microcontroller unit, a digital signal processor (DSP), a field programmable gate array (FPGA), an advanced RISC machine (ARM), a programmable logic device (PLD), any circuit or processor that can perform one or more functions, or any combination thereof.

[0058] To merely describe a problem, only one processor 220 is shown in the computing device 200 in the accompanying drawings. However, it should be noted that the computing device 200 in this specification can further include a plurality of processors. Therefore, the operations and/or method steps disclosed in this specification can be performed by one processor, or can be jointly performed by a plurality of processors. For example, if the processor 220 in the computing device 200 described in this specification performs step A and step B, it should be understood that step A and step B can be jointly or separately performed by two different processors 220 (for example, a first processor performs step A and a second processor performs step B, or a first processor and a second processor jointly perform step A and step B).

[0059] The computing device 200 can perform an order processing method in this specification. Specifically, the processor 220 in the computing device 200 can read an instruction set stored in a local storage medium of the computing device 200, and then perform the order processing method in this specification based on a stipulation of the instruction set.

[0060] FIG. 3 is a flowchart P300 of an order processing method according to an embodiment

of this specification. As shown in FIG. 3, an order processing method of a transaction system is performed by a front-end device 120, a server 130, and an acquiring institution in cooperation.

[0061] When a consumer purchases a product or service in a merchant, the merchant first generates a to-be-paid order. The consumer pays the order through NFC, card scanning, code scanning, etc. on the front-end device 120 of the merchant. The front-end device 120 transmits the payment information to the acquiring institution by using the server 130, and the acquiring institution completes final collection. Usually, the acquiring institution generates an order two-dimensional code based on a code rule. The two-dimensional code information is finally transmitted to the front-end device 120, and is displayed by the front-end device 120 to the consumer, or is printed and then given to the consumer.

[0062] The two-dimensional code is a two-dimensional barcode that can store information. An encoding rule of the two-dimensional code is based on a matrix and can be quickly read by a scanning device. The two-dimensional code can store various information such as a web address, contact information, product information, and even payment information. As an efficient and convenient information storage and transmission tool, the two-dimensional code is widely used in various fields. In some embodiments, the two-dimensional code is widely used in an electronic payment system, and the consumer can directly complete payment by scanning the two-dimensional code provided by the merchant. In some embodiments, many manufacturers print a two-dimensional code on a product for product traceability and anti-counterfeiting. By scanning the two-dimensional code, the consumer can verify authenticity of the product, and view information such as a production date and a place of origin of the product. In some embodiments, the two-dimensional code can be used for device management, object tracing, etc. For example, a product two-dimensional code can be scanned to obtain a device state, perform maintenance, view a log, etc. Because of advantages such as a large storage capacity, high fault tolerance, and a fast reading speed, the two-dimensional code has become a widely used tool in modern society. Through the two-dimensional code, information transmission becomes more convenient.

[0063] The code rule is a rule to be followed in a two-dimensional code generation process, and is usually formulated by the acquiring institution and stored in the acquiring institution. The code rule includes but is not limited to at least one of a rule for transaction identification information, a rule for a payment amount, a rule for a timestamp and a validity period, a rule for a payment type and channel information, or security check information. Updating of the code rule

usually includes a new encoding rule or algorithm, for example, a two-dimensional code generation rule or a dynamic token generation policy. These rules need to be designed and implemented based on an industry specification and a security requirement. The acquiring institution provides a latest specification or change.

5 **[0064]** Usually, the server 130 forwards the URL to the front-end device 120 (for example, a POS device), and the front-end device 120 opens the URL to display the order and the order two-dimensional code. In this process, the front-end device 120 establishes a communication connection to the acquiring institution through a network based on the URL, and then the acquiring institution transmits the order two-dimensional code to the front-end device 120 through the
10 network, so that the order two-dimensional code is displayed on a display of the front-end device 120 or the order two-dimensional code is printed on a local printing device.

[0065] In this specification, because a network environment in which the front-end device 120 is located is poor (a network speed is slow or a network connection is poor), the front-end device 120 chooses to locally generate the order two-dimensional code. In this case, the server 130 needs
15 to download the code rule to the server 130 and update the latest code rule at all times, to synchronously transmit the code rule to the front-end device 120.

[0066] Therefore, the server 130 periodically updates the code rule from the acquiring institution in step S302, and synchronizes the latest rule to the front-end device 120 in step 304.

[0067] To ensure system security, flexibility, and adaptability, an update frequency between
20 the server 130 and the acquiring institution can be performing updating every 24 hours or weekly. This is not limited herein, and can be selected based on an actual condition.

[0068] Because the code rule is frequently updated, the front-end device 120 also needs to periodically obtain the latest code rule from the server 130, to ensure that the two-dimensional code can be correctly generated. Rule updating between the front-end device 120 and the server
25 130 can be performed by using a regular task. For example, the front-end device requests the latest code rule from the server each time the front-end device 120 is started or at a specific time interval. In some embodiments, a frequency of updating the code rule by the front-end device can be consistent with a frequency of updating the code rule by the server.

[0069] In some embodiments, the front-end device 120 can further obtain only a changed rule
30 in an incremental updating manner, instead of downloading complete rule data each time, thereby reducing data transmission overheads. This manner can significantly improve efficiency and

reduce network bandwidth consumption.

[0070] Data security needs to be ensured in a code rule synchronization process. An SSL/TLS encryption connection can be used, to ensure that data is not intercepted or tampered with in a transmission process. An authentication mechanism (for example, token authentication and device ID binding) can also be used to ensure identity validity of the front-end device. Periodic code rule synchronization not only ensures accuracy of code generation and verification, but also ensures the security and scalability of the transaction system.

[0071] After receiving the updated code rule, the front-end device 120 can store the code rule locally, to quickly access the code rule. When obtaining the content data of the two-dimensional code, the front-end device 120 can generate the corresponding two-dimensional code based on the code rule.

[0072] When the consumer purchases the product or service in the merchant, a transaction behavior occurs between the merchant and the consumer, and is referred to as a target transaction. In a process of processing the target transaction, a process of processing the corresponding target order by the transaction system includes the following steps.

[0073] S310: The front-end device 120 obtains payment information of a payer about the target transaction.

[0074] Herein, the target transaction is a transaction generated when the user 110 (the cashier) performs an order placing operation on the front-end device 120 when the consumer places an order. After the user 110 places an order, the merchant first generates a to-be-paid order. This order is referred to as a target order, including a to-be-paid amount of the target transaction. The consumer can use various payment manners such as cash payment, card scanning payment on a POS machine, mobile payment, electronic wallet payment, and near field communication payment.

[0075] After the consumer performs a payment action for the target order by using the front-end device 120 of the merchant, the front-end device 120 obtains the payment information corresponding to the target order. The payment information can include but is not limited to payment account information of the consumer and the to-be-paid amount.

[0076] Based on payment subjects, there can be two payment manners: active payment and passive payment. Active payment is a manner in which the consumer initiates the payment action actively. Usually, in this payment manner, payment decision and operation are completely controlled by the consumer. For example, during online shopping, the consumer taps a key "Pay",

or checks out in a store by using a payment tool such as a credit card and an electronic wallet. Passive payment means that a payment operation is initiated by the merchant or a service provider, or payment occurs automatically under a specific condition. Usually, after the consumer agrees, a payment amount and a payment period are set in advance, and then the system automatically processes payment.

[0077] In some embodiments, the consumer can actively scan a collection two-dimensional code of the merchant. In some embodiments, the consumer can also provide a payment code, and the merchant scans the payment code. Another payment manner is similar. The user 110 actively or passively obtains the payment information of the payer about the target order in these payment manners.

[0078] The payment information can include but is not limited to a payment account, account holder information, a payment amount, a currency, a payment manner, merchant information, product information, an order number, a payment initiation time, security authentication information, additional expense, discount information, etc.

[0079] S320: The front-end device 120 sends a first payment instruction to the remote server 130.

[0080] After obtaining the payment information of the target transaction, the front-end device 120 generates the first payment instruction based on the payment information, and sends the first payment instruction to the remote server 130 through the wireless communication network 140.

According to some embodiments of this specification, the first payment instruction can include one or more of payer information, collection information, acquiring institution information, and merchant information in the target order, etc.

[0081] The payer information can include but is not limited to a name of a payment institution in which a payment account is located, the payment account, the account holder information, the currency, etc. The collection information can include but is not limited to the payment amount, the currency, the payment manner, the product information, the order number, the payment initiation time, the security authentication information, the additional expense, the discount information, etc. The acquiring institution is a collection unit, for example, can be a collection bank of the merchant in the target transaction. Therefore, the acquiring institution information can include but is not limited to identification information of the front-end device 120, a SWIFT code of the acquiring institution, an account of the merchant in the acquiring institution, and/or merchant information (a

name, an address, etc.).

[0082] The first payment instruction can include all the foregoing information, or can include partial information. For example, if the target transaction occurs in a scenario in which some merchants perform an offline transaction, a wireless network environment in which the merchant is located is poor and unstable, or even a network may be disconnected. In this case, the first payment instruction can include only some basic and necessary information, but does not include the identification information of the front-end device 120, merchant account information corresponding to the front-end device 120, and the acquiring institution information. For example, the first payment instruction can include at least two pieces of necessary information, namely, account information and a collected amount of the payer in the target order. Alternatively, based on an actual network situation, the first payment instruction can further include some additional information such as a payment institution name of the payer, the payment account, the account holder name, and the payment amount and the currency in the payment information.

[0083] The first payment instruction is sent by the front-end device 120 to the remote server 130 through the wireless network 140. The first payment instruction includes at least payment account information and a collected amount of the payer in the target order. The information is usually sent through an encrypted HTTP request (for example, HTTPS), to ensure security of information in the transmission process.

[0084] S330: The server 130 generates a second payment instruction for the target order based on the first payment instruction.

[0085] After receiving the first payment instruction, the server 130 needs to verify the first payment instruction, to ensure integrity, authenticity, and security of information in the first payment instruction. A verification process includes but is not limited to: request validity verification, payment amount verification, user identity verification, payment manner verification, and risk control analysis and verification performed based on information such as a transaction amount and a frequency. After completing verification, the server 130 performs processing based on a payment manner and a specific rule. Different payment manners can have different processing processes.

[0086] In some embodiments, the consumer pays by using a bank card, and the server 130 needs to communicate with an interface of a payment gateway or a bank, to complete payment instruction processing by using an API request. This involves steps of authorization, deduction,

confirmation, etc. of the bank card. In some embodiments, the consumer pays by using the electronic wallet, and the server 130 needs to invoke a corresponding SDK or API to initiate a payment request to a payment platform to complete a transaction. In some embodiments, the consumer pays by using a two-dimensional code, and the server 130 sends, to the payment platform,
5 a payment request generated when the consumer scans the two-dimensional code, and waits for a response of the payment platform.

[0087] The information included in the first payment instruction is not sufficient to complete payment at the acquiring institution. The server 130 can send information to the acquiring institution only after necessary information for completing payment is complemented based on the
10 information included in the first payment instruction, to indicate the acquiring institution to complete collection. An instruction sent to the acquiring institution is referred to as a second payment instruction.

[0088] In consideration of validity of the transaction, the second payment instruction includes at least a merchant name, and account and address information of the merchant in the acquiring
15 institution. The merchant name, and the account and address information of the merchant in the acquiring institution are all merchant information. The merchant information is content such as basic information, contact information, and operation information involved in an operation process of the merchant. The information is usually used for a transaction, etc. between the merchant and each of the consumer and the acquiring institution. The merchant information includes but is not
20 limited to the merchant name, business license information, address information, invoice information, tax information, the account of the merchant in the acquiring institution, etc. In some embodiments, the second payment instruction can further include the business license information, the invoice information, the tax information, etc. of the merchant.

[0089] As described above, if the first payment instruction includes relatively comprehensive
25 payer information and collection information, for example, the first payment instruction includes the payment institution name, the payment account, the account holder information, the payment amount, the currency, the payment manner, the product information, the order number, etc., the server 130 only needs to supplement the acquiring institution information, to generate the second payment instruction.

[0090] However, if the first payment instruction includes only some basic payment
30 information but does not include the identification information of the front-end device, the

merchant account information corresponding to the front-end device 120, and the acquiring institution information corresponding to the merchant, after receiving the first payment instruction, the server 130 needs to complete content of the first payment instruction. When completing the first payment instruction, the server 130 can trace the identification information of the front-end
5 device 120 based on a network link through which the first instruction is transmitted, and then query, based on the identification information, merchant information bound to the server, to find corresponding collection institution information (account and bank information of the merchant). After the foregoing information is collected, the server 130 can supplement the acquiring institution information, to obtain the second payment instruction.

10 **[0091]** S340: The server 130 sends the second payment instruction to the acquiring institution, where the target order corresponds to the target transaction.

[0092] After the second payment instruction for the target order is generated, the server 130 sends the second payment instruction to the acquiring institution through secure network transmission. In some embodiments, the server 130 encrypts the second payment instruction, and
15 then transmits the second payment instruction to the acquiring institution through the network.

[0093] The server 130 is a core part of an entire payment procedure. The server sends the second payment instruction to the acquiring institution, and serves as a bridge between a merchant system and the acquiring institution, to ensure that the payment request can be smoothly and quickly transferred to the acquiring institution for subsequent operations such as fund verification,
20 authorization, and liquidation. The acquiring institution plays a role of transaction authorization and fund settlement, to finally ensure that the merchant can obtain payment and provide smooth payment experience to the consumer.

[0094] S350: The server 130 receives a payment result sent by the acquiring institution for the target order, and generates the content data corresponding to the two-dimensional code of the target
25 order.

[0095] After receiving a second payment request, the acquiring institution verifies validity of the request, and checks an identity of the merchant, account information, etc. When it is ensured that the transaction is valid and meets a compliance requirement, the acquiring institution processes the second payment request, collects a payment amount corresponding to the target
30 transaction from a payment account based on a predetermined currency based on information included in the second payment request, and feeds back the payment result (a payment success or

a payment failure) to the server 130. The server 130 generates the content data based on the payment result, the payment account information, the merchant information, and the transaction amount, and sends the content data to the front-end device.

[0096] In some embodiments, the target transaction is authorized, and the server 130 receives a payment success message fed back by the acquiring institution, and receives a related payment result (for example, an authorization code, a payment amount, and a merchant acknowledgment). In some embodiments, the target transaction is not authorized (for example, an insufficient balance, a card information error, or risk control rejection), and the server 130 receives a failure reason fed back by the acquiring institution.

[0097] The payment result sent by the acquiring institution usually includes but is not limited to a payment status (transaction result which is a success or a failure), a transaction serial number, a payment amount, a payment manner, a payment channel, a transaction time (payment completion time), a merchant number, a signature or verification code, an error code, error information, etc.

[0098] In some embodiments, different acquiring institutions may return different fields, but in most cases, the payment status, the transaction serial number, the payment amount, the payment manner, the error information, the transaction time, etc. are common information. In consideration of validity of the transaction, the payment result includes at least the payment serial number and the transaction time. The merchant can perform order management, payment confirmation, and a subsequent operation based on the information in the payment result.

[0099] The acquiring institution can generate a corresponding two-dimensional code and URL based on the payment result, and then send the payment result to the server 130 by using the URL. The acquiring institution can alternatively send the payment result to the server 130 as content of the two-dimensional code, instead of sending the payment result to the server 130 by using the URL.

[0100] Components of the URL include a protocol, a host name, a path, and a query parameter.

[0101] The following provides descriptions by using the URL as an example:

https://pay.acquirer.com/qrcode?order_id=123456&amount=1000¤cy=CNY&merchant_id=987654321×tamp=1672501234&signature=abcd1234

[0102] The above is a URL of an order code picture, and https:// represents a transport protocol.

pay.acquirer.com is the host name, and represents a domain name or an IP address of a server of the acquiring institution. /qrcode represents an interface path for a specified processing request. The

following

string

"order_id=123456&amount=1000¤cy=CNY&merchant_id=987654321×tamp=1672501234&signature=abcd1234" represents the query parameter. order_id=123456 represents an order number, and is a unique identifier of a current transaction. amount=1000 represents the payment amount in a unit of fen (1000 fen=10.00 yuan). currency=CNY represents that a transaction currency is renminbi. merchant_id=987654321 represents a merchant number, and is allocated by the acquiring institution. timestamp=1672501234 represents a transaction creation time (UNIX timestamp). signature=abcd1234 represents a digital signature and is used for anti-tampering verification.

10 **[0103]** After receiving the URL, the server 130 extracts, from the URL, the content data that corresponds to the target order and that is used to generate the two-dimensional code. The content data of the two-dimensional code includes at least one of an order number of the target order, a transaction serial number of the target transaction in the acquiring institution, merchant information in the target transaction, a transaction amount, a transaction time, a two-dimensional code validity period, a transaction type, a channel identifier, security check information, a signature, or encrypted data.

[0104] Certainly, as described above, the acquiring institution can alternatively send the payment result to the server 130 as content of the two-dimensional code instead of sending the payment result to the server 130 by using the URL. For example, the acquiring institution sends content of the query parameter part in the URL of the two-dimensional code to the server 130 in a specified format.

[0105] Whether the URL is received or the query parameter is directly received, it can be considered that the server 130 obtains the content data of the target two-dimensional code corresponding to the target order from the acquiring institution.

25 **[0106]** S360: The server 130 sends at least partial content data of the two-dimensional code corresponding to the target order to the front-end device through a wireless network.

[0107] The server 130 obtains the content data that corresponds to the target order and that is used to generate the two-dimensional code, and then sends at least the partial content data of the two-dimensional code corresponding to the target order to the front-end device 120 through the wireless network. In some embodiments, the content data of the two-dimensional code does not include the protocol, the host name, and the path, but includes only the query parameter.

[0108] In some embodiments, the server 130 can send all content data to the front-end device. In some other embodiments, in consideration that the wireless network is unstable and a network speed may be relatively poor, the server 130 can also send a part of the content data to the front-end device 120. For example, the server 130 can omit partial content that is in the content data and
5 that is included in the first payment instruction, and send, to the front-end device 120, a part that is of the content data and that is not included in the first instruction. After receiving the partial content data, the front-end device 120 can autonomously supplement a missing part of the content data based on locally stored information.

[0109] S370: The front-end device 120 receives at least the partial content data that is of the
10 two-dimensional code of the target order and that is sent by the server, and locally generates the target order based on the code rule, where the target order includes the two-dimensional code.

[0110] The front-end device 120 receives the content data that is of the two-dimensional code corresponding to the target order and that is sent by the server 130. The code rule is pre-stored in the front-end device. The front-end device 120 locally generates the target order based on the
15 content data of the target two-dimensional code, encodes the content data of the two-dimensional code, ensures that the content data of the two-dimensional code can be correctly decoded in the two-dimensional code, and generates a two-dimensional code image by using a proper library or framework and displays the two-dimensional code image on a device screen. A common two-dimensional code generation manner is to convert the content data of the two-dimensional code
20 into a two-dimensional code picture by using a two-dimensional code generation library (for example, a qrcode Python library, a JavaScript library, or qrcode.js).

[0111] FIG. 4 is a schematic diagram of a two-dimensional code generation process according to an embodiment of this specification. An example in which the acquiring institution returns the payment result URL is used in the schematic diagram. As shown in FIG. 4, 410 is the payment
25 result URL returned by the acquiring institution, and is a combination of letters and numbers. 420 is the query parameter extracted by the server, namely, the content data of the two-dimensional code. 430 is the two-dimensional code generated by the front-end device. After the target transaction is paid, the acquiring institution returns the URL to the server 130. The server 130 extracts the content data of the two-dimensional code in the URL, namely, 420, and sends the
30 content data to the front-end device 120. Based on the content data 420 of the two-dimensional code, the front-end device 120 generates the two-dimensional code 430 based on the pre-stored

code rule.

[0112] The two-dimensional code 430 is also referred to as an order code, and includes some basic information of the order, for example, an order number, a consumer name, product information, a payment amount, and an order generation time. To ensure order security and anti-counterfeiting, the order code can include encrypted order information or digital signatures. The encrypted information can only be decrypted and verified by the server. In some embodiments, the front-end device can ensure authenticity of the order code by using a public key encryption technology, to prevent the order data from being tampered with in a transmission process.

[0113] In some embodiments, the order code can include an identifier of the merchant or a sign of a platform, to help the consumer confirm a source of the order. Some merchants embed a brand identifier into the order code, to enhance brand identification and credibility. In some embodiments, the order code can include a current state of the order, for example, "paid", "to be made", "completed", etc. The front-end device can generate order code pictures of different styles based on different states of the order. In some embodiments, the order code can include some discount information related to the order such as a coupon code and discount information. When the consumer scans the order code, the discount information can be displayed, so that the consumer can make a purchase. In some embodiments, the order code can include a simplified product list or product picture, so that the user can quickly identify and check order content. In some embodiments, the order code can include related logistics information (for example, an express company, a tracking number, etc.), to help the consumer perform logistics tracing. In some embodiments, after-sales information can be embedded into the order code. When the consumer needs after-sales, after scanning the order code, the consumer can directly enters an after-sales procedure. The after-sales information can include an after-sales link, an after-sales demand, an after-sales state, etc.

[0114] The generated order code picture is displayed by the front-end device 120 to the consumer through a screen. The consumer can scan the order code to perform operations such as order confirmation, a state query, and an after-sales application.

[0115] In conclusion, in the order processing method provided in this specification, the server stores the code rule locally and updates the code rule periodically. When the target transaction is generated, the front-end device obtains the payment information of the payer about the target transaction, and sends the first payment instruction to the remote server. The server receives the

first payment instruction, generates the second payment instruction based on the first payment instruction, and sends the second payment instruction to the acquiring institution. The acquiring institution returns the payment result to the server by using the URL. The server generates the content data of the corresponding two-dimensional code based on the URL, and then sends the
5 content data of the two-dimensional code to the front-end device. The front-end device locally generates the target order and the order code based on the content data of the two-dimensional code and the code rule. The front-end device locally generates the target order and the order code based on the code rule. Even if the wireless network has a poor network speed or even the network is interrupted, the front-end device can still locally generate the order, thereby reducing a user
10 experience loss caused by a network problem, reducing dependence on an external system or service, avoiding affecting an order generation process because the external service is unavailable or a fault occurs, and improving system independence and robustness.

[0116] Another aspect of this specification provides a computer-readable non-transitory storage medium, storing at least one instruction set, to perform order processing. When the at least
15 one instruction set is executed by the processor, the at least one instruction set instructs the processor to implement the steps of the order processing method P300 described in this specification. In some possible implementations, aspects of this specification can further be implemented in a form of a program product, including program code. When the program product runs on a computing device 200, the program code is used to enable the computing device 200 to
20 perform the steps of the order processing method P300 described in this specification. The program product configured to implement the foregoing method can use a portable compact disc read-only memory (CD-ROM) that includes program code, and can run on the computing device 200. However, the program product in this specification is not limited thereto. In this specification, a readable storage medium can be any tangible medium that includes or stores a program, and the
25 program can be used by or in combination with an instruction execution system. The program product can be any combination of one or more readable media. The readable medium can be a readable signal medium or a readable storage medium. The readable storage medium can be, for example, an electrical system, apparatus, or device, a magnetic system, apparatus, or device, an optical system, apparatus, or device, an electromagnetic system, apparatus, or device, an infrared
30 system, apparatus, or device, or a semiconductor system, apparatus, or device, or any combination thereof. More specific examples of the readable storage medium include: a portable disk, a hard

disk, a random access memory (RAM), a read-only memory (ROM), an erasable programmable read-only memory (EPROM or flash memory), an optical fiber, a portable compact disc read-only memory (CD-ROM), an optical storage component, a magnetic storage component any proper combination thereof. The computer-readable storage medium can include a data signal propagated
5 in a baseband as part of a carrier, and carries readable program code. The propagated data signal can be in a plurality of forms, and includes but is not limited to an electromagnetic signal, an optical signal, or any proper combination thereof. The readable storage medium can further be any readable medium other than the readable storage medium, and the readable medium can be used to send, propagate, or transmit a program used by or in combination with an instruction execution
10 system, apparatus, or component. The program code included in the readable storage medium can be transmitted in any proper medium, including but not limited to a wireless medium, a wired medium, optical cable, an RF medium, or any proper combination thereof. Program code for performing an operation of this specification can be written in any combination of one or more program design languages. The program design language includes an object-oriented program
15 design language, for example, Java or C++, and further includes a conventional procedural program design language, for example, "C" language, or a similar program design language. The program code can be completely executed on the computing device 200, partially executed on the computing device 200, executed as an independent software package, partially executed on the computing device 200 and partially executed on a remote computing device, or completely
20 executed on a remote computing device.

[0117] Specific embodiments of this specification are described above. Other embodiments fall within the scope of the appended claims. In some cases, the actions or steps described in the claims can be performed in an order different from that in the embodiments, and the desired results can still be achieved. In addition, the process depicted in the accompanying drawings does not
25 necessarily need a particular order or consecutive order to achieve the desired results. In some implementations, multitasking and parallel processing are possible or may be advantageous.

[0118] In conclusion, after reading the detailed disclosure, a person skilled in the art can understand that the detailed disclosure can be presented only in an example manner, and can impose no limitation. Although it is not explicitly stated here, a person skilled in the art can
30 understand that the requirements of this specification include various proper changes, improvements, and modifications to the embodiments. These changes, improvements, and

modifications are intended to be presented in this specification, and fall within the spirit and scope of the example embodiments of this specification.

5 [0119] In addition, some terms in this specification are used to describe the embodiments of this specification. For example, "one embodiment", "an embodiment", and/or "some embodiments" mean that particular features, structures, or characteristics described with reference to the embodiments can be included in at least one embodiment of this specification. Therefore, it can be emphasized and understood that two or more of "an embodiment", "one embodiment", or "alternative embodiments" referred in parts of this specification do not necessarily indicate the same embodiment. In addition, particular features, structures, or characteristics can be properly
10 combined in one or more embodiments of this specification.

[0120] It should be understood that in the above-mentioned descriptions of the embodiments of this specification, to help understand a feature, for the purpose of simplifying this specification, various features are combined in a single embodiment, accompanying drawing, or description thereof in this specification. However, this does not mean that the combination of these features is
15 necessary. It is entirely possible for a person skilled in the art to mark some devices and understand the devices as separate embodiments when reading this specification. In other words, the embodiments in this specification can also be understood as an integration of a plurality of secondary embodiments. Content of each secondary embodiment is also true when features are less than all features in one of the above-mentioned disclosed embodiments.

20 [0121] Each patent, patent application, publication of a patent application, and other materials, for example, articles, books, instructions, publications, documents, and products, that are cited in this specification and that are other than any document that is inconsistent or conflict with this document or that imposes limiting impact on the widest scope of the claims can be incorporated here by reference and used for all purposes now or later associated with this document. In addition,
25 the term in this document shall prevail when there is any inconsistency or conflict between the description, definition and/or use of a related term in any material and the description, definition and/or use of a related term in this document.

[0122] Finally, it should be understood that the principles of the implementation solutions of this specification are described in the implementation solutions of the application disclosed in this
30 specification. Other modified embodiments also fall within the scope of this specification. Therefore, the embodiments disclosed in this specification are merely examples and not limitations.

A person skilled in the art can use an alternative configuration according to the embodiments of this specification to implement the application in this specification. Therefore, the embodiments of this specification are not limited to the embodiments accurately described in the application.

CLAIMS

What is claimed is:

1. An order display method, applied to a front-end device in a transaction system, and comprising:
 - 5 obtaining payment information of a payer about a target transaction;
sending a first payment instruction to a remote server;
receiving content data that is of a two-dimensional code of a target order and that is sent by the server, wherein the target order corresponds to the target transaction; and
locally generating the target order based on the target two-dimensional code content data and
10 a code rule, wherein the target order comprises the two-dimensional code, and the code rule is pre-stored in the front-end device.
 2. The method according to claim 1, wherein the first payment instruction comprises at least account information and a collected amount of a payer in the target order.
 3. The method according to claim 2, wherein the first payment instruction does not comprise
15 identification information of the front-end device, merchant account information corresponding to the front-end device, and acquiring institution information.
 4. The method according to claim 1, wherein the content data of the two-dimensional code comprises at least one of an order number of the target order, a transaction serial number of the target transaction in the acquiring institution, merchant information in the target transaction, a
20 transaction amount, a transaction time, a two-dimensional code validity period, a transaction type, a channel identifier, security check information, a signature, or encrypted data.
 5. The method according to claim 1, wherein the code rule comprises at least one of a rule for transaction identification information, a rule for a payment amount, a rule for a timestamp and a validity period, a rule for a payment type and channel information, or security check information.
 - 25 6. The method according to claim 1, wherein the obtaining payment information of a payer about a target transaction comprises:
 - obtaining a payment amount of the target transaction based on an operation instruction of a user, and actively obtaining the payment information in various payment manners; or
obtaining the transaction amount based on the operation instruction of the user, and passively
30 receiving the payment information in various payment manners.

7. The method according to claim 1, further comprising: periodically updating the code rule from the server, and storing the code rule in the front-end device.

8. A front-end device in a transaction system, comprising:

at least one display;

5 at least one storage medium, storing at least one group of instruction sets, to display an order;

at least one communication port, connected to a remote server; and

at least one processor, communicatively connected to the at least one display, the at least one communication port, and the at least one storage medium, wherein when running, the at least one processor invokes the at least one group of instruction sets to perform any order display method

10 according to any one of claims 1 to 7.

9. The front-end device according to claim 8, wherein the front-end device is a POS machine in the transaction system.

10. A computer-readable non-volatile storage medium, comprising: storing at least one group of instruction sets, to display an order, wherein when the at least one instruction set is executed by at least one processor, the order display method according to any one of claims 1 to 7 is implemented.

11. A method for generating content data of a two-dimensional code corresponding to an order, applied to a server in a transaction system, and comprising:

receiving a first payment instruction sent by a front-end device for a target transaction;

20 generating a second payment instruction for a target order based on the first payment instruction, and sending the second payment instruction to an acquiring institution, wherein the target order corresponds to the target transaction;

receiving a payment result sent by the acquiring institution for the target order; and

25 sending content data of a two-dimensional code corresponding to the target order to the front-end device based on the payment result.

12. The method according to claim 11, wherein

the first payment instruction comprises at least payment account information and a collected amount of a payer in the target order;

30 the second payment instruction comprises at least the payment account information, merchant information in the target transaction, and a transaction amount; and

the payment result comprises at least a payment serial number and a transaction time.

13. The method according to claim 11, wherein the first payment instruction does not comprise identification information of the front-end device, merchant account information corresponding to the front-end device, and acquiring institution information corresponding to the merchant; and

5 the generating a second payment instruction for a target order based on the first payment instruction comprises: obtaining the identification information of the front-end device, the merchant account information, and the acquiring institution information.

14. The method according to claim 12, wherein the sending content data of a two-dimensional code corresponding to the target order to the front-end device based on the payment result
10 comprises:

generating the content data based on the payment result, the payment account information, the merchant information, and the transaction amount; and

sending the content data to the front-end device.

15. The method according to claim 12, wherein the content data of the two-dimensional code
15 of the target order does not comprise a protocol, a host name, and a path.

16. The method according to claim 12, wherein the payment result is a URL generated by the acquiring institution; and

the sending content data of a two-dimensional code corresponding to the target order to the front-end device based on the payment result comprises: extracting the content data of the two-
20 dimensional code from the URL.

17. The method according to any one of claims 11 to 16, wherein the content data of the two-dimensional code comprises at least one of an order number of the target order, the transaction serial number of the target transaction in the acquiring institution, the merchant information in the target transaction, the transaction amount, the transaction time, a two-dimensional code validity
25 period, a transaction type, a channel identifier, security check information, a signature, or encrypted data.

18. The method according to claim 11, further comprising: periodically updating a code rule from the acquiring institution, and periodically updating the code rule to the front-end device; and

the code rule comprises at least one of a rule for transaction identification information, a rule
30 for a payment amount, a rule for a timestamp and a validity period, a rule for a payment type and channel information, or security check information.

19. A server in a transaction system, comprising:

at least one storage medium, storing at least one group of instruction sets, to generate content data of a two-dimensional code corresponding to an order;

at least one communication port, connected to a front-end device in the transaction system;

5 and

at least one processor, communicatively connected to the at least one communication port and the at least one storage medium, wherein when running, the at least one processor invokes any method for generating content data of a two-dimensional code corresponding to an order according to any one of claims 11 to 18.

10 20. A computer-readable non-volatile storage medium, comprising: storing at least one group of instruction sets, to display an order, wherein when the at least one instruction set is executed by at least one processor, the method for generating content data of a two-dimensional code corresponding to an order according to any one of claims 11 to 18 is implemented.