

ORDER PROCESSING METHOD, DEVICE, STORAGE MEDIUM, AND SYSTEM

TECHNICAL FIELD

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

BACKGROUND

[0002] At present, global payment manners are evolving toward diversification, convenience,
security, and universalization. A development trend of the payment manners also requires a more
flexible payment technology, to provide low-cost manners for merchants and better payment
10 experience for consumers, and further ensure payment security.

[0003] However, in a conventional card scanning payment scenario, when a merchant
cooperates with an acquiring institution, the acquiring institution usually requires the merchant to
purchase a dedicated financial device to collect cashes. Different acquiring institutions usually
specify different financial devices. To meet a card scanning payment requirement of a consumer,
15 the merchant usually needs to purchase a plurality of different financial devices from a plurality
of acquiring institutions. Not only these devices are expensive, but also device maintenance and
updating costs are very high, greatly increasing device purchase costs and maintenance costs of
the merchant. The merchant may give up using the financial device due to high costs and
complexity of the financial devices, and allow only cash payment or another simpler but less
20 convenient payment manner. The consumer may forcibly select another payment manner because
the merchant does not support payment cards of some card issuing banks. This not only limits a
payment choice of the consumer and brings negative payment experience to the consumer, but also
affects customer flow of the merchant.

[0004] Content of the background part is merely information learned of by the inventor, and
25 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

[0005] This specification provides an order processing method, a device, a storage medium, and a system. A merchant can complete card-based payment collection by using a low-cost card reading apparatus other than a dedicated financial device provided by an acquiring institution. In this way, the merchant does not need to purchase the dedicated financial device, and hardware purchase costs and maintenance costs of the merchant are reduced.

[0006] According to a first aspect, this specification provides an order processing method, applied to an order management system, the order management system includes a service device, a POS device, and a card reading apparatus connected to the POS device, and the method is performed by the POS device and includes: receiving a payment collection instruction for a target order, where the payment collection instruction at least indicates that a payment manner of the target order is card payment; sending a card reading instruction to the card reading apparatus based on the payment collection instruction, to indicate the card reading apparatus to detect a payment card and read card information of the payment card when the payment card is detected; and receiving the card information from the card reading apparatus, and sending the card information to the service device, so that the service device generates, based on the card information, a payment request corresponding to the target order, where the payment request is used to request an acquiring institution to execute a card payment procedure of the target order.

[0007] According to a second aspect, this specification further provides an order processing method, applied to an order management system. The order management system includes a service device, a POS device, and a card reading apparatus connected to the POS device, and the method is performed by the service device and includes: receiving, from the POS device, card information of a payment card used to pay a target order, where the card information is information obtained by the card reading apparatus by reading the payment card in response to a card reading instruction of the POS device; and generating a payment request corresponding to the target order based on the card information, and sending the payment request to an acquiring institution, so that the acquiring institution executes a card payment procedure of the target order.

[0008] According to a third aspect, this specification further provides an electronic device,

serving as a POS device, and including: at least one storage medium, storing at least one instruction set, to perform payment collection; and at least one processor, communicatively connected to the at least one storage medium. When the payment collection system runs, the at least one processor reads the at least one instruction set, and performs the order processing method according to any
5 implementation of the first aspect based on an indication of the at least one instruction set.

[0009] According to a fourth aspect, this specification further provides an electronic device, serving as a service device, and including: at least one storage medium, storing at least one instruction set, to perform payment collection; and at least one processor, communicatively connected to the at least one storage medium. When the payment collection system runs, the at
10 least one processor reads the at least one instruction set, and performs the order processing method according to any implementation of the second aspect based on an indication of the at least one instruction set.

[0010] According to a fifth aspect, this specification further provides a computer-readable non-volatile storage medium. The computer-readable non-volatile storage medium stores at least one
15 instruction set, and when the at least one instruction set is executed by at least one processor, the order processing method according to any implementation of the first aspect is implemented, or the order processing method according to any implementation of the second aspect is implemented.

[0011] According to a sixth aspect, this specification further provides an order management system, configured to send a payment request for an order to an acquiring institution, including: a
20 service device, a POS device, and a card reading apparatus connected to the POS device. The POS device is configured to: receive a payment collection instruction of a target order, and send a card reading instruction to the card reading apparatus based on the payment collection instruction. The card reading apparatus is configured to: detect a payment card in response to the card reading instruction of the POS device, read card information of the payment card when the payment card
25 is detected, and send the card information to the POS device. The POS device is further configured to: receive the card information from the card reading apparatus, and send the card information to the service device. The service device is configured to: generate a payment request corresponding to the target order based on the card information, and send the payment request to an acquiring institution, so that the acquiring institution executes a card payment procedure of the target order.

[0012] It can be learned from the above-mentioned technical solutions that this specification provides an order processing method, a device, a storage medium, and a system, to provide an
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efficient, secure, and flexible card scanning payment solution for a merchant and a consumer. A card information read process and transfer process follow a payment industry specification, to ensure data read and transfer security. In the embodiments of this specification, the card reading apparatus, the POS device, and the service device cooperate, to complete payment interaction
5 between the order management system and the acquiring institution. A relationship between the card reading apparatus and the acquiring institution is efficiently decoupled in an indirect communication manner between the card reading apparatus and the acquiring institution, so that the card reading apparatus can be more universal and modular. One card reading apparatus can support a plurality of acquiring institutions. The merchant does not need to purchase a financial
10 device for each acquiring institution, to greatly simplify payment hardware configuration of the merchant, and reduce overall costs.

[0013] Other functions of the order processing method, the device, the storage medium, and the system provided in this specification are partially listed in the following descriptions. Creative aspects of the order processing method, the device, the storage medium, and the system provided
15 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

[0014] To describe the technical solutions in the embodiments of this specification more clearly, the following briefly describes the accompanying drawings needed for describing the
20 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.

[0015] FIG. 1 is a schematic diagram of an application scenario of an order management system according to an embodiment of this specification;

25 [0016] FIG. 2 is a schematic diagram of a scenario of an order management system in a card scanning payment scenario according to an embodiment of this specification;

[0017] FIG. 3 is a schematic diagram of another scenario of an order management system in a card scanning payment scenario according to an embodiment of this specification;

[0018] FIG. 4 shows a hardware structure of an electronic device according to an embodiment

of this specification; and

[0019] FIG. 5 is a flowchart of an order processing method according to an embodiment of this specification.

DESCRIPTION OF EMBODIMENTS

5 [0020] 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.
10 Therefore, this specification is not limited to the shown embodiments, but has a widest scope consistent with that of the claims.

[0021] 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
15 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.

20 [0022] 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 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
25 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.

[0023] 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.

[0024] Embodiments described in this specification can be applied to an order management scenario of a merchant. The merchant can be merchants that provide various products or services, including but not limited to a catering merchant, a store, a supermarket, a fruit and vegetable store, a flower store, a bookstore, a hotel, a beauty salon, a dry cleaning store, a barber store, etc. The merchant can be a small/micro merchant, a large merchant, a chain store, etc. This is not limited in this specification.

[0025] In some embodiments, the merchant can be a merchant that performs service development on an offline channel (in a real store). In this case, an order of the merchant can include an offline order. In some embodiments, the merchant can alternatively be a merchant that performs service development on an online channel (Internet). In this case, an order of the merchant can include an online order. In some embodiments, the merchant can alternatively be a merchant that support service development on both an online channel and an offline channel. In this case, an order of the merchant can include an offline order and an online order.

[0026] In this specification, the online order is a product or service purchase request submitted by a consumer on the online channel (for example, a website or an application). The offline order is a product or service purchase request submitted by the consumer on the offline channel, for example, a product or service purchase request submitted by the consumer to a cashier in a face-to-face manner.

[0027] When the merchant needs to perform service development on the offline channel, the merchant needs to purchase a point of sale (POS) device, to manage the offline order. The POS device provides an interaction function, and can display a product or a service sold by the merchant. The cashier of the merchant can help the consumer select the product or service on the POS device and submit an order based on a purchase requirement of the consumer. The order is an offline order.

[0028] When the merchant performs service development on the online channel, the merchant can further cooperate with different network platforms. The network platform can include but is not limited to a delivery platform, a wallet platform, a social platform, etc. The merchant may be interconnected to different network platforms in different manners. For example, when cooperating with some platforms (for example, a delivery platform), the merchant can apply for opening an online store on these platforms, and place a product or a service of the merchant in the

online store, so that a consumer places an order in the online store. For another example, when the merchant cooperates with some other platforms (for example, the wallet platform or the social platform), the store mini program can be placed on these platforms, so that the consumer places an order in the store mini program.

5 **[0029]** In an online service development scenario, the merchant usually needs to cooperate with a plurality of network platforms, to attract more consumers. Therefore, an interconnection between the merchant and the network platform needs to take a lot of effort. In particular, in some geographical areas, each network platform covers a small quantity of consumers, and there are a large quantity of network platforms, for example, there may be hundreds or even thousands of
10 network platforms. In such geographical areas, a quantity of network platforms that need to be interconnected to the merchant is huge, and it needs to take huge effort.

[0030] A POS device used by the merchant for offline service development can only process receiving of an offline order, and cannot receive an online order. To normally accept an order on the network platform, the merchant needs to purchase a dedicated order acceptance device from
15 the network platform. Sometimes, a plurality of network platforms are active in the market, but no network platform is in a market monopoly position. In other words, the plurality of network platforms cover different consumer groups. In this case, if the merchant wants to operate normally, the merchant is forced to cooperate with each of the plurality of network platforms. When the merchant cooperates with the plurality of network platforms, the merchant needs to purchase the
20 order acceptance device from the plurality of network platforms. Consequently, purchase costs are relatively high. In particular, the purchase costs of the merchant are huge when a relatively large quantity of network platforms are interconnected. In addition, a counter of the merchant is crowded if these order acceptance devices are placed on the counter. In addition, in the face of so many order acceptance devices, the merchant tends to be distracted, and does not process an order in a
25 timely manner. Consequently, experience of the consumer is affected.

[0031] Further, when the merchant cooperates with the plurality of network platforms, the merchant has a relatively large quantity of order sources. Orders generated on different network platforms are stored in servers corresponding to the network platforms. When the merchant manages the online order, the merchant needs to visit serving ends of different network platforms
30 to perform order management (for example, an order query or order summary). The merchant cannot perform unified management of all orders. In addition, different network platforms may

have different operation manners for order management. The merchant needs to be familiar with operation manners of different network platforms. Due to the above-mentioned factors, an order management workload of the merchant is relatively large, and order management efficiency is relatively low.

5 **[0032]** Based on at least one of the technical problems described above, this specification provides an order management system. The order management system can help a merchant implement one-stop order management. To help a reader better understand one-stop order management, the following describes the order management system with reference to FIG. 1.

10 **[0033]** FIG. 1 is a schematic diagram of an application scenario 100 of an order management system according to an embodiment of this specification. For ease of understanding, an example in which a catering scenario is taken for description in FIG. 1. As shown in FIG. 1, the order management system can include a POS device 110 (or referred to as a POS end or a front-end device) and a service device 120 (or referred to as a serving end, a server, or a back-end device).

15 **[0034]** The POS device 110 is a multi-functional terminal. The POS device 110 can be considered as a client of the order management system. In some embodiments, the POS device 110 can be a mobile device, for example, a handheld device. The POS device 110 can be carried by a worker of a merchant to different locations in a store for operation, and there is relatively high convenience. In some embodiments, POS device 110 can be a non-mobile device. In this case, the POS device 110 is usually placed on a checkout counter in an offline store of the merchant.

20 **[0035]** In this specification, the POS device 110 can receive an offline order and an online order of the merchant. The POS device 110 can further perform payment collection processing for the offline order. The POS device 110 can also be referred to as a payment collection device or a sales device, or referred to as an all-in-one POS device.

25 **[0036]** The POS device 110 is an electronic device with a specific computing capability. In some embodiments, the POS device 110 can include a hardware device with a data processing function and a necessary program needed for driving the hardware device to work. The POS device 110 can manage an order by driving the hardware device to execute the program. For example, the POS device 110 can be installed with order management software (or an order management program). The POS device 110 can manage the order by running the order management software.

30 The order management software can correspond to an operating system installed in the POS device 110, or can correspond to an application (APP) or an instruction set installed in the POS device

110. The order management software can be software preset in the hardware device of the POS device 110 (for example, software built-in the POS device 110 when the POS device 110 is delivered from a factory), or can be software that is later installed in the POS device 110 by the worker of the merchant. This is not limited in this specification.

5 **[0037]** In some embodiments, the POS device 110 can have a display, or the POS device 110 can be externally connected to a display. The POS device 110 can provide an interaction capability through the display. For example, the POS device 110 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 POS device 110 can further display
10 a payment collection entry on the display, so that an operator performs a payment collection operation for the offline order.

[0038] When payment collection is performed for the order, the POS device 110 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,
15 near field communication (NFC) based payment, etc.

[0039] In some embodiments, a printing apparatus (not shown in FIG. 1) can be built in or externally connected to the POS device 110. When a built-in manner is used, the printing apparatus can be disposed at any possible location of the POS device 110. This is not limited in this specification. When an external connected manner is used, the POS device 110 can be connected
20 to the printing apparatus in a wired or wireless manner. This is not limited in this specification. A printing paper or a label paper can be disposed in the printing apparatus. After the consumer successfully pays an order, the POS device 110 can control the printing apparatus to print a receipt or an order label that is of the consumer and that corresponds to the order.

[0040] In some embodiments, the POS device 110 can further include an audio output
25 apparatus (not shown in FIG. 1). The audio output apparatus can be, for example, a speaker. For example, when receiving an online order, the POS device 110 can output voice information by using the audio output apparatus, to remind the worker of the merchant to process the order in a timely manner. For another example, after the consumer performs a payment operation for an offline order by using the POS device 110, in response to that the POS device 110 receives a
30 payment result of the order, the POS device 110 can output voice information by using the audio output apparatus, to indicate that the order is successfully paid or unsuccessfully paid.

[0041] Still as shown in FIG. 1, the service device 120 is a computing system with a specific computing capability. The service device 120 is communicatively connected to the POS device 110, and provides an order management service to the POS device 110. The service device 120 can correspond to a single computing device, or can correspond to a computing cluster including a plurality of computing devices. The service device 120 can be deployed locally, or can be deployed remotely. For example, the service device 120 can be a cloud server. In some embodiments, the service 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 service device 120 can provide the order management service to the POS device by driving the hardware device to execute the program. In some embodiments, the service device 120 can provide the order management service to the POS device in a software as a service (SaaS) mode.

[0042] In some embodiments, when the service device 120 is deployed remotely, the service device 120 can be connected to POS devices 110 of a plurality of merchants, and provide the order management service to the POS devices 110 of the plurality of merchants. In this case, the service device 120 can 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 the order management service provided by the service device 120 to the POS devices 110 of the different merchants is similar. In the descriptions of this specification, only an example in which the service device 120 provides the order management service to a POS device 110 of one merchant is taken for description.

[0043] A service provided by the service device 120 to the POS device 110 can include an order management service for an offline order, and can further include an order management service for an online order.

[0044] The following describes a working process of the order management system by using a catering scenario as an example.

[0045] With reference to FIG. 1, a catering store can include a front-of-house area and a back-of-house area. The front-of-house area is used to receive a consumer and is used by the consumer for dining. The front-of-house area can also be referred to as a reception area. The back-of-house area is an area in which a cook cooks dishes. The back-of-house area can also be referred to as a preparation area. The POS device 110 is usually located in the front-of-house area. The service

device 120 can be located in the front-of-house area, or can be located in a cloud.

[0046] A process in which the order management system processes the offline order is follows:
As shown in FIG. 1, a consumer A goes to a store to have a dinner. The consumer A notifies a cashier of a required dish. The cashier selects a corresponding dish on the POS device 110, and
5 places an order. The POS device 110 generates an offline order in response to an order placing operation of the cashier. The POS device 110 sends the offline order to the service device 120, so that the service device 120 stores the offline order.

[0047] The order management system can receive online orders from a plurality of online channels. The following provides descriptions by using three cases as examples.

10 **[0048]** Case 1: As shown in FIG. 1, the service device 120 can be deployed with a store mini program. A two-dimensional code of the store mini program is disposed on a dining table (or another location) of the store. A consumer B can scan the two-dimensional code by using a terminal device, to view a page of the store mini program. The consumer B selects a desired dish on the page of the mini program, and completes online payment. In this case, the service device 120
15 generates an online order, stores the online order, and then sends the online order to the POS device 110. Therefore, the POS device 110 receives the online order.

[0049] Case 2: As shown in FIG. 1, the merchant can place the store mini program on a network platform. The following provides descriptions by using an example in which the store mini program is placed on a wallet platform. When a consumer C uses the wallet platform, the
20 consumer C accesses the store mini program on the wallet platform, selects a desired dish on the page of the mini program, and completes online payment. In this case, the wallet platform generates an online order, and sends the online order to the service device 120. After storing the online order, the service device 120 sends the online order to the POS device 110. Therefore, the POS device 110 receives the online order.

25 **[0050]** Case 3: As shown in FIG. 1, the merchant can open an online store on a network platform. The following provides descriptions by using an example in which the online store is opened on a delivery platform. When a consumer D uses the delivery platform, the consumer D accesses the online store of the merchant on the delivery platform, selects a required dish, and completes online payment. In this case, the delivery platform generates an online order, and sends
30 the online order to the service device 120. After storing the online order, the service device 120 sends the online order to the POS device 110. Therefore, the POS device 110 receives the online

order.

[0051] It can be learned from the above-mentioned descriptions that an offline order received by the merchant and online orders from all channels are stored in the service device 120. Therefore, the merchant can implement unified management of all orders on the service device 120. In comparison with a manner in which the merchant respectively manages orders on different channels, the order management system provided in this specification can improve convenience of order management of the merchant and improve order management efficiency.

[0052] The catering scenario continues to be taken as an example. After receiving an order, the merchant needs to process and cook a dish in the order. In an actual application, after the POS device 110 receives an order (including an offline order and an online order), the POS device 110 can control the printing apparatus to print a kitchen order ticket that includes food content of the order, and the kitchen order ticket is manually transferred to a back-of-house area. The cook cooks a dish based on the dish content in the kitchen order ticket. In such a manner of manually transferring the kitchen order ticket, a dish is easily cooked wrongly in a peak period of dining, and efficiency is relatively low. Consequently, dining duration of the consumer increases.

[0053] Therefore, in some embodiments of this specification, as shown in FIG. 1, the order management system can further include one or more display devices 130. For example, in the catering scenario, the display device 130 can also be referred to as a kitchen display system (KDS). The display device 130 is disposed in the back-of-house area, and is communicatively connected to the POS device 110. The display device 130 can receive an order from the POS device 110, and display a to-be-cooked dish to the cook, to improve cooking efficiency of the cook and reduce a probability that the cook wrongly cooks. In some embodiments, after a dish is cooked, the cook can further send a dish cooking completion notification to the POS device 110 by using the display device 130, so that the POS device 110 knows an order processing progress.

[0054] In stores of some merchants, the back-of-house area include a plurality of ports. Different ports are equipped with different cooks who are responsible for cooking different types of dishes. With reference to FIG. 1, an example in which the back-of-house area includes a cold dish port and a hot dish port is used. A cook X1 is responsible for cooking a cold dish and a cook X2 is responsible for cooking a hot dish. In this case, one display device 130 can be disposed in the cold dish port, and is configured to display, to the cook X1, the cold dish that needs to be cooked. One display device 130 can be disposed in the hot dish port, and is configured to display,

to the cook X2, the hot dish that needs to be cooked. In this way, dish cooking in different ports does not interfere with each other, to further improve cooking efficiency.

[0055] In the application scenario shown in FIG. 1, the POS device 110 can be connected to each of the service device 120 and the display device 130 through a network. The network is a medium used to provide a communication connection. The network can facilitate exchange of information or data. The network can be any type of wired or wireless network, or a combination thereof. For example, the network can include a cable network, a wired network, an optical fiber network, a telecommunications network, an intranet, the Internet, a local area network (LAN), a wide area network (WAN), a wireless local area network (WLAN), a metropolitan area network (MAN), a public switched telephone network (PSTN), a Bluetooth network, a ZigBee network, a near field communication (NFC) network, or a similar network. In some embodiments, the network can include one or more network access points. For example, the network can include a wired or wireless network access point, for example, a base station or an Internet switching point.

[0056] It should be noted that the catering scenario is used as an example in FIG. 1. It can be understood by a person skilled in the art that when the order management system provided in this specification is applied to another scenario, an implementation solution and a technical effect of the order management system are similar to those of the catering scenario. Details of the another scenario are not described in this specification.

[0057] It can be learned from the above-mentioned descriptions that the merchant can implement one-stop order management by using the order management system provided in this specification. The one-stop order management is embodied in at least the following aspects: (1) The merchant can use one POS device 110 to implement processing of the offline order or implement processing of the online orders from the plurality of online channels. The merchant does not need to be interconnected to each of the plurality of online channels, thereby avoiding energy and time costs required for work docking. In addition, the merchant does not need to purchase an order acceptance device from each of the plurality of online channels, to reduce purchase costs of the merchant. (2) All orders received by the POS device 110 are sent to the display device 130 in the back-of-house area in real time, without a need to manually transfer the kitchen order ticket. This improves order processing efficiency. (3) All orders received by the merchant are stored in the service device 120, and the merchant can implement unified management such as order query or summary on all the orders on the service device 120. The

merchant does not need to perform decentralized management on the orders on different network platforms, to improve order management efficiency.

[0058] Based on the order management system shown in FIG. 1, when the merchant performs offline service development, the merchant needs to purchase a dedicated financial device from an acquiring institution, to meet a card scanning payment requirement of the consumer. The financial device and the acquiring institution are communicatively connected through a dedicated network. After a sales device generates an offline order in response to an order placing operation of the cashier of the merchant, the sales device sends a payment instruction for the offline order to the financial device. After the consumer performs a card scanning operation on the financial device, the financial device generates a payment request corresponding to the offline order, and sends the payment request to the acquiring institution, so that the acquiring institution completes a card payment procedure for the offline order.

[0059] In an offline service development scenario, different consumers may select different payment channels for payment. The merchant usually needs to be interconnected to a plurality of acquiring institutions, to meet payment requirements of different consumers. In this case, the merchant needs to purchase a financial device from each acquiring institution. FIG. 2 is a schematic diagram of a scenario of an order management system in a card scanning payment scenario according to an embodiment of this specification. As shown in FIG. 2, in this scenario, the POS device 110 is connected to a plurality of financial devices 114. In FIG. 2, three financial devices 114 are used as examples. The three financial devices 114 are separately provided by different acquiring institutions, and are communicatively connected to respectively corresponding acquiring institutions. Different acquiring institutions correspond to different card issuing banks. When a consumer A selects card scanning payment, the cashier needs to guide, based on a card issuing bank corresponding to a payment card of the consumer A, the consumer A to perform a card scanning operation on a corresponding financial device 114. Therefore, after reading card information of the payment card, the financial device 114 directly communicates with a corresponding acquiring institution, and sends the card information to the acquiring institution.

[0060] In the scenario shown in FIG. 2, a target merchant needs to purchase a plurality of financial devices, to meet card scanning requirements of different consumers. Usually, a price of the financial device provided by the acquiring institution is relatively high. The merchant purchases the financial device from each of a plurality of acquiring institutions, and relatively high

purchase costs are generated. In addition, a large quantity of financial devices need to be placed on a working table of the merchant, and the working table is crowded. In addition, in the face of so many financial devices, the merchant may use a wrong financial device to collect cash, and consequently, payment collection fails, thereby affecting payment collection efficiency.

5 **[0061]** In view of this, this specification provides an order processing solution, which is applicable to the order management system shown in FIG. 1. According to this solution, a merchant can implement a card-based payment collection requirement by using a low-cost card reading apparatus, without a need to purchase a dedicated financial device from an acquiring institution. The following provides descriptions with reference to FIG. 3.

10 **[0062]** FIG. 3 is a schematic diagram of another scenario of an order management system in a card scanning payment scenario according to an embodiment of this specification. As shown in FIG. 3, based on the order management system shown in FIG. 1, a POS device 110 can be connected to a card reading apparatus 111. Different from the scenario shown in FIG. 2, in the scenario shown in FIG. 3, the card reading apparatus 111 is not a professional financial device
15 provided by an acquiring institution, but is a low-cost card reading appliance. In addition, the card reading apparatus 111 is not directly communicatively connected to the acquiring institution, but is connected to the acquiring institution by using a service device 120. That is, the service device 120 is responsible for sending a payment request for an order to the acquiring institution. It should be noted that one or more acquiring institutions can be communicatively connected to the service
20 device 120. This is not limited in this specification.

[0063] The following describes a payment process of an offline order with reference to FIG. 3. As shown in FIG. 3, after a cashier initiates a payment collection operation for an offline order, the POS device 110 sends a card reading instruction to the card reading apparatus 111, and obtains card information of a payment card from the card reading apparatus 111. The POS device 110
25 sends the card information to the service device 120. The service device 120 can generate a payment request for the offline order based on the card information, and send the payment request to an acquiring institution, so that the acquiring institution executes a payment procedure of the offline order. The service device 120 can send a payment result of the offline order to the POS device 110 after receiving the payment result from the acquiring institution. In the scenario shown
30 in FIG. 3, the merchant can cooperate with a plurality of acquiring institutions by connecting one card reading apparatus 111 to the POS device 110, to meet a requirement of a consumer for

payment through different payment channels.

[0064] It should be noted that, in some embodiments, the card reading apparatus 111 can be built in the POS device 110. When a built-in manner is used, the card reading apparatus 111 can be disposed at any possible location of the POS device 110. This is not limited in this specification.

5 In some embodiments, the card reading apparatus 111 can be an apparatus externally connected to the POS device 110. When an external connected manner is used, the POS device 110 can be connected to the card reading apparatus 111 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
10 connection manner can include but is not limited to a Wi-Fi connection, a Bluetooth connection, etc.

[0065] The card reading apparatus 111 is an apparatus that can read card information of a payment card (for example, a debit card or a credit card) of the consumer according to a preset payment specification. When the consumer selects card scanning payment, the POS device 110
15 can control the card reading apparatus 111 to enter a card reading mode. The card reading apparatus 111 can read the card information of the payment card according to the preset payment specification in response to that the consumer places the payment card close to, attaches the payment card to, or inserts the payment card into the card reading apparatus.

[0066] In some embodiments, the POS device 110 and the service device 120 cooperate with
20 each other, to perform the order processing method provided in this embodiment of this specification. The POS device 110 and the service device 120 can store data and instructions used to implement the order processing method, and can execute or be configured to execute the data and instructions. In some embodiments, the POS device 110 and the service device 120 can include a hardware device with a data information processing function and a necessary program needed
25 for driving the hardware device to work.

[0067] FIG. 4 is a diagram of a hardware structure of an electronic device 200 according to an embodiment of this specification. In some embodiments, the electronic device 200 can serve as the POS device 110 or the service device 120 in FIG. 1 or FIG. 3.

[0068] As shown in FIG. 4, the electronic device 200 can include at least one storage medium
30 230 and at least one processor 220. In some embodiments, the electronic device 200 can further include a communication port 250 and an internal communication bus 210. The electronic device

200 can further include an I/O component 260.

[0069] 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 260.

5 **[0070]** The I/O component 260 supports an input/output between the electronic device 200 and another component.

[0071] The communication port 250 is used for data communication between the electronic device 200 and the outside. For example, the communication port 250 can be used for data communication between the electronic device 200 and a network 140. The communication port
10 250 can be a wired communication port, or can be a wireless communication port.

[0072] In some embodiments, the network is a medium used to provide a communication connection. The network can facilitate exchange of information or data. The network can be any type of wired or wireless network, or a combination thereof. For example, the network can include a cable network, a wired network, an optical fiber network, a telecommunication network, an
15 intranet, the internet, a local area network (LAN), a wide area network (WAN), a wireless local area network (WLAN), a metropolitan area network (MAN), a public switched telephone network (PSTN), a Bluetooth network, a ZigBee™ network, a near field communication (NFC) network, or a similar network.

[0073] In some embodiments, the network can include one or more network access points. For
20 example, the network can include a wired or wireless network access point, for example, a base station or an Internet switching point. Through the access point, one or more components in each device corresponding to the electronic device 200 can be connected to the network to exchange data or information.

[0074] The storage medium 230 can include a data storage apparatus. The data storage
25 apparatus can be a non-transitory storage medium, or can be a 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 (RAM) 235. 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,
30 an object, a component, a data structure, a process, a module, etc.

[0075] The at least one processor 220 can be communicatively connected to the at least one

storage medium 230. When the electronic device 200 runs, the at least one processor 220 reads the at least one instruction set, and performs, based on an indication of the at least one instruction set, the order management method provided in this specification. The processor 220 can perform steps included in the order management method. The processor 220 can be in a form of one or more
5 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
10 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.

[0076] To merely describe a problem, only one processor 220 is shown in the electronic device 200 in the accompanying drawings. However, it should be noted that the electronic device 200 in this specification can further include a plurality of processors. Therefore, the operations and/or
15 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 electronic device 200 described in this specification performs step A and step B, it should be understood as 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
20 a second processor jointly perform step A and step B).

[0077] FIG. 5 is a flowchart of an order processing method P300 according to an embodiment of this specification. As shown in FIG. 5, the order processing method P300 is performed by a POS device, a service device, a card reading apparatus, and an acquiring institution through cooperation. The order processing method P300 can include S310 to S400.

25 **[0078]** S310: The POS device receives a payment collection instruction for a target order.

[0079] The payment collection instruction at least indicates that a payment manner of the target order is card payment.

[0080] In some implementations, the payment collection instruction can be initiated by an offline operator, and the operator can be a worker (for example, a cashier) of a target merchant.
30 Based on a payment requirement of a consumer, the worker of the target merchant selects card payment as the payment manner on the POS device, and performs a payment collection operation.

The operator can alternatively be the consumer, and the consumer independently orders on the POS device, and selects card payment for payment collection. In this scenario, the POS device can further serve as an offline self-ordering kiosk.

[0081] S320: The POS device sends a card reading instruction to the card reading apparatus.

5 **[0082]** In some embodiments, the card reading instruction is used to indicate the card reading apparatus to enter a card reading mode. In the card reading mode, the card reading apparatus continuously detects whether a payment card approaches, or is contacted, or is inserted. The card reading apparatus reads card information of the payment card when detecting that the payment card approaches, or is contacted, or is inserted. The card information read by the card reading
10 apparatus includes but is not limited to a card number, a validity period, a payment card type, etc. In some embodiments, the card reading instruction can further specify a reading manner, for example, EMV chip reading, magnetic strip reading, or an NFC communication reading.

[0083] In some embodiments, order management software installed on the POS device can be integrated with a software development kit (SDK) corresponding to the card reading apparatus.
15 The SDK provides a group of API interfaces for a developer, to control an operation of the card reading apparatus and obtain data returned by the card reading apparatus. The API interface can include but is not limited to an interface used to initialize the card reading apparatus, an interface used to control the card reading apparatus to enter the card reading mode, an interface used to control the card reading apparatus to encrypt the read card information, etc. When the POS device
20 needs to send the card reading instruction to the card reading apparatus, the POS device can invoke a corresponding API interface by using the order management software, to send the card reading instruction to the card reading apparatus.

[0084] In some embodiments, the POS device can further send a prompt instruction to the card reading apparatus based on the payment collection instruction, to indicate the card reading
25 apparatus to send prompt information used to notify a user to scan a card.

[0085] The prompt information can include a visual prompt, a sound prompt, or a vibration prompt, and is specifically implemented based on a hardware function of the card reading apparatus. In some embodiments, the card reading apparatus can include an audio output apparatus (for example, a speaker), and output a sound prompt by using the audio output apparatus, for
30 example, "Please scan a card", "Please insert a chip card", or "Please enable a card to approach a sensing area". In some embodiments, the card reading apparatus can include a buzzer, and give a

vibration prompt by using the buzzer, to remind the user to scan a card. In some embodiments, the card reading apparatus can include an LED light, to guide, by lighting or flashing the LED light, etc., the user to find a placement area of the payment card. For an NFC communication based payment scenario, the card reading apparatus can light an indicator in an NFC sensing area, so that
5 the user quickly completes a payment operation.

[0086] It should be noted that content of the prompt information is not limited in this specification. The card reading apparatus can output different prompt information in different payment scenarios.

[0087] In some embodiments, the prompt information can alternatively be prompt information
10 that is sent by using an audio output apparatus built in or externally connected to the POS device and that is used to notify the user to scan a card.

[0088] In the above-mentioned embodiment, automatic prompt information can be used to reduce a requirement of the worker to indicate the user to scan a card, improve payment efficiency, reduce a frequency of human intervention, improve user experience of a payment scenario, and
15 further enhance functional adaptability and flexibility of a device.

[0089] The consumer can perform a card scanning operation, a card insertion operation, a card waving operation, or a card sliding operation based on an attribute of the payment card, to complete a payment action. The card reading apparatus performs step S330 to read the card information.

[0090] S330: The card reading apparatus detects the payment card, and reads the card
20 information of the payment card when the payment card is detected.

[0091] Based on attributes of different payment cards, the card reading apparatus reads necessary information stored in the payment card, and the information can be core information for payment authorization and transaction verification. The card information can include a card number, a validity period, a dynamic authentication code, payment card holder authentication data,
25 etc. Different banks or payment cards may need to read different card information, and correct card information can be transmitted between the payment card and the card reading apparatus. When the payment card approaches or is inserted into the card reading apparatus, the card reading apparatus can detect existence of the payment card in real time, and select a proper read content based on the payment card type. The card reading apparatus can not only support a plurality of
30 payment scenarios, but also provide convenient payment experience for the consumer.

[0092] The card reading apparatus can read the card information based on a radio frequency

(RF) field signal. For example, the card reading apparatus provides the RF field signal after receiving the card reading instruction, and when the payment card approaches/is contacted/is inserted into the card reading apparatus, the RF field signal supplies power to an integrated circuit in the payment card. Therefore, the card reading apparatus communicates with the integrated circuit in the payment card, to read the card information of the payment card. The RF field signal provides electrical energy for the integrated circuit in the payment card, so that the payment card can work normally, and further serves as a data communication carrier, to establish a communication link for bi-directional data exchange between the card reading apparatus and the payment card.

10 **[0093]** In some embodiments, a security chip is built in the card reading apparatus, and the card information is information obtained by the security chip by reading information about the payment card and immediately encrypting the read information.

[0094] After the payment card is detected, the security chip can intervene immediately, to control a whole process of reading, processing, and encrypting the card information, and ensure that the whole process meets a security standard. The security chip exchanges necessary information with the payment card in compliance with an international payment standard (for example, an EMV protocol). Different from a common processing chip, the security chip completes an entire reading process in a protected hardware environment, to ensure that information is not interfered by an external attack or unauthorized access in a reading phase. When reading information, the security chip immediately encrypts the read information, to ensure that an encryption key of each transaction is unique, and cannot be decrypted or reused even if transaction data is intercepted. The encrypted card information can be transmitted by the security chip to the POS device through a protected communication channel.

25 **[0095]** In the above-mentioned embodiment, a built-in design of the security chip further improves overall security of the card reading apparatus. A sensitive operation is implemented in the security chip, and another hardware module does not need to process sensitive data, to reduce an overall security risk of a device.

[0096] Based on different reading manners, the card reading apparatus can further be one of the following: a contact card reading apparatus, a contactless card reading apparatus, or a combined contact and contactless card reading apparatus.

30 **[0097]** The contact card reading apparatus is a device that can complete information reading

by physically contacting the payment card. The user needs to insert the payment card into a card slot of the card reading apparatus, so that a card reading contact of the device directly contacts a payment card chip, to complete data reading and exchange. The contactless card reading apparatus can perform wireless communication with the payment card by using a technology such as an RF field or near field communication (NFC), to complete information reading. The user does not need to insert the payment card into a device, and can complete payment by simply placing the card close to the sensing area of the card reading apparatus (for example, within a range of 4 cm to 10 cm). The contact card reading apparatus and the contactless card reading apparatus has both contact and contactless functions, and can support a plurality of types of payment cards simultaneously. The two technologies are integrated on the same hardware platform, so that the card reading apparatus provides more payment options for the user, and the merchant can also adapt to more diversified payment requirements.

[0098] In some embodiments, different card reading apparatuses may also have different communication manners in a process of reading the card information of the payment card. For an insertable chip card, the card reading apparatus triggers communication of an EMV chip. For a magnetic strip card, the card reading apparatus reads data on a magnetic strip. For contactless NFC payment, the card reading apparatus enables wireless communication to perform short-range communication with the payment card.

[0099] The above-mentioned different card reading apparatuses can be applied to different scenarios. A hybrid device for which the two technologies are combined provides more flexibility for a payment system.

[0100] In the conventional technology, each acquiring institution usually requires the merchant to use a dedicated financial device, and the financial device directly communicates with the acquiring institution. Because different acquiring institutions have different technical standards and functional requirements for an appliance, the merchant has to deploy a plurality of devices to support a plurality of payment manners. This not only increases device costs and maintenance complexity of the merchant, but also makes the payment scenarios too decentralized to implement unified management.

[0101] Different from a scenario in which different acquiring institutions provide different financial devices in the conventional technology, the card reading apparatus in this specification is not an appliance that is provided by the acquiring institution and that directly communicates

with the acquiring institution.

[0102] In some embodiments, the card reading apparatus can support reading payment cards from different card issuing banks. In this way, the merchant does not need to configure a dedicated appliance for each acquiring institution. In addition, the card reading apparatus does not directly
5 communicate with the acquiring institution, but completes processing and transmission of the card information by using the POS device and the service device. In a payment procedure in this embodiment of this specification, a core responsibility of the card reading apparatus is to read the card information of the payment card and transmit the card information to the POS device. The POS device further serves as a transfer station of information, and sends payment data to the
10 service device. Then, the service device communicates with the acquiring institution to complete transaction authorization. For a specific procedure, refer to steps S330 to S370. A relationship between the card reading apparatus and the acquiring institution is efficiently decoupled in such an indirect communication manner, so that the card reading apparatus can be more universal and modular. In addition, the card reading apparatus in this specification provides a larger selection
15 space for the merchant. One device can support a plurality of payment scenarios, and there is no need to configure a dedicated device for each acquiring institution. Further, the card reading apparatus only needs to maintain communication with the POS device, and does not need to directly process an authentication and settlement procedure of a payment transaction, and a hardware design of the card reading apparatus can be lighter and more efficient.

[0103] After reading the card information of the payment card, the card reading apparatus does not directly communicate with the acquiring institution, but continues to perform step S340 to transmit the card information to the POS device.

[0104] S340: The card reading apparatus sends the card information to the POS device.

[0105] As described above, the card information is information immediately encrypted after
25 being read by the card reading apparatus.

[0106] In some embodiments, the POS device and the card reading apparatus are connected wirelessly. In a wireless communications environment such as Bluetooth or Wi-Fi, a wireless signal has a relatively large propagation range, and has a risk of being intercepted remotely. Therefore, the card reading apparatus can further encrypt a transmission packet in a process of
30 sending the card information to the POS device. If the POS device and the card reading apparatus are connected through a USB or a wired connection, encrypted communication in a process of

transmission between the card reading apparatus and the POS device can be omitted according to a requirement. However, because data transmission may pass through a third-party device (for example, a hub or a data switching device), encryption transmission can also be performed to prevent physical interception between devices. Encryption processing in the above-mentioned process not only ensures integrity and confidentiality of the card information in a transmission process, but also effectively prevents potential security risks such as data interception and tampering.

[0107] Because the card information is information immediately encrypted after being read by the card reading apparatus, the POS device cannot obtain specific content of the card information.

10 After receiving the card information, the POS device performs S350 to continue to transmit the card information.

[0108] S350: The POS device sends the card information to the service device.

[0109] Communication between the POS device and the service device and communication between the service device and the acquiring institution are based on network communication, and are easily subject to an external malicious attack, and the card information includes sensitive data. Therefore, before sending the card information to the service device, the POS device encrypts the card information and then sends the card information to the service device, to prevent information from being stolen or intercepted.

[0110] In some embodiments, the POS device encrypts the card information, to obtain a first transmission packet, and sending the first transmission packet to the service device.

[0111] In addition to the card information, the first transmission packet can further include transaction-related information such as an order number and a merchant ID. Encryption processing of the POS device ensures security of the card information in a process of sending the card information to the service device, to prevent unauthorized interception, tampering, or abuse in a data transmission process.

[0112] After receiving the first transmission packet, the service device decrypts the first transmission packet to obtain the card information.

[0113] After receiving the first transmission packet, the service device decrypts the first transmission packet by using a private key or a dynamic key of the service device based on a communication protocol, to obtain the card information. It should be noted that the service device herein still does not decrypt the card information, and the card information obtained herein is

information encrypted by the security chip of the card reading apparatus. That is, in an entire card information transmission process, the POS device and the service device cannot read specific content of the card information.

5 [0114] In some other embodiments, after receiving the first transmission packet, the service device does not perform decryption processing. Instead, a payment request corresponding to the target order is directly generated based on the first transmission packet, and is sent to the acquiring institution. The acquiring institution decrypts a plurality of layers of encryption based on a protocol and a key of an entire communication link, to obtain the card information.

10 [0115] S360: The service device generates the payment request corresponding to the target order based on the card information.

[0116] In some embodiments, after obtaining the card information, the service device associates the card information with target order information. The target order information usually includes a transaction amount, product details, a merchant identifier, a transaction time, etc. After integrating the information, the service device constructs a data packet of the payment request.
15 The payment request may include: card information, transaction information, merchant information, a payment protocol, etc. In a process of generating the payment request, the service device not only simply integrates data, but also complies with a technical specification and a security standard of the acquiring institution, to ensure that the data can be correctly identified and processed based on the card information of the payment card. The payment request can also be
20 subject to encrypted protection, to provide a secure payment environment for the user and the merchant.

[0117] S370: The service device sends the payment request to the acquiring institution.

[0118] In some embodiments, after generating the payment request, the service device can send the payment request to the acquiring institution through a secure channel for processing.

25 [0119] In some embodiments, after receiving the payment request, the acquiring institution can further forward the payment request to a downstream institution. The downstream institution can be a financial institution such as a card issuing bank. This is not limited in this specification.

[0120] In some embodiments, the service device is connected to a plurality of acquiring institutions. The method P300 further includes: The POS device determines an identifier of a card
30 issuing bank corresponding to the payment card, and sends the identifier of the card issuing bank to the service device, so that the service device determines, from the plurality of acquiring

institutions, an acquiring institution that supports processing of the target order.

[0121] The identifier of the card issuing bank is used to identify key information of a card issuing institution corresponding to the payment card. A specific bank or financial institution of the payment card can be specified by using a unique code or identifier, to help an order management system in this specification accurately send a transaction request to a correct acquiring institution for processing.

[0122] In some embodiments, the POS device can determine the identifier of the card issuing bank corresponding to the payment card based on data entered by the operator into the POS device.

[0123] In some embodiments, the operator can enter a part or all of the card number of the payment card on the POS device, for example, a bank identification number (BIN) (first six or eight digits of the card number). The POS device searches for a corresponding identifier of a card issuing bank based on an entered BIN code. In some embodiments, the operator can also select a card issuing bank or a card organization directly from the options displayed by the POS device. The operator can also input additional transaction information (such as area information and card type) to help the POS device determine the card issuing bank identifier.

[0124] In some embodiments, the POS device can further control the card reading apparatus to read the identifier of the card issuing bank from the payment card. For example, the card reading instruction sent by the POS device is further used to indicate the card reading apparatus to read the identifier of the card issuing bank from the payment card.

[0125] In some embodiments, the POS device can send, in a payment procedure, a card reading request that includes a specific instruction, for example, read the identifier of the card issuing bank, to indicate the card reading apparatus to extract, from the payment card, a field related to the card issuing bank, for example, a BIN code or a card institution identifier. The card reading apparatus can communicate with the payment card based on the instruction of the POS device, and extract the identifier of the card issuing bank. For example, the BIN code is extracted from a card data structure, to confirm the card issuing bank.

[0126] In some embodiments, the POS device can further determine the identifier of the card issuing bank by combining two manners of entering by the operator and reading by the card reading apparatus. This combination manner can enhance system adaptability. For example, when the card reading apparatus unsuccessfully performs automatic reading, the POS device can switch to a manual input mode, to ensure that the payment procedure is not affected.

[0127] After obtaining the identifier of the card issuing bank by using the above-mentioned implementation, the POS device encapsulates the identifier of the card issuing bank, the card information, and the transaction-related information (for example, an order number and a merchant ID) into an encrypted transmission packet (the first transmission packet), and sends the encrypted
5 transmission packet to the service device.

[0128] In some embodiments, the service device receives the identifier of the card issuing bank from the POS device, and determines, from the plurality of acquiring institutions based on the identifier of the card issuing bank, a target acquiring institution that supports processing of the target order; and Based on the identifier of the card issuing bank, the service device can find, by
10 using an internally configured routing table, a target acquiring institution that supports a current transaction, and send the payment request to the target acquiring institution, to complete transaction authorization and clearing. Such a routing process can be dynamically adjusted. In this process, specific card information does not need to be processed or stored. The payment request generated by the service device can include the card information, the identifier of the card issuing
15 bank, the transaction amount, etc., but always does not involve specific content of the card information. The payment request is sent to the target acquiring institution through a secure communication channel.

[0129] In some embodiments, after receiving the payment request, the acquiring institution can decrypt the payment request, to obtain the card information. Based on the card information,
20 the acquiring institution can transmit data to a corresponding downstream institution or bank to execute the payment procedure. In the payment procedure, the acquiring institution generates a payment result based on a verification result of the payment card, an authorization response of the card issuing bank, and an actual situation of a transaction, and performs step S380 to forward the payment result to the service device.

25 [0130] S380: The acquiring institution sends the payment result corresponding to the target order to the service device.

[0131] The payment result can represent that the target order is paid unsuccessfully or successfully. That the target order is paid successfully indicates that a transaction request for the payment card is approved by the card issuing bank or a payment network, and a transaction amount
30 is deducted successfully. That the target order is paid unsuccessfully indicates that the transaction request is not approved. The payment result not only represents a success or failure of payment,

but also may carry additional information such as a failure cause.

[0132] After receiving the payment result sent by the acquiring institution, the service device decrypts, authenticates, and processes the result, and then performs step S390 to transmit the payment result to the POS device.

5 **[0133]** S390: The service device sends the payment result corresponding to the target order to the POS device.

[0134] In some embodiments, before sending the payment result, the service device can further format the payment result into a standard format that can be identified and displayed by the POS device. Before sending the payment result, the service device can further store the payment result
10 corresponding to the target order, to facilitate subsequent order management and order backtracking.

[0135] S400: The POS device outputs the payment result.

[0136] Display content of the payment result can include a payment status, order details, additional descriptions, etc.

15 **[0137]** In some embodiments, the POS device can display the payment result in an interaction interface. For example, the interaction interface of the POS device displays specific content of the payment result, to display the payment result to the consumer in a visual manner. For another example, the POS device can provide a simple result prompt by using an indicator (green indicates a success, and red indicates a failure).

20 **[0138]** In some embodiments, the POS device outputs the payment result by using voice information. The POS device includes a built-in audio output apparatus, for example, a speaker, and can convert the payment result into a voice prompt. For example, when payment succeeds, the speaker outputs a voice prompt "Payment succeeds, thank you for use!". If payment fails, the speaker prompts a specific cause, for example, "Payment fails and a balance is insufficient. Please
25 replace a payment manner."

[0139] In some embodiments, in addition to a display interface and the voice prompt, the POS device can further print a receipt by using a connected printing device, and print the payment result on the receipt, to facilitate retention by the merchant and viewing by the consumer.

[0140] The payment result of the order is transferred by the acquiring institution to the service
30 device, and then transferred by the service device to the POS device, so that the order management system can quickly and accurately feed back a payment status to the operator. The POS device can

output the payment result in a plurality of manners such as the display interface, the voice prompt, and receipt printing, to meet requirements of different payment scenarios, and improve user experience and payment efficiency.

[0141] It should be noted that a process of reading and transferring the card information meets a preset payment specification. The payment specification herein can be an EMV standard, and the EMV standard is used as a global standard for chip card payment, and defines an interaction manner between a card and a payment terminal.

[0142] In conclusion, this specification provides an order processing method, a device, a storage medium, and a system, to provide an efficient, secure, and flexible card scanning payment solution for a merchant and a consumer. A card information read process and transfer process follow a payment industry specification, to ensure data read and transfer security. In the embodiments of this specification, the card reading apparatus, the POS device, and the service device cooperate, to complete payment interaction between the order management system and the acquiring institution. A relationship between the card reading apparatus and the acquiring institution is efficiently decoupled in an indirect communication manner between the card reading apparatus and the acquiring institution, so that the card reading apparatus can be more universal and modular. One card reading apparatus can support a plurality of acquiring institutions. The merchant does not need to purchase a financial device for each acquiring institution, to greatly simplify payment hardware configuration of the merchant, and reduce overall costs.

[0143] 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 one instruction set is executed by a processor, the at least one instruction set instructs the processor to implement the steps of the order processing method P300 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 an electronic device 200, the program code is used to enable the electronic device 200 to perform the steps of the order processing method P300 described in this specification. The program product configured to implement the above-mentioned method can be a portable compact disc read-only memory (CD-ROM) that includes program code, and can run on the electronic 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 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 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 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 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 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 electronic device 200, partially executed on the electronic device 200, executed as an independent software package, partially executed on the electronic device 200 and partially executed on a remote computing device, or completely executed on a remote computing device.

[0144] 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

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.

[0145] 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
5 impose no limitation. Although it is not explicitly stated here, a person skilled in the art can 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.

[0146] 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
10 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
15 "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 combined in one or more embodiments of this specification.

[0147] 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,
20 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 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
25 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.

[0148] 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
30 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 herein by reference and used for all purposes now or later associated with this document. In

addition, 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.

[0149] 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 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 processing method, wherein the method is applied to an order management system, the order management system comprises a service device, a POS device, and a card reading
5 apparatus connected to the POS device, and the method is performed by the POS device and comprises:

receiving a payment collection instruction for a target order, wherein the payment collection instruction at least indicates that a payment manner of the target order is card payment;

10 sending a card reading instruction to the card reading apparatus based on the payment collection instruction, to indicate the card reading apparatus to detect a payment card and read card information of the payment card when the payment card is detected; and

receiving the card information from the card reading apparatus, and sending the card information to the service device, so that the service device generates, based on the card information, a payment request corresponding to the target order, wherein the payment request is
15 used to request an acquiring institution to execute a card payment procedure of the target order.

2. The method according to claim 1, wherein a security chip is built in the card reading apparatus, and the card information is information obtained by the security chip by reading information about the payment card and encrypting the read information.

3. The method according to claim 2, wherein the sending the card information to the service
20 device comprises:

encrypting the card information, to obtain a first transmission packet, and sending the first transmission packet to the service device.

4. The method according to claim 1, wherein the method further comprises:

25 sending a prompt instruction to the card reading apparatus based on the payment collection instruction, to indicate the card reading apparatus to send prompt information used to notify the user to scan a card.

5. The method according to claim 1, wherein the method further comprises:

receiving a payment result corresponding to the target order from the service device; and
outputting the payment result.

30 6. The method according to claim 1, wherein the service device is connected to a plurality of

acquiring institutions, and the method further comprises:

determining an identifier of a card issuing bank corresponding to the payment card, and sending the identifier of the card issuing bank to the service device, so that the service device determines, from the plurality of acquiring institutions, an acquiring institution that supports
5 processing of the target order.

7. The method according to claim 6, wherein the determining an identifier of a card issuing bank corresponding to the payment card comprises:

determining the identifier of the card issuing bank corresponding to the payment card based on data entered by an operator into the POS device.

10 8. The method according to claim 6, wherein the card reading instruction is further used to indicate the card reading apparatus to read the identifier of the card issuing bank from the payment card, and the determining an identifier of a card issuing bank corresponding to the payment card comprises:

receiving the identifier of the card issuing bank corresponding to the payment card from the
15 card reading apparatus.

9. The method according to claim 1, wherein the card reading apparatus is not an appliance that is provided by the acquiring institution and that directly communicates with the acquiring institution.

10. The method according to claim 9, wherein the card reading apparatus is one of the
20 following: a contact card reading apparatus, a contactless card reading apparatus, or a combined contact and contactless card reading apparatus.

11. An order processing method, wherein the method is applied to an order management system, the order management system comprises a service device, a POS device, and a card reading apparatus connected to the POS device, and the method is performed by the service device
25 and comprises:

receiving, from the POS device, card information of a payment card used to pay a target order, wherein the card information is information obtained by the card reading apparatus by reading the payment card in response to a card reading instruction of the POS device; and

generating a payment request corresponding to the target order based on the card information,
30 and sending the payment request to an acquiring institution, so that the acquiring institution executes a card payment procedure of the target order.

12. The method according to claim 11, wherein a security chip is built in the card reading apparatus, and the card information is information obtained by the security chip by reading information about the payment card and encrypting the read information.

13. The method according to claim 12, wherein the receiving, from the POS device, card
5 information of a payment card used to pay a target order comprises:

receiving a first transmission packet from the POS device, wherein the first transmission packet is a packet obtained after the card information is encrypted; and

decrypting the first transmission packet, to obtain the card information.

14. The method according to claim 11, wherein the method further comprises:
10 receiving a payment result corresponding to the target order from the acquiring institution;
and

sending the payment result corresponding to the target order to the POS device.

15. The method according to claim 11, wherein the service device is connected to a plurality of acquiring institutions, and the method further comprises:

15 receiving an identifier of a card issuing bank corresponding to the payment card from the POS device, and determining, from the plurality of acquiring institutions based on the identifier of the card issuing bank, a target acquiring institution that supports processing of the target order; and
the sending the payment request to the acquiring institution comprises: sending the payment request to the target acquiring institution.

20 16. An electronic device, serving as a POS device, and comprising:
at least one storage medium, storing at least one instruction set, to perform payment collection;
and

at least one processor, communicatively connected to the at least one storage medium, wherein when the payment collection system runs, the at least one processor reads the at least one
25 instruction set, and performs the order processing method according to any one of claims 1 to 10 based on an indication of the at least one instruction set.

17. An electronic device, serving as a service device, and comprising:

at least one storage medium, storing at least one instruction set, to perform payment collection;
and

30 at least one processor, communicatively connected to the at least one storage medium, wherein when the payment collection system runs, the at least one processor reads the at least one

instruction set, and performs the order processing method according to any one of claims 11 to 15 based on an indication of the at least one instruction set.

18. A computer-readable non-transitory storage medium, wherein the computer-readable non-volatile storage medium stores at least one instruction set, and when the at least one instruction set is executed by at least one processor, the order processing method according to any one of claims 1 to 10 is implemented, or the order processing method according to any one of claims 11 to 15 is implemented.

19. An order management system, comprising a service device, a POS device, and a card reading apparatus connected to the POS device, wherein
10 the POS device is configured to: receive a payment collection instruction of a target order, and send a card reading instruction to the card reading apparatus based on the payment collection instruction;

the card reading apparatus is configured to: detect a payment card in response to the card reading instruction of the POS device, read card information of the payment card when the payment card is detected, and send the card information to the POS device;

15 the POS device is further configured to: receive the card information from the card reading apparatus, and send the card information to the service device; and

the service device is configured to: generate a payment request corresponding to the target order based on the card information, and send the payment request to an acquiring institution, so that the acquiring institution executes a card payment procedure of the target order.

20 20. The system according to claim 19, wherein a security chip is built in the card reading apparatus, and the card information is information obtained by the security chip by reading information about the payment card and encrypting the read information.