

ORDER PROCESSING METHOD, ELECTRONIC 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, an electronic device, a storage medium, and a system.

BACKGROUND

[0002] With the development of science and technology, payment methods are increasingly
diversified, ranging from conventional cash payment to card swiping payment, code scanning
payment, biometric recognition-based payment, and the like. This greatly enriches payment
10 choices of consumers and promotes the rapid development and fierce competition of the payment
industry.

[0003] In an offline payment scenario, payment smoothness of a POS device of a merchant
directly affects payment experience of a consumer and satisfaction with the merchant, and is an
important indicator for an operator of the merchant to evaluate checkout experience. Usually, after
15 a user performs a payment operation for an order, if the POS device displays a payment success,
the operator can determine that the order is actually successfully paid. However, if the POS device
does not display a payment success after the user performs the payment operation, the operator
needs to determine whether the order is actually successfully paid. This determining process is
time-consuming and depends on experience, and there is a specific threshold requirement for the
20 operator. If the operator subjectively considers a payment result as a payment failure, a subsequent
problem may occur. For example, the operator suspects an actual payment failure and requires the
user to repay, causing a dispute with the user. Consequently, the checkout experience of the
operator is poor.

[0004] Content in the background is merely information known to the inventor, and neither
25 means that the information has entered the public domain before the application date of this
disclosure, nor means that the information can become the existing technology of this disclosure.

SUMMARY

[0005] This specification provides an order processing method, an electronic device, a storage medium, and a system, to ensure that a payment result displayed by a POS device to a merchant is consistent with an actual payment result. Therefore, an operator of the merchant can recklessly consider the order payment result displayed by the POS device as the actual order payment result, and does not need to perform analysis and verification. This lowers a threshold for the operator to use the POS device, and improves checkout experience and checkout efficiency of the operator.

[0006] According to a first aspect, this specification provides an order processing method, applied to an order management system. The order management system is configured to provide an order management service to a target merchant, and includes a POS device and a server. The method is performed by the POS device, and the method includes: in response to detecting that a user performs a payment operation for a target order, sending a payment request corresponding to the target order to the server, so that the server sends the payment request to an acquiring institution; and if a payment result representing a payment success of the target order is not received from the server within preset duration, prompting the target merchant with a payment failure, and sending a cancellation instruction corresponding to the target order to the server, where the cancellation instruction is used to request to cancel a fund transfer generated for the target order.

[0007] According to a second aspect, this specification provides an order processing method, applied to an order management system. The order management system is configured to provide an order management service to a target merchant, and includes a server and a POS device. The method is performed by the server, and the method includes: receiving a payment request of a target order from the POS device, and sending the payment request to an acquiring institution; when a payment result of the target order is received from the acquiring institution, sending the payment result to the POS device; and in response to receiving a cancellation instruction corresponding to the target order from the POS device, sending a reversal request to the acquiring institution when determining that there is a need to request the acquiring institution to perform a reversal procedure of the target order, to cancel a fund transfer generated for the target order, where the cancellation instruction is sent by the POS device when a payment result representing a payment success of the target order is not received within preset duration.

[0008] According to a third aspect, this specification provides an order processing method,

applied to an order management system. The order management system is configured to provide an order management service to a target merchant, and includes a server and a POS device. The method includes: In response to detecting that a user performs a payment operation for a target order, the POS device sends a payment request corresponding to the target order to the server, and
5 the server sends the payment request to an acquiring institution; when receiving a payment result of the target order from the acquiring institution, the server sends the payment result to the POS device; if the POS device does not receive a payment result representing a payment success of the target order from the server within preset duration, the POS device prompts the merchant with a payment failure, and sends a cancellation instruction corresponding to the target order to the server,
10 where the cancellation instruction is used to request to cancel a fund transfer generated for the target order; and in response to the cancellation instruction, the server sends a reversal request to the acquiring institution when determining that there is a need to request the acquiring institution to perform a reversal procedure of the target order, to cancel the fund transfer generated for the target order.

15 **[0009]** According to a fourth aspect, this specification further provides an electronic device, serving as a POS device and including: at least one storage medium that stores at least one instruction set; and at least one processor that is communicatively connected to the at least one storage medium. The at least one processor reads the at least one instruction set when running, and performs the method according to the first aspect based on an indication of the at least one
20 instruction set.

[0010] According to a fifth aspect, this specification further provides an electronic device, serving as a server and including: at least one storage medium that stores at least one instruction set; and at least one processor that is communicatively connected to the at least one storage medium. The at least one processor reads the at least one instruction set when running, and
25 performs the method according to the second aspect based on an indication of the at least one instruction set.

[0011] According to a sixth aspect, this specification provides a computer-readable non-transitory storage medium. The computer-readable non-transitory storage medium stores at least one instruction set. When the at least one instruction set is executed by at least one processor, the
30 method according to the first aspect, the second aspect, or the third aspect is implemented.

[0012] According to a seventh aspect, this specification provides an order management system,

configured to provide an order management service to a target merchant. The order management system includes a POS device and a server that is communicatively connected to the POS device. The POS device is configured to: in response to detecting that a user performs a payment operation for a target order, send a payment request corresponding to the target order to the server. The server is configured to: receive the payment request of the target order from the POS device, send the payment request to an acquiring institution, and when a payment result of the target order is received from the acquiring institution, send the payment result to the POS device. The POS device is further configured to: if a payment result representing a payment success of the target order is not received from the server within preset duration, prompt the target merchant with a payment failure, and send a cancellation instruction corresponding to the target order to the server, where the cancellation instruction is used to request to cancel a fund transfer generated for the target order. The server is further configured to: in response to the cancellation instruction, send a reversal request to the acquiring institution when determining that there is a need to request the acquiring institution to perform a reversal procedure of the target order, to cancel the fund transfer generated for the target order.

[0013] Other functions of the order processing method, the electronic 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 electronic device, the storage medium, and the system provided in this specification can be fully explained by practice or by using the methods, devices, systems, 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 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;

[0016] FIG. 2 is a schematic diagram of another application scenario of an order management system according to an embodiment of this specification;

[0017] FIG. 3 is a diagram of a hardware structure of an electronic device according to an embodiment of this specification;

5 [0018] FIG. 4 is a flowchart of an order processing method according to an embodiment of this specification;

[0019] FIG. 5 is a schematic diagram of content displayed by a POS device according to an embodiment of this specification;

[0020] FIG. 6 is another schematic diagram of content displayed by a POS device according
10 to an embodiment of this specification; and

[0021] FIG. 7 is a flowchart of another order processing method according to an embodiment of this specification.

DESCRIPTION OF EMBODIMENTS

[0022] Specific application scenarios and requirements of this specification are provided in
15 the following descriptions, so that a person skilled in the art can manufacture and use content of this specification. Various local modifications to the disclosed embodiments are clear to a person skilled in the art. In addition, the general principles defined herein can be applied to other embodiments and applications without departing from the spirit and scope of this specification. Therefore, this specification is not limited to the shown embodiments, but has a widest scope
20 consistent with that of the claims.

[0023] The terms used herein are merely intended to describe specific example embodiments, and impose no limitation. For example, unless otherwise explicitly stated in the context, the singular forms "one", "an", and "the" used herein can include plural forms. When being used in this specification, the terms "include", "comprise", and/or "have" mean existence of an associated
25 integer, step, operation, element, and/or component, but do not preclude existence of one or more other features, integers, steps, operations, elements, components, and/or groups or addition of other features, integers, steps, operations, elements, components, and/or groups to the system/method.

[0024] 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 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.

[0025] The flowchart used in this specification shows operations implemented by a system according to some embodiments of this specification. It should be clearly understood that the operations in the flowchart can be implemented out of sequence. On the contrary, the operations can be implemented in a reverse sequence or simultaneously. In addition, one or more other operations can be added to the flowchart, and one or more operations can be removed from the flowchart.

[0026] The 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 barbershop, and the like. The merchant can be a small/micro merchant, a large merchant, a chain merchant, or the like. This is not limited in this specification.

[0027] In some embodiments, the merchant can be a merchant that conducts a service through an offline channel (a physical 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 conducts a service through an online channel (the 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 supports service conduction through 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.

[0028] In this specification, the online order refers to a product or service purchase request submitted by a consumer through an online channel (for example, a website or an application). The offline order refers to a product or service purchase request submitted by a consumer through an offline channel, for example, a product or service purchase request submitted by the consumer and a cashier in a face-to-face manner.

[0029] When the merchant needs to conduct a service through the offline channel, the merchant needs to purchase a sales device and further needs to purchase a dedicated financial

machine from an acquiring institution, to manage the offline order. The financial machine is communicatively connected to the acquiring institution through a dedicated network. The sales device provides an interaction function and can display a product or a service sold by the merchant. Based on a purchase requirement of a consumer, a cashier of the merchant can help the consumer select a product or a service on the sales device and submit an order. The order is an offline order. The sales device sends the offline order to the financial machine. After the consumer performs a payment operation (for example, card swiping or code scanning) on the financial machine, the financial machine generates a payment request of the offline order, and sends the payment request to the acquiring institution, so that the acquiring institution completes a payment procedure of the offline order.

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

[0031] In an offline service conduction scenario, with diversified development of payment methods, different consumers may select different payment channels for payment. To meet payment requirements of different consumers, the merchant needs to interconnect with a plurality of acquiring institutions. In this case, the merchant needs to purchase a financial machine from each acquiring institution. During service conduction, based on a payment channel selected by a consumer, the merchant sends an order to a financial machine corresponding to the payment channel, so that the financial machine sends a payment request of the order to an acquiring institution corresponding to the payment channel. Usually, the financial machine provided by the acquiring institution has a relatively high price, and relatively high purchase costs are caused if the merchant purchases the financial machine from each of the plurality of acquiring institutions. In addition, a very large quantity of financial machines need to be placed on a working counter of the merchant, and the counter is crowded. Furthermore, in face of so many financial machines, the merchant may use an incorrect financial machine for checkout, resulting in a checkout failure. This affects checkout efficiency.

[0032] When the merchant conducts a service through the online channel, the merchant can develop a store applet, and set an access entry (for example, a two-dimensional code) of the store applet in a store or at any other possible location. A consumer accesses the store applet through the access entry and submits an order in the store applet.

5 **[0033]** When the merchant conducts a service through the online channel, the merchant can further cooperate with different network platforms. The network platforms can include but are not limited to a takeout platform, a wallet platform, a social platform, and the like. The merchant may interconnect with different network platforms in different manners. For example, when cooperating with some platforms (for example, the takeout platform), the merchant can apply to
10 open 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 cooperating with some other platforms (for example, the wallet platform or the social platform), the merchant can place the store applet on these platforms, so that a consumer places an order through the store applet.

15 **[0034]** In an online service conduction scenario, to attract more consumers, the merchant usually needs to cooperate with a plurality of network platforms. In this case, a great deal of energy needs to be spent for interconnection between the merchant and the network platforms. 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
20 hundreds, thousands, or even tens of thousands of network platforms. In such a geographical area, the merchant needs to interconnect with a huge quantity of network platforms, and needs to spend a huge amount of energy.

[0035] The sales device used by the merchant for offline service conduction can process only the offline order, but cannot receive the online order. To normally receive an order on the network
25 platform, the merchant needs to purchase a dedicated order receiving device from the network platform. Sometimes, a plurality of network platforms active in the market, but no network platform is in a monopolistic position in the market, that is, 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 cooperating
30 with the plurality of network platforms, the merchant needs to purchase the order receiving device from each of the plurality of network platforms. This leads to relatively high purchase costs. In

particular, in a case of a relatively large quantity of interconnected network platforms, the purchase costs of the merchant are huge. In addition, a counter of the merchant is crowded if these order receiving devices are placed on the counter. Furthermore, in face of so many order receiving devices, the merchant is prone to distraction, resulting in problems such as untimely order processing. This affects consumer experience.

[0036] Further, when the merchant cooperates with the plurality of network platforms, there are a relatively large quantity of order sources for the merchant. Orders generated on different network platforms are stored on servers of the corresponding network platforms. When managing online orders, the merchant needs to access servers of different network platforms to perform order management (for example, order query and order summarization). The merchant cannot perform unified management on all orders. In addition, different network platforms may have different operation manners for order management, and 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.

[0037] 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 facilitate better understanding of the one-stop order management by a reader, the order management system is first described below with reference to FIG. 1.

[0038] FIG. 1 is a schematic diagram of an application scenario 001 of an order management system according to an embodiment of this specification. For ease of understanding, a catering scenario is used as an example in FIG. 1 for description. As shown in FIG. 1, the order management system can include a point of sale (POS) end 110 (or referred to as a POS device or a front-end device) and a server 120 (or referred to as a service device, a server, or a back-end device).

[0039] 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 staff member of a merchant to different locations of a store for operation, providing relatively high convenience. In some embodiments, the POS device 110 can be a non-mobile device. In this case, the POS device 110 is usually placed on a checkout counter of an offline store of a merchant.

[0040] 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 checkout processing on the offline order. The POS device 110 can also be referred to as a checkout device, a sales device, or an integrated sales and checkout device.

5 **[0041]** 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 to drive the hardware device to work. The POS device 110 can manage an order by driving the hardware device to execute the program. For example, order management software (or an order management program) can be installed in the POS device
10 110. The POS device 110 can manage an order by running the order management software. 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 included in the POS device 110 when the POS device 110 is
15 delivered from a factory), or can be software subsequently installed in the POS device 110 by the staff member of the merchant. This is not limited in this specification.

[0042] In some embodiments, the POS device 110 can have a display screen, or the POS device 110 can be externally connected to a display screen. The POS device 110 can provide an interaction capability through the display screen. For example, the POS device 110 displays, through the
20 display screen, 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 staff member of the merchant or a consumer). The POS device 110 can further display a checkout entry through the display screen, so that the operator performs a checkout operation for the offline order.

[0043] When checking out an order, the POS device 110 supports a plurality of payment
25 methods, including but not limited to cash payment, card swiping payment, code scanning payment, biometric recognition (for example, facial recognition)-based payment, near field communication (NFC)-based payment, and the like.

[0044] In some embodiments, when the POS device 110 supports cash payment, the POS device 110 can be provided with a cash box for storing cash.

30 **[0045]** In some embodiments, when the POS device 110 supports card swiping payment, a card reading apparatus 111 can be built in or externally connected to the POS device 110. When

the 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. When the external connection 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. The wired connection manner can include but is not limited to a universal serial bus (USB) connection, an Ethernet connection, an optical fiber connection, or the like. The wireless connection manner can include but is not limited to a Wi-Fi connection, a Bluetooth connection, or the like.

[0046] 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 a consumer according to a preset payment specification. When the consumer selects card swiping payment, the POS device 110 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 the consumer placing the payment card close to, attaching the payment card to, or inserting the payment card into the card reading apparatus.

[0047] In some embodiments, when the POS device 110 supports code scanning payment, a code scanning apparatus 112 can be built in or externally connected to the POS device 110. When the built-in manner is used, the code scanning apparatus 112 can be disposed at any possible location of the POS device 110. This is not limited in this specification. When the external connection manner is used, the POS device 110 can be connected to the code scanning apparatus 112 in a wired or wireless manner. This is not limited in this specification.

[0048] For example, the code scanning apparatus 112 can be an apparatus with a code scanning capability. For example, the code scanning apparatus 112 can include a camera module. When the consumer chooses to pay the offline order by using a payment code, the POS device 110 can control the code scanning apparatus 112 to enter a scanning mode. In response to the consumer aligning the payment code with the code scanning apparatus 112, the code scanning apparatus 112 scans code information of the payment code by using the camera module.

[0049] For example, the code scanning apparatus 112 can be an apparatus with a collection code displaying capability (or the code scanning apparatus 112 can have another name, which is not limited in this specification). For example, the code scanning apparatus 112 can include a display screen. When the consumer chooses to pay the offline order by scanning a collection code, the POS device 110 can request collection code information of the offline order from the server

120. After receiving the collection code information from the server, the POS device 110 can control the code scanning apparatus 112 to enter a display mode to display the collection code. Therefore, the consumer can scan the collection code by using a terminal device (for example, a mobile phone or a smartwatch), to perform a payment operation.

5 **[0050]** For example, the code scanning apparatus 112 can be an apparatus with a code scanning capability and a collection code displaying capability, and the operator can control, by using the POS device 110, the code scanning apparatus 112 to enter a scanning mode or a display mode.

[0051] In some embodiments, when the POS device 110 supports biometric recognition-based payment, a camera apparatus (not shown in FIG. 1) can be built in or externally connected to the
10 POS device 110. When the built-in manner is used, the camera apparatus can be disposed at any possible location of the POS device 110. This is not limited in this specification. When the external connection manner is used, the POS device 110 can be connected to the camera apparatus in a wired or wireless manner. This is not limited in this specification. For example, when the consumer chooses to use face scanning payment, the POS device 110 can control the camera apparatus to
15 enter a camera mode. In response to the consumer aligning the face with the camera apparatus, the camera apparatus captures a face image of the consumer.

[0052] In some embodiments, when the POS device 110 supports near field communication-based payment, a near field communication apparatus (not shown in FIG. 1) can be built in or externally connected to the POS device 110. The near field communication apparatus can be
20 disposed at any possible location of the POS device 110. This is not limited in this specification. When the consumer selects near field communication-based payment, the POS device 110 can control the near field communication apparatus to enter a communication mode. In response to the consumer placing a terminal device having a near field communication component close to the near field communication apparatus, the near field communication apparatus communicates with
25 the near field communication component in the terminal to obtain order payment information.

[0053] In some embodiments, a printing apparatus 113 can be built in or externally connected to the POS device 110. When the built-in manner is used, the printing apparatus 113 can be disposed at any possible location of the POS device 110. This is not limited in this specification. When the external connection manner is used, the POS device 110 can be connected to the printing
30 apparatus 113 in a wired or wireless manner. This is not limited in this specification. Printing paper or label paper can be disposed in the printing apparatus 113. After the consumer successfully pays

the order, the POS device 110 can control the printing apparatus 113 to print a consumer ticket or an order label corresponding to the order.

[0054] In some embodiments, the POS device 110 can further include an audio output 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 through the audio output apparatus, to remind the staff member of the merchant to process the order in a timely manner. For another example, after the consumer performs a payment operation for the offline order by using the POS device 110, in response to the POS device 110 receiving a payment result of the order, the POS device 110 can output voice information through the audio output apparatus, to prompt a payment success or a payment failure of the order.

[0055] Still with reference to FIG. 1, the server 120 is a computing system with a specific computing capability. The server 120 is communicatively connected to the POS device 110, and provides an order management service to the POS device 110. The server 120 can correspond to a single computing device, or can correspond to a computing cluster including a plurality of computing devices. The server 120 can be deployed locally, or can be deployed remotely. For example, the server 120 can be a cloud server. In some embodiments, the server 120 can include a hardware device with a data processing function and a necessary program needed to drive the hardware device to work. The server 120 can provide the order management service to the POS device by driving the hardware device to execute the program. In some embodiments, the server 120 can provide the order management service to the POS device in a software as a service (SaaS) mode.

[0056] In some embodiments, when the server 120 is deployed remotely, the server 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 server 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 providing the order management service to POS devices 110 of different merchants by the server 120 is similar. In the descriptions of this specification, only an example in which the server 120 provides the order management service to a POS device 110 of one merchant is used for description.

[0057] The service provided by the server 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.

[0058] A catering scenario is used as an example below to describe a working process of the order management system.

5 **[0059]** With reference to FIG. 1, a catering store can be divided into 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 chef prepares a dish. 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.
10 The server 120 can be located in the front-of-house area or can be located in the cloud.

[0060] A process in which the order management system processes the offline order is follows: As shown in FIG. 1, a consumer A goes to the store to have a dinner. The consumer A notifies a cashier of a desired dish. The cashier selects the corresponding dish on the POS device 110 and places an order. The POS device 110 generates an offline order in response to an order placement
15 operation performed by the cashier. The POS device 110 sends the offline order to the server 120, so that the server 120 stores the offline order. In an example in which the consumer A uses card swiping payment, after the cashier initiates a checkout operation, the POS device 110 obtains card information of a payment card by using the card reading apparatus 111, and sends the card information to the server 120. The server 120 can generate a payment request of the offline order
20 based on the card information, and send the payment request to an acquiring institution, so that the acquiring institution performs a payment procedure of the offline order. After receiving a payment result of the offline order from the acquiring institution, the server 120 can send the payment result to the POS device 110.

[0061] The order management system can receive online orders from a plurality of online
25 channels. Three cases are used as examples below for description.

[0062] Case 1: With reference to FIG. 1, the server 120 can be deployed with a store applet. A two-dimensional code of the store applet is set 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 applet. The consumer B selects a desired dish on the applet page, places an order, and
30 completes online payment. In this case, the server 120 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.

[0063] Case 2: With reference to FIG. 1, the merchant can place a store applet on a network platform. Placement on a wallet platform is used as an example below for description. When using the wallet platform, a consumer C accesses the store applet on the wallet platform, selects a desired dish on an applet page, places an order, and completes online payment. In this case, the wallet platform generates an online order, and sends the online order to the server 120. The server 120 stores the online order, and then sends the online order to the POS device 110. Therefore, the POS device 110 receives the online order.

[0064] Case 3: With reference to FIG. 1, the merchant can open an online store on a network platform. An example in which an online store is opened on a takeout platform is used below for description. When using the takeout platform, a consumer D accesses the online store of the merchant on the takeout platform, selects a desired dish, places an order, and completes online payment. In this case, the takeout platform generates an online order, and sends the online order to the server 120. The server 120 stores the online order, and then sends the online order to the POS device 110. Therefore, the POS device 110 receives the online order.

[0065] It can be learned from the above-mentioned descriptions that offline orders received by the merchant and online orders from all channels are stored in the server 120. Therefore, the merchant can implement unified management on all orders on the server 120. Compared with the method in which the merchant separately manages orders on different channels, the order management system provided in this specification can improve convenience of order management by the merchant and improve order management efficiency.

[0066] The catering scenario is still used as an example. After receiving an order, the merchant needs to process and prepare a dish in the order. In 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 ticket that includes dish content in the order, and the kitchen ticket is manually transferred to the back-of-house area. A chef prepares a dish based on the dish content in the kitchen ticket. In this manner of manually transferring the kitchen ticket, an error in preparing a dish is prone to occur during peak dining hours, and relatively low efficiency results in an increase in dining duration of consumers.

[0067] 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-prepared dish to the chef, to improve meal preparation efficiency of the chef and reduce the probability that the chef makes a meal preparation error. In some embodiments, after preparing a dish, the chef can further send a dish preparation completion notification to the POS device 110 by using the display device 130, so that the POS device 110 knows order preparation progress.

[0068] In stores of some merchants, the back-of-house area can be divided into a plurality of stalls. Different stalls are equipped with different chefs responsible for preparing different types of dishes. With reference to FIG. 1, an example in which the back-of-house area includes a cold dish stall and a hot dish stall is used. A chef X1 is responsible for preparing a cold dish and a chef X2 is responsible for preparing a hot dish. In this case, a display device 130 can be disposed in the cold dish stall, and is configured to display a cold dish that needs to be prepared to the chef X1; and a display device 130 can be disposed in the hot dish stall, and is configured to display a hot dish that needs to be prepared to the chef X2. In this way, dish preparation in different stalls does not interfere with each other, to further improve meal preparation efficiency.

[0069] In the application scenario shown in FIG. 1, the POS device 110 can be connected to the server 120 and the POS device 110 can be connected to the display device 130 through a network.

[0070] 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 technical effects thereof are similar to those of the catering scenario. Details are not described in this specification for the another scenario.

[0071] 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:

[0072] (1) The merchant can use one POS device 110 to process an offline order and process online orders from a plurality of online channels. In this way, the merchant does not need to interconnect with each of the plurality of online channels, and energy and time costs needed for

interconnection are avoided. In addition, the merchant does not need to purchase an order receiving device from each of the plurality of online channels, and purchase costs of the merchant can be lowered.

[0073] (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 for the merchant to manually transfer kitchen tickets. This improves order processing efficiency.

[0074] (3) All orders received by the merchant are stored in the server 120, and the merchant can implement unified management, for example, order query or summarization, on all the orders on the server 120. In this way, the merchant does not need to separately perform decentralized order management on different network platforms, thereby improving order management efficiency.

[0075] FIG. 2 is a schematic diagram of another application scenario 002 of an order management system according to an embodiment of this specification. In FIG. 2, a target merchant is used as an example to show the scenario 002 in which the order management system provides an order management service to the target merchant. The scenario 002 can include an order management system 100, a user 200, and an acquiring institution 300. The user 200 can be a consumer of the target merchant. For example, the user 200 consumes in an offline store of the target merchant. The order management system 100 can send a payment request of an order to the acquiring institution 300 after the user 200 performs a payment operation for the order, and can further receive a payment result of the order from the acquiring institution 300.

[0076] With reference to FIG. 2, a POS device 110 is deployed in the offline store of the target merchant. An operator of the target merchant (that is, a staff member, which is briefly referred to as an operator below) can place an order on the POS device 110, and the user 200 can perform a payment operation on the POS device 110. After the user 200 performs a payment operation for a target order, the POS device 110 sends a payment request of the target order to a server 120, and the server 120 forwards the payment request to the acquiring institution 300. The server 120 can further receive a payment result of the target order from the acquiring institution 300.

[0077] Still with reference to FIG. 2, in actual application, a geographical area in which the offline store of the target merchant is located may have a problem of poor network coverage. In this case, when the server 120 is deployed remotely, a communication link between the POS device 110 and the server 120 may be unstable; or when the server 120 is deployed locally, a

communication link between the server 120 and the acquiring institution 300 may be unstable.

[0078] Therefore, in an actual acquiring process, the following phenomenon often occurs: The POS device 110 successfully sends the payment request to the server 120, and the server 120 also successfully sends the payment request to the acquiring institution 300. However, a network
5 problem occurs in the server 120, and the communication link between the server 120 and the acquiring institution 300 is suddenly interrupted. Consequently, the server 120 does not receive the payment result from the acquiring institution 300. Alternatively, although the server 120 receives the payment result from the acquiring institution 300, the POS device does not receive the payment result because a network problem occurs in the POS device 110.

[0079] In the above-mentioned case, the POS device may display information such as a payment failure or payment abnormality. In this case, the operator needs to check a network status to assist in analyzing a cause of the payment failure or payment abnormality. It needs to take some time for the checking process, resulting in relatively low checkout efficiency and low checkout experience. In view of this, this specification provides an order processing method to overcome
15 the above-mentioned problems.

[0080] In some embodiments, the POS device 110 and the server 120 cooperate with each other to perform the order processing method provided in the embodiments of this specification. The POS device 110 and the server 120 can store data and instructions for implementing the order processing method, and can execute or be configured to execute the data and instructions. In some
20 embodiments, the POS device 110 and the server 120 each can include a hardware device with a data information processing function and a necessary program needed to drive the hardware device to work.

[0081] FIG. 3 is a diagram of a hardware structure of an electronic device 400 according to an embodiment of this specification. In some embodiments, the electronic device 400 can be the POS
25 device 110 or the server 120 in FIG. 1 or FIG. 2.

[0082] As shown in FIG. 3, the electronic device 400 can include at least one storage medium 430 and at least one processor 420. In some embodiments, the electronic device 400 can further include a communication port 450 and an internal communication bus 410. In addition, the electronic device 400 can further include an I/O component 460.

[0083] The internal communication bus 410 can be connected to different system components. For example, the internal communication bus 410 can be connected to the storage medium 430,

the processor 420, the communication port 450, and the I/O component 460.

[0084] The I/O component 460 supports an input/output between the electronic device 400 and another component.

[0085] The communication port 450 is used for data communication between the electronic device 400 and the outside. For example, the communication port 450 can be used for data communication between the electronic device 400 and a network. The communication port 450 can be a wired communication port, or can be a wireless communication port.

[0086] 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.

[0087] 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. Through the access point, one or more components of devices corresponding to the electronic device 400 can be connected to the network to exchange data or information.

[0088] The storage medium 430 can include a data storage apparatus. The data storage 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 432, a read-only storage medium (ROM) 434, or a random access storage medium (RAM) 436. The storage medium 430 further includes at least one instruction set stored in the data storage apparatus. The instruction set can include computer program code, and the computer program code can include a program, a routine, an object, a component, a data structure, a process, a module, and the like for performing the order processing method provided in this specification.

[0089] The processor 420 can be communicatively connected to the storage medium 430. The processor 420 is configured to execute the at least one instruction set. When the electronic device 400 runs, the processor 420 reads the at least one instruction set, and performs, based on an indication of the at least one instruction set, the order processing method provided in this

specification.

[0090] The processor 420 can be in a form of one or more processors. In some embodiments, the processor 420 can include one or more hardware processors, for example, a microcontroller, a microprocessor, a reduced instruction set computer (RISC), an application-specific integrated circuit (ASIC), an application-specific instruction set processor (ASIP), a central processing unit (CPU), a graphics processing unit (GPU), a physical processing unit (PPU), a microcontroller unit, a digital signal processor (DSP), a field programmable gate array (FPGA), an advanced RISC machine (ARM), a programmable logic device (PLD), any circuit, processor, or the like that can perform one or more functions, or any combination thereof.

[0091] To merely describe a problem, only one processor 420 is shown in the electronic device 400 in the accompanying drawings. However, it should be noted that the electronic device 400 in this specification can further include a plurality of processors. Therefore, the operations and/or method steps disclosed in this specification can be performed by one processor or can be jointly performed by a plurality of processors, as described in this specification. For example, if the processor 420 in the electronic device 400 in this specification performs step A and step B, it should be understood that step A and step B can be jointly or separately performed by two different processors 420 (for example, a first processor performs step A and a second processor performs step B, or a first processor and a second processor jointly perform step A and step B).

[0092] FIG. 4 is a flowchart of an order processing method P500 according to an embodiment of this specification. As shown in FIG. 4, the order processing method P500 is cooperatively performed by a POS device, a server, and an acquiring institution, and includes the following steps.

[0093] S510: The POS device detects that a user performs a payment operation for a target order.

[0094] The POS device can provide an order placement service to a target merchant, and can further provide a checkout service. Alternatively, the POS device provides only a checkout service to a target merchant. This is not limited in this specification.

[0095] In some embodiments, before S510, the order processing method P500 further includes: The POS device generates the target order based on an order placement operation performed by an operator on the POS device.

[0096] The target order can be a to-be-paid order initiated by the operator based on a product or a service purchased by the user. After the user performs the payment operation for the target

order, the POS device can detect the payment operation.

[0097] In some embodiments, the payment operation is a card swiping payment operation.

[0098] In some embodiments, the payment operation can alternatively be a code scanning payment operation, a biometric recognition-based payment operation, or the like.

5 **[0099]** For example, the card swiping payment operation is a payment operation performed by the user on the POS device by using a bank card or another card that can be used for payment; the code scanning payment operation is a payment operation performed by the user by scanning, by using a device such as a mobile phone, a payment code displayed by the POS device; and the biometric recognition-based payment operation is a payment operation performed by the user on
10 the POS device by using biometric information such as a face.

[0100] FIG. 4 shows a procedure related to the order processing method P500 by using the card swiping payment operation as an example. This specification is not limited thereto. For example, when the payment operation is a code scanning payment operation, S510, S520, and S530 can be adaptively adjusted. For example, S510 is replaced with displaying a collection code
15 of a target order to a user, and the user can scan the collection code by using a device such as a mobile phone, so that the acquiring institution can receive a payment request from a device such as the mobile phone of the user. That is, for the server, after the user performs the code scanning payment operation, S540 can be performed, and execution of S520 and S530 is not involved.

[0101] S520: In response to the payment operation, the POS device sends a payment request
20 corresponding to the target order to the server. Correspondingly, the server receives the payment request.

[0102] The payment request includes but is not limited to information such as a to-be-paid amount, a payment medium (for example, a card number and a related bank), and a payment time.

[0103] S530: The server sends the payment request corresponding to the target order to the
25 acquiring institution. Correspondingly, the acquiring institution receives the payment request.

[0104] For example, the server can forward the payment request received from the POS device.

[0105] 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.

30 **[0106]** S540: The acquiring institution sends a payment result of the target order to the server. Correspondingly, the server receives the payment result.

[0107] For example, the acquiring institution can receive the payment result of the target order from the downstream institution, and forward the payment result to the server. The payment result can be a payment result representing an actual payment failure of the target order, or can be a payment result representing an actual payment success of the target order.

5 **[0108]** The actual payment failure can be understood as that a payment amount involved in the target order is not transferred, that is, funds in a payment account of the user are not changed for the target order.

[0109] The actual payment success can be understood as that a payment amount involved in the target order is transferred, that is, funds in a payment account of the user are changed for the target order. For example, the payment amount corresponding to the target order is deducted from
10 the payment account of the user.

[0110] In some embodiments, when the server receives the payment result of the target order, the order processing method P500 further includes:

[0111] S542: The server stores the payment result in a database.

15 **[0112]** The database can be a local database of the server, or can be a cloud database. This is not limited in this specification.

[0113] For example, the server can store payment results of all received orders in the database. An order identifier and a payment result can be correspondingly stored. The order identifier includes but is not limited to an order number.

20 **[0114]** S550: When the server receives the payment result of the target order, the server sends the payment result to the POS device.

[0115] After the server sends the payment result to the POS device, there are two possibilities. One possibility is that the POS device can receive the payment result, and the other possibility is that the POS device does not receive the payment result due to a network problem.

25 **[0116]** S560 and S564: If the POS device does not receive a payment result representing a payment success of the target order from the server within preset duration, prompt the target merchant with a payment failure; and send a cancellation instruction corresponding to the target order to the server, where the cancellation instruction is used to request to cancel a fund transfer generated for the target order. Correspondingly, the server receives the cancellation instruction.

30 **[0117]** A start moment of the preset duration can be a moment at which the POS device sends the payment request, or can be a moment at which the POS device detects that the user performs

the payment operation. This is not limited in this specification. The preset duration can be a value preconfigured by the server for the POS device, and can be an empirical value obtained through statistics collection by the server based on time consumed for historical orders paid through different payment channels, for example, average payment duration or maximum payment duration of the historical orders. This is not limited in this specification.

[0118] For example, the preset duration is any duration in 1 minute (min) or 30 seconds (s), for example, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, or other similar duration. This is not limited in this specification.

[0119] That a payment result representing a payment success of the target order is not received from the server within preset duration can be understood as follows:

[0120] Case 1: The payment result of the target order is not received from the server within the preset duration; or

[0121] Case 2: A payment result representing an actual payment failure of the target order is received from the server within the preset duration.

[0122] In S560, for the target order, when the POS device does not receive, within the preset duration, a payment result representing an actual payment success, regardless of whether the POS device does not receive the payment result due to a network problem or the POS device receives the payment result representing an actual payment failure, the POS device prompts the operator with a payment failure.

[0123] It should be noted that regardless of whether the POS device does not receive the payment result due to the network problem or the POS device receives the payment result representing an actual payment failure, a uniform payment result can be prompted by the POS device with the operator, and can be a "payment failure", a "payment abnormality", or "Payment not successful". This is not limited in this specification. The "payment failure" is used as an example below for description.

[0124] It can be understood that the payment result prompted by the POS device can be different from the above-mentioned actual payment result. For example, if the POS device receives the payment result and the payment result represents an actual payment success of the target order, the payment result prompted by the POS device can be a payment success. For another example, if the payment result sent by the acquiring institution to the server represents an actual payment success of the target order, but the POS device does not receive the payment result, the payment

result prompted by the POS device is a payment failure. For another example, if the payment result sent by the acquiring institution to the server represents an actual payment failure of the target order, but the POS device does not receive the payment result, the payment result prompted by the POS device is still a payment failure. That is, the payment failure prompted by the POS device
5 does not represent an actual payment failure.

[0125] In the above-mentioned two cases, payment results prompted by the POS device are uniform. Therefore, the operator can use the payment result prompted by the POS device as the actual payment result of the target order by using simple logic, and negotiate with the user about repayment, and does not need to further check a network status to analyze and verify whether the
10 POS device does not receive the payment result or receives the payment result of the actual payment failure. In this way, even if the target order is actually successfully paid, the POS device can further cancel, by using a cancellation instruction, a fund transfer generated for the target order. Therefore, a case in which in a peak consumption period of the target merchant, because the operator further determines the actual payment result of the target order, checkout efficiency is
15 low, and consequently payment of another consumer is affected can be avoided. In addition, in this manner of providing a uniform prompt, the operator does not need to have specific experience, lowering a use threshold for the operator. In this way, the operator can start working as soon as possible, and checkout experience is relatively good.

[0126] In addition, the POS device can prompt a first payment result for the case 1 and prompt
20 a second payment result for the case 2. In the case 1, the POS device sends a cancellation instruction corresponding to the target order to the server. The first payment result is, for example, a "payment abnormality", and the second payment result is, for example, a "payment failure". In this way, the operator can distinguish the actual payment result of the target order by using simple logic. This helps improve checkout experience and improve checkout efficiency.

[0127] The POS device can prompt the target merchant with the payment result in a voice form or in an interaction interface. The following uses the interaction interface as an example for description.

[0128] In some embodiments, when the POS device does not receive, within the preset duration, the payment result representing a payment success of the target order, the POS device
30 can display, in the interaction interface, prompt information representing the payment result. The prompt information includes at least first prompt information representing a payment failure.

[0129] For example, as shown in FIG. 5, the interaction interface of the POS device displays "Payment for the order 112354***** fails".

[0130] Based on the first prompt information, the operator considers that the payment result of the target order is a payment failure, communicates with the user about repayment, and does not need to further perform analysis and verification, to improve checkout efficiency. If a user terminal side receives the payment result of the actual payment success, the operator can notify the user that an amount that is successfully paid will be returned to the user, to avoid a dispute with the user and impact on another consumer.

[0131] In some embodiments, in addition to the first prompt information, the prompt information further includes second prompt information shown in FIG. 6. The second prompt information represents at least one of the following: Please ask the user to switch to another payment operation for repayment; and please notify the user that funds for this payment will be reversed.

[0132] For example, with reference to (a) in FIG. 6, the interaction interface of the POS device displays "Payment for the order 112354***** fails (an example of the first prompt information). Please ask the user to switch to another payment operation for repayment (an example of the second prompt information)". With reference to (b) in FIG. 6, the interaction interface of the POS device displays "Payment for the order 112354***** fails. Please notify the user that funds for this payment will be reversed (an example of the second prompt information)". Alternatively, the interaction interface of the POS device can display "Payment for the order 112354***** fails. Please ask the user to switch to another payment operation for repayment, and notify the user that funds for this payment will be reversed", not shown in FIG. 6. Specific content of the second prompt information is not limited in this specification.

[0133] Based on the first prompt information, the operator can consider that the payment result of the target order is a payment failure, and communicate with the user based on the second prompt information for repayment. With the second prompt information, there is a specific basis for the operator to negotiate with the user, providing a specific trust basis to the user. Therefore, when the operator asks the user to repay, a case in which a dispute with the user is caused in a case of no factual basis and consumption and payment of another consumer are delayed is avoided. In particular, in a scenario similar to a peak dining period, this capability of the POS device can improve checkout smoothness of the operator, to avoid a case in which a dispute is caused because

a payment failure is prompted for an order and consequently another consumer in a queue is delayed, and improve checkout experience of the operator.

[0134] It should be noted that a sequence in which the POS device displays the prompt information to the operator of the target merchant and sends the cancellation instruction is not limited in this specification. For example, the POS device first sends the cancellation instruction, and then displays the prompt information to the operator.

[0135] In some embodiments, the POS device can periodically send the cancellation instruction to the server at a preset time interval until a cancellation success message corresponding to the cancellation instruction is received from the server. In this manner, it can be ensured that the server can receive the cancellation instruction, to avoid a case in which the server does not receive the cancellation instruction due to the network problem, and when the target order is actually successfully paid, reversal refund cannot be completed, resulting in a complaint problem of the user.

[0136] In some embodiments, the POS device can periodically monitor a communication link between the POS device and the server at a preset time interval, and send the cancellation instruction to the server when it is detected that the communication link is normal. Therefore, when the communication link is abnormal, a power consumption problem and a resource waste problem that are caused by periodically sending the cancellation instruction by the POS device are avoided.

[0137] The preset time interval is, for example, 1 min, 3 min, or 5 min. This is not limited in this specification. In the above-mentioned embodiment, the POS device periodically sends the cancellation instruction. If the target order is actually successfully paid, a refund success is achieved in a relatively short time even if a network problem temporarily occurs. For example, the user can receive a refund before a meal ends, so as not to affect ordering of the user and dining experience of the user at a payment moment of the user.

[0138] In some embodiments, before S564, the order processing method P500 further includes:

[0139] S562: The POS device stores an identifier of the target order in a preset storage unit.

[0140] For any paid order, the POS device stores an identifier of the paid order in the preset storage unit when a payment result representing an actual payment success is not received. An identifier of each paid order can be stored in a form of a form during specific storage. This is not limited in this specification. The paid order can be understood as an order for which the user performs a payment operation.

[0141] The POS device can obtain the identifier of the target order from the preset storage unit, and send the cancellation instruction corresponding to the target order to the server based on the identifier of the target order. For example, the POS device can continuously view paid orders in the preset storage unit through a thread, and poll the paid orders in the preset storage unit to send
5 cancellation instructions, to avoid a case in which a fund transfer cancellation failure is caused because sending of cancellation instructions of some paid orders fails and consequently a user complaint is caused.

[0142] For example, the POS device can obtain the identifier of the target order from the preset storage unit at a preset time interval, and periodically send the cancellation instruction to the server
10 based on the identifier of the target order until a cancellation success message corresponding to the cancellation instruction is received from the server.

[0143] For example, the preset storage unit stores identifiers of a plurality of paid orders, and the plurality of paid orders include the target order. The POS device periodically sends cancellation instructions respectively corresponding to the plurality of paid orders to the server at a preset time
15 interval. Specifically, in a period, the POS device can send the cancellation instructions respectively corresponding to the plurality of paid orders by using one message, or send the cancellation instructions respectively corresponding to the plurality of paid orders by using a plurality of messages. This is not limited in this specification.

[0144] For example, the POS device can periodically monitor a communication link between
20 the POS device and the server at a preset time interval, obtain the identifier of the target order from the preset storage unit when it is detected that the communication link is normal, and send the cancellation instruction to the server based on the identifier of the target order. The POS device can further receive a cancellation success message corresponding to the cancellation instruction from the server.

[0145] For example, the preset storage unit stores identifiers of a plurality of paid orders, and the plurality of paid orders include the target order. When periodically detecting that the communication link is normal, the POS device sends cancellation instructions respectively
25 corresponding to the plurality of paid orders to the server. Specifically, when the communication link is normal, the cancellation instructions respectively corresponding to the plurality of paid orders can be sent by using one message, or the cancellation instructions respectively
30 corresponding to the plurality of paid orders can be sent by using a plurality of messages. This is

not limited in this specification.

[0146] In some embodiments, the preset storage unit is a nonvolatile storage unit. In this way, it can be ensured that an identifier of a paid order stored in the preset storage unit is not lost after the POS device is turned off due to a power outage or another reason. Therefore, all orders for which the POS device initiates the cancellation instruction can be finally processed by the server.

[0147] After the server receives the cancellation instruction, there can be a plurality of execution cases in response to the cancellation instruction. The following uses two cases as examples.

[0148] A case 1 includes S570 and S572.

[0149] S570: The server determines that there is a need to request the acquiring institution to perform a reversal procedure of the target order.

[0150] For example, the server can query the payment result of the target order from a database (that is, a database used to store a payment result of each order), and when the payment result of the target order is an actual payment success, determine that there is a need to request the acquiring institution to perform the reversal procedure of the target order. Therefore, only when the server determines that the actual payment succeeds, there is a need to perform reversal to cancel the fund transfer, so as to avoid a resource waste caused by indiscriminately initiating reversal.

[0151] S572: The server sends a reversal request corresponding to the target order to the acquiring institution, to cancel the fund transfer generated for the target order. Correspondingly, the acquiring institution receives the reversal request.

[0152] Sending the reversal request is a means of correcting an incorrect transaction record and can be used to cancel a fund transfer for an abnormal payment order. For example, the acquiring institution returns the payment result of the target order to the server, and the payment result represents an actual payment success. However, the POS device of the target merchant does not prompt a payment success. After receiving the reversal request, the acquiring institution can cancel the fund transfer for the target order by reverse accounting. For example, the acquiring institution can initiate a reverse account having a same payment amount as the target order. If a payment account of the target order is a user account and a collection account is a merchant account, a payment account of the reverse account is the merchant account and a collection account is the user account, so that the user can receive a payment refund of the target order.

[0153] In some embodiments, in the case 1, the order processing method P500 further includes

S574 and S576. In this way, it can be ensured that the server and the POS device can determine a reversal completion status, and the operator can determine a refund completion status, so that there is a factual basis for subsequently negotiating with the user.

[0154] S574: The acquiring institution sends a reversal completion notification to the server.

5 Correspondingly, the server receives the reversal completion notification.

[0155] The reversal completion notification can indicate that the payment amount corresponding to the target order is successfully refunded. Content of the reversal completion notification is not specifically limited in this specification.

[0156] S576: The server sends a cancellation success message corresponding to the
10 cancellation instruction to the POS device. Correspondingly, the POS device receives the cancellation success message.

[0157] The cancellation success message herein can indicate that the payment amount corresponding to the target order is successfully refunded. Content of the cancellation success message is not specifically limited in this specification.

15 **[0158]** A case 2 includes S570' and S572'.

[0159] S570': The server determines that there is no need to request the acquiring institution to perform a reversal procedure of the target order.

[0160] For example, the server can query the payment result of the target order from a database (that is, a database used to store a payment result of each order), and when the payment result of
20 the target order is an actual payment failure, determine that there is no need to request the acquiring institution to perform the reversal procedure of the target order, that is, does not send a reversal request to the acquiring institution to avoid a resource waste.

[0161] S572': The server sends a cancellation success message corresponding to the
25 cancellation instruction to the POS device. Correspondingly, the POS device receives the cancellation success message.

[0162] The cancellation success message herein can represent an actual payment failure of the target order or other similar content. This is not limited in this specification.

[0163] In some embodiments, after the POS device receives the cancellation success message by using S576 or S572', the order processing method P500 further includes:

30 **[0164]** S580: The POS device deletes the identifier of the target order from the preset storage unit.

[0165] Regardless of whether the actual payment succeeds and cancellation of the paid funds is completed, or the actual payment fails, when the POS device receives the cancellation success message, it indicates that the server or the acquiring institution has correspondingly processed the target order. In this case, the identifier of the target order is deleted in real time from the preset storage unit, to avoid memory occupation by a processed order and avoid repeated processing of the target order caused because the POS device further continues to send the cancellation instruction corresponding to the target order when periodically sending the cancellation instruction.

[0166] FIG. 7 is a flowchart of an order processing method P600 according to an embodiment of this specification. As shown in FIG. 7, the order processing method P600 is cooperatively performed by a POS device, a server, and an acquiring institution, and includes the following steps.

[0167] S610: The POS device detects that a user performs a payment operation for a target order.

[0168] S620: In response to the payment operation, the POS device sends a payment request corresponding to the target order to the server. Correspondingly, the server receives the payment request.

[0169] S630: The server sends the payment request to the acquiring institution. Correspondingly, the acquiring institution receives the payment request.

[0170] S640: The acquiring institution sends a payment result of the target order to the server.

[0171] For specific content of S610 to S640, refer to related descriptions of S510 to S540. Details are not described again.

[0172] A difference from S540 is that the server does not receive the payment result of the target order in S640.

[0173] S650 and S660: If the POS device does not receive a payment result representing a payment success of the target order from the server within preset duration, prompt a target merchant with a payment failure; and send a cancellation instruction corresponding to the target order to the server, where the cancellation instruction is used to request to cancel a fund transfer generated for the target order. Correspondingly, the server receives the cancellation instruction.

[0174] For specific content of S650 and S660, refer to related descriptions of S560 and S564. Details are not described again.

[0175] In some embodiments, before S660, the order processing method P600 further includes:

[0176] S652: The POS device stores an identifier of the target order in a preset storage unit.

[0177] For specific content of S652 and how to send the cancellation instruction based on the identifier of the order in the preset storage unit, refer to related descriptions of S562. Details are not described again.

[0178] S670: The server determines that the payment result of the target order is not received from the acquiring institution.

[0179] For example, the server can query a database based on the identifier of the target order, to determine whether the payment result of the target order exists. If it is found, through query, that the payment result of the target order does not exist, it is determined that the server does not receive the payment result of the target order from the acquiring institution.

[0180] S672: The server sends a reversal request corresponding to the target order to the acquiring institution to request the acquiring institution to perform a reversal procedure of the target order, to cancel a fund transfer generated for the target order. Correspondingly, the acquiring institution receives the reversal request.

[0181] In some embodiments, the method P600 further includes S674 and S676.

[0182] S674: The acquiring institution sends a reversal completion notification to the server. Correspondingly, the server receives the reversal completion notification.

[0183] Based on an actual payment result of the target order, the acquiring institution can determine whether to initiate the reversal procedure, and send the reversal completion notification to the server regardless of whether to initiate the reversal procedure, to notify the server of a processing status of the target order.

[0184] For example, if the acquiring institution determines, based on the actual payment result of the target order, that the target order is actually successfully paid, a reverse account having a same payment amount as the target order is initiated, and a reversal completion notification representing a refund success is sent to the server. Specific content represented by the reversal completion notification herein is not limited in this specification. For the reverse account, refer to the above-mentioned descriptions. Details are not described again.

[0185] For example, if the acquiring institution determines, based on the actual payment result of the target order, that the actual payment for the target order fails, the reverse account is not initiated, and a reversal completion notification indicating that the target order has been processed or indicating that the actual payment for the target order fails is directly sent to the server. Specific content represented by the reversal completion notification herein is also not limited in this

specification.

[0186] S676: The server sends a cancellation success message corresponding to the cancellation instruction to the POS device. Correspondingly, the POS device receives the cancellation success message.

5 **[0187]** For example, if the reversal completion notification received by the server represents a refund success, the cancellation success message can represent a refund success. If the reversal completion notification received by the server represents an actual payment failure of the target order or that the target order has been processed, the cancellation success message can also represent an actual payment failure of the target order or other similar content. In this way, it is
10 ensured that the operator can determine a specific reversal status from the server or the POS device, so that there is a factual basis for negotiating with the user.

[0188] For specific content of S672 to S676, refer to related descriptions of S572 to S576. Details are not described again.

[0189] S680: The POS device deletes the identifier of the target order from the preset storage
15 unit.

[0190] For specific content of S680, refer to related descriptions of S580. Details are not described again.

[0191] For beneficial effects of the embodiments in the order processing method P600, refer to related descriptions in the order processing method P500. Details are not described again.

20 **[0192]** In conclusion, according to the order processing method, the electronic device, the storage medium, and the system provided in this specification, in an offline payment scenario, it can be ensured that a payment result displayed by the POS device to the operator is consistent with an actual payment result. Therefore, the operator can recklessly consider the payment result of an order displayed by the POS device as the actual payment result of the order. For example, if the
25 POS device displays a payment failure, the operator can consider that actual payment for the order fails, and negotiate with the user about repayment, and does not need to spend time in performing analysis and verification, to improve checkout efficiency. In this way, even if the target order is actually successfully paid, the POS device can request a refund to the user by using the cancellation instruction, to avoid a plurality of payments of the user and a fund loss to the user. In addition,
30 when determining an actual payment status of the order, the operator can use the payment result prompted by the POS device as a reference, and does not need to grasp complex logic for further

analysis. This lowers a threshold for the operator to use the POS device and makes it easier to get started. In particular, in a special scenario such as a peak consumption period, a problem that a dispute with a consumer is caused due to inaccurate analysis and consequently normal payment and consumption experience of another consumer are affected can be avoided.

5 **[0193]** According to another aspect of this specification, a computer-readable non-transitory storage medium is provided, and stores at least one group of executable instructions for order processing. When the executable instructions are executed by a processor, the executable instructions instruct the processor to implement the steps in the method P500 or P600 described in this specification. In some possible implementations, various aspects of this specification can be
10 further implemented in a form of a program product, including program code. When the program product runs on the electronic device 400, the program code is used to enable the electronic device 400 to perform the steps in the method P500 or P600 described in this specification. The program product configured to implement the above-mentioned method can use a portable compact disc read-only memory (CD-ROM) that includes program code, and can run on the electronic device
15 400. 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. For example, the readable storage medium
20 can be but is not limited to 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 an electrical connection including one or more conducting wires, a portable disk, a hard disk, a random access
25 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 device, a magnetic storage device, or any proper combination thereof. The computer-readable storage medium can include a data signal propagated in a baseband or as a part of a carrier, and carries readable program code. The propagated data signal can be in a
30 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 alternatively be any readable

medium other than the readable storage medium, and the readable medium can send, propagate, or transmit a program used by or in combination with an instruction execution system, apparatus, or device. The program code included in the readable storage medium can be transmitted by using any proper medium, including but not limited to a wireless medium, a wired medium, an optical cable, an RF medium, or any proper combination thereof. Program code for performing the operations in 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, a "C" language, or a similar program design language. The program code can be completely executed on the electronic device 400, partially executed on the electronic device 400, executed as an independent software package, partially executed on the electronic device 400 and partially executed on a remote computing device, or completely executed on a remote computing device.

[0194] The term "and/or" in the embodiments of this specification describes an association relationship between associated objects, and indicates that three relationships can exist. For example, A and/or B can indicate the following three cases: Only A exists, both A and B exist, and only B exists. The character "/" usually indicates an "or" relationship between associated objects.

[0195] The terms "first", "second", and the like in this specification are used to distinguish between objects or entities that are similar to each other or of a same type, and do not necessarily imply a specific sequence or order.

[0196] "Plurality of" in this specification shall be understood as two or more unless otherwise specified.

[0197] 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 a sequence different from that in the embodiments and desired results can still be achieved. In addition, the process depicted in the accompanying drawings does not necessarily need a particular sequence or consecutive sequence to achieve the desired results. In some implementations, multitasking and parallel processing are possible or may be advantageous.

[0198] In conclusion, after reading the detailed disclosure, a person skilled in the art can understand that the detailed disclosure can be presented only by using an example, and can impose no limitation. Although it is not explicitly stated herein, 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 provided in this specification, and fall within the spirit and scope of the example embodiments of this specification.

5 **[0199]** In addition, some terms in this specification are used to describe the embodiments of this specification. For example, "one embodiment", "embodiments", and/or "some embodiments" mean/means that specific features, structures, or characteristics described with reference to the embodiment can be included in at least one embodiment of this specification. Therefore, it can be emphasized and understood that two or more references to "embodiments", "one embodiment", or
10 "alternative embodiments" in various parts of this specification do not necessarily refer to a same embodiment. In addition, specific features, structures, or characteristics can be appropriately combined in one or more embodiments of this specification.

[0200] 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,
15 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. That is, the embodiments of this specification can also be understood as an integration of a plurality of secondary embodiments.
20 The content of each secondary embodiment is also true when a quantity of features is less than a quantity of all features in a single previously disclosed embodiment.

[0201] Each patent, patent application, publication of a patent application, and other materials such as articles, books, specifications, publications, documents, and literature (excluding any historical review documents related thereto) cited in this specification are cited for all purposes
25 related to this disclosure, for example, in the specification and claims of this disclosure. However, if there is any inconsistency or conflict between the descriptions, definitions, and/or terms of the above-mentioned materials and the descriptions, definitions, and/or terms used in this disclosure, the descriptions, definitions, and/or terms used in this disclosure shall prevail.

[0202] Finally, it should be understood that the principles of the implementation solutions of
30 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, applied to an order management system, wherein the order management system is configured to provide an order management service to a target merchant, and comprises a POS device and a server, and the method is performed by the POS device and comprises:

in response to detecting that a user performs a payment operation for a target order, sending a payment request corresponding to the target order to the server, so that the server sends the payment request to an acquiring institution; and

if a payment result representing a payment success of the target order is not received from the server within preset duration, prompting the target merchant with a payment failure, and sending a cancellation instruction corresponding to the target order to the server, wherein the cancellation instruction is used to request to cancel a fund transfer generated for the target order.

2. The method according to claim 1, wherein the sending a cancellation instruction corresponding to the target order to the server comprises:

periodically sending the cancellation instruction to the server at a preset time interval until a cancellation success message corresponding to the cancellation instruction is received from the server.

3. The method according to claim 1, wherein the sending a cancellation instruction corresponding to the target order to the server comprises:

periodically monitoring a communication link between the POS device and the server at a preset time interval, and sending the cancellation instruction to the server when it is detected that the communication link is normal.

4. The method according to claim 1, wherein if the payment result representing a payment success of the target order is not received from the server within the preset duration, the method further comprises:

storing an identifier of the target order in a preset storage unit; and

the sending a cancellation instruction corresponding to the target order to the server comprises:

obtaining the identifier of the target order from the preset storage unit, and sending the cancellation instruction corresponding to the target order to the server based on the identifier of

the target order.

5. The method according to claim 4, wherein after the sending a cancellation instruction corresponding to the target order to the server, the method further comprises:

receiving a cancellation success message corresponding to the cancellation instruction from
5 the server; and

deleting the identifier of the target order from the preset storage unit.

6. The method according to claim 4, wherein the preset storage unit is a nonvolatile storage unit.

7. The method according to claim 1, wherein that a payment result representing a payment
10 success of the target order is not received from the server within preset duration comprises:

a payment result of the target order is not received from the server within the preset duration;

or

a payment result representing a payment failure of the target order is received from the server
within the preset duration.

8. The method according to claim 1, wherein the prompting the target merchant with a
15 payment failure comprises:

displaying prompt information in an interaction interface of the POS device, wherein the
prompt information comprises at least first prompt information, and the first prompt information
represents a payment failure.

9. The method according to claim 8, wherein the prompt information further comprises
20 second prompt information, and the second prompt information represents at least one of the
following:

please ask the user to switch to another payment operation for re-payment; and

please notify the user that funds for this payment will be reversed.

10. The method according to claim 1, wherein the payment operation comprises a card
25 swiping payment operation.

11. An order processing method, applied to an order management system, wherein the order
management system is configured to provide an order management service to a target merchant,
and comprises a server and a POS device, and the method is performed by the server and comprises:

30 receiving a payment request of a target order from the POS device, and sending the payment
request to an acquiring institution;

when a payment result of the target order is received from the acquiring institution, sending the payment result to the POS device; and

in response to receiving a cancellation instruction corresponding to the target order from the POS device, sending a reversal request to the acquiring institution when determining that there is
5 a need to request the acquiring institution to perform a reversal procedure of the target order, to cancel a fund transfer generated for the target order, wherein

the cancellation instruction is sent by the POS device when a payment result representing a payment success of the target order is not received within preset duration.

12. The method according to claim 11, wherein when the payment result of the target order s
10 received from the acquiring institution, the method further comprises: storing the payment result of the target order in a database; and

the determining that there is a need to request the acquiring institution to perform a reversal procedure of the target order comprises:

querying the payment result of the target order from the database; and

15 when the payment result is a payment success, determining that there is a need to request the acquiring institution to perform the reversal procedure of the target order.

13. The method according to claim 11, wherein the method further comprises:

in response to the cancellation instruction, sending a cancellation success message corresponding to the cancellation instruction to the POS device when determining that there is no
20 need to request the acquiring institution to perform the reversal procedure of the target order.

14. The method according to claim 13, wherein when the payment result of the target order s received from the acquiring institution, the method further comprises: storing the payment result of the target order in a database; and

the determining that there is no need to request the acquiring institution to perform the
25 reversal procedure of the target order comprises:

querying the payment result of the target order from the database; and

when the payment result is a payment failure, determining that there is no need to request the acquiring institution to perform the reversal procedure of the target order.

15. The method according to claim 11, wherein when the payment result of the target order
30 is not received from the acquiring institution, the method further comprises:

in response to receiving the cancellation instruction corresponding to the target order from

the POS device, sending the cancellation request to the acquiring institution, to cancel the fund transfer generated for the target order.

16. The method according to claim 11 or 15, wherein the method further comprises:

receiving a reversal completion notification from the acquiring institution, and sending a
5 cancellation success message corresponding to the cancellation instruction to the POS device.

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

at least one storage medium that stores at least one instruction set; and

at least one processor that is communicatively connected to the at least one storage medium,
wherein the at least one processor reads the at least one instruction set when running, and performs
10 the method according to any one of claims 1 to 10 based on an indication of the at least one instruction set.

18. An electronic device, serving as a server and comprising:

at least one storage medium that stores at least one instruction set; and

at least one processor that is communicatively connected to the at least one storage medium,
15 wherein the at least one processor reads the at least one instruction set when running, and performs the method according to any one of claims 11 to 16 based on an indication of the at least one instruction set.

19. A computer-readable non-transitory storage medium, wherein the computer-readable non-transitory storage medium stores at least one instruction set, and when the at least one instruction
20 set is executed by at least one processor, the method according to any one of claims 1 to 16 is implemented.

20. An order management system, configured to provide an order management service to a target merchant, wherein the order management system comprises a POS device and a server that is communicatively connected to the POS device;

25 the POS device is configured to: in response to detecting that a user performs a payment operation for a target order, send a payment request corresponding to the target order to the server;

the server is configured to: receive the payment request of the target order from the POS device, send the payment request to an acquiring institution, and when a payment result of the target order is received from the acquiring institution, send the payment result to the POS device;

30 the POS device is further configured to: if a payment result representing a payment success of the target order is not received from the server within preset duration, prompt the target

merchant with a payment failure, and send a cancellation instruction corresponding to the target order to the server, wherein the cancellation instruction is used to request to cancel a fund transfer generated for the target order; and

- 5 the server is further configured to: in response to the cancellation instruction, send a reversal request to the acquiring institution when determining that there is a need to request the acquiring institution to perform a reversal procedure of the target order, to cancel the fund transfer generated for the target order.