

SMARTWATCH AGGREGATION CODE SERVICE PROCESSING METHODS, APPARATUSES, AND DEVICES

TECHNICAL FIELD

[0001] This specification relates to the field of payment technologies, and in particular, to
5 smartwatch aggregation code service processing methods, apparatuses, and devices.

BACKGROUND

[0002] With development of Internet technologies and widespread use of smartphones, an increasing number of services can be performed by using applications in smartphones, bringing great convenience to people's lives.

10 [0003] In service fields such as payment, two-dimensional codes are currently widely used. In daily life, users may use two-dimensional code payment services provided by different payment service providers, which means that users use different two-dimensional codes for payment. Users need to use an application (referring to a user equipment side, generally an application client) of a certain payment service provider to scan a two-dimensional code of the payment service provider
15 based on a correct correspondence to make payment. If users use the application of the payment service provider to scan a two-dimensional code of another payment service provider, the payment may not be made normally. Based on this, to provide users with convenience and fault tolerance when scanning codes, aggregation codes have emerged. The aggregation codes aggregate two-dimensional code services of two or more different payment service providers. Merchants can
20 generate aggregation codes of merchants and provide the aggregation codes to users for payment. Users can use an application of any of these payment service providers to scan the aggregation code to make payment normally.

[0004] In a current aggregation code payment solution, when users, on a smartphone, scan an aggregation code displayed by a merchant through an application of a payment service provider,
25 an aggregation code H5 page of the merchant is opened in an H5 container of the application. Users can then place an order and make payment by performing an operation on the aggregation

code H5 page.

[0005] However, the above-mentioned aggregation code payment solution encounters problems on smartwatches. Due to the limited capabilities of smartwatch operating systems, the smartwatch operating systems are often impossible to implement an H5 container environment, making it difficult to use this solution to implement smartwatch aggregation code payment. Similar problems may exist for other smartwatch aggregation code services.

[0006] Based on this, an aggregation code service processing solution more suitable for smartwatches is needed.

SUMMARY

[0007] One or more embodiments of this specification provide smartwatch aggregation code service processing methods, apparatuses, and devices, to resolve the following technical problem: An aggregation code service processing solution more suitable for smartwatches is needed.

[0008] To resolve the above-mentioned technical problem, one or more embodiments of this specification are implemented as follows:

[0009] One or more embodiments of this specification provide a smartwatch aggregation code service processing method, applied to a payment server. The method includes:

receiving a service trigger instruction sent by a smartwatch by scanning an aggregation code displayed by a target merchant;

sending a merchant information query request to an aggregation code service provider by invoking a first service provider interface (SPI) based on the service trigger instruction, so that the smartwatch obtains information that is of the target merchant and that is queried by the aggregation code service provider;

receiving a service execution request sent by the smartwatch based on the information of the target merchant;

sending a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, so that the aggregation code service provider places a corresponding order with an open platform corresponding to the application server, where the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are

implemented by the aggregation code service provider; and

receiving a merchant service order generated and returned by the open platform in response to the placed order, and advancing a service processing process to completion based on the merchant service order.

- 5 **[0010]** One or more embodiments of this specification provide another smartwatch aggregation code service processing method, applied to a smartwatch. The method includes:

sending a service trigger instruction to an application server by scanning an aggregation code displayed by a target merchant, so that the application server sends a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service
10 trigger instruction; and

obtaining information that is of the target merchant and that is queried by the aggregation code service provider, and sending a service execution request to the application server based on the information of the target merchant, so that the application server sends a corresponding merchant service order creation request to the aggregation code service provider by
15 invoking a second SPI based on the service execution request, and receiving a merchant service order and advancing a service processing process to completion based on the merchant service order, where the merchant service order is generated and returned to the aggregation code service provider by the aggregation code service provider placing a corresponding order with an open platform corresponding to the application server in response to the service order creation request,
20 and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

[0011] One or more embodiments of this specification provide a smartwatch aggregation code service processing apparatus, applied to a payment server. The apparatus includes:

25 a trigger receiving module, configured to receive a service trigger instruction sent by a smartwatch by scanning an aggregation code displayed by a target merchant;

a first invocation module, configured to send a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction, so that the smartwatch obtains information that is of the target merchant and that is queried by the
30 aggregation code service provider;

an execution receiving module, configured to receive a service execution request sent

by the smartwatch based on the information of the target merchant;

a second invocation module, configured to send a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, so that the aggregation code service provider places a corresponding order with an open platform corresponding to the application server, where the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider; and

a service advancing module, configured to receive a merchant service order generated and returned by the open platform in response to the placed order, and advance a service processing process to completion based on the merchant service order.

[0012] One or more embodiments of this specification provide a smartwatch aggregation code service processing apparatus, applied to a smartwatch. The apparatus includes:

a scanning trigger module, configured to send a service trigger instruction to an application server by scanning an aggregation code displayed by a target merchant, so that the application server sends a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction; and

an execution request module, configured to obtain information that is of the target merchant and that is queried by the aggregation code service provider, and send a service execution request to the application server based on the information of the target merchant, so that the application server sends a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, and receive a merchant service order and advance a service processing process to completion based on the merchant service order, where the merchant service order is generated and returned to the aggregation code service provider by the aggregation code service provider placing a corresponding order with an open platform corresponding to the application server in response to the service order creation request, and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

[0013] One or more embodiments of this specification provide a smartwatch aggregation code service processing device, applied to a payment server. The device includes:

at least one processor; and

a storage communicatively connected to the at least one processor, where
the storage stores instructions executable by the at least one processor, and the
instructions are executed by the at least one processor to enable the at least one processor to
perform the following operations:

5 receiving a service trigger instruction sent by a smartwatch by scanning an aggregation
code displayed by a target merchant;

 sending a merchant information query request to an aggregation code service provider
by invoking a first SPI based on the service trigger instruction, so that the smartwatch obtains
information that is of the target merchant and that is queried by the aggregation code service
10 provider;

 receiving a service execution request sent by the smartwatch based on the information
of the target merchant;

 sending a corresponding merchant service order creation request to the aggregation
code service provider by invoking a second SPI based on the service execution request, so that the
15 aggregation code service provider places a corresponding order with an open platform
corresponding to the application server, where the first SPI and the second SPI are interfaces that
are defined by an application service provider to which the application server belongs and that are
implemented by the aggregation code service provider; and

 receiving a merchant service order generated and returned by the open platform in
20 response to the placed order, and advancing a service processing process to completion based on
the merchant service order.

[0014] One or more embodiments of this specification provide a smartwatch aggregation code
service processing device, applied to a smartwatch. The device includes:

 at least one processor; and

25 a storage communicatively connected to the at least one processor, where

 the storage stores instructions executable by the at least one processor, and the
instructions are executed by the at least one processor to enable the at least one processor to
perform the following operations:

 sending a service trigger instruction to an application server by scanning an aggregation
30 code displayed by a target merchant, so that the application server sends a merchant information
query request to an aggregation code service provider by invoking a first SPI based on the service

trigger instruction; and

obtaining information that is of the target merchant and that is queried by the aggregation code service provider, and sending a service execution request to the application server based on the information of the target merchant, so that the application server sends a
5 corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, and receiving a merchant service order and advancing a service processing process to completion based on the merchant service order, where the merchant service order is generated and returned to the aggregation code service provider by the aggregation code service provider placing a corresponding order with an open
10 platform corresponding to the application server in response to the service order creation request, and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

[0015] The above-mentioned at least one technical solution used in one or more embodiments
15 of this specification can achieve the following beneficial effects: SPIs are defined by an application service provider (represented by an application server) for querying and placing orders, and these SPIs are correspondingly implemented by one or more aggregation code service providers, so that interaction between the application service provider and the aggregation code service provider is standardized. The solution does not rely on an H5 container, and has better stability compared with
20 an H5 container-based solution, thereby helping improve a service success rate. In addition, the solution reduces access costs between the application service provider and the aggregation code service provider and provides better flexibility for the aggregation code service provider, so that even if smartwatches do not support H5 containers, the smartwatches can still reliably and conveniently implement payment and other services based on aggregation codes. Therefore, the
25 solution has relatively good applicability to smartwatches and helps improve smartwatch user experience.

BRIEF DESCRIPTION OF DRAWINGS

[0016] To describe the technical solutions in the embodiments of this specification or in the existing technology more clearly, the following briefly describes the accompanying drawings

needed for describing the embodiments or the existing technology. Clearly, the accompanying drawings in the following descriptions merely show 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.

5 **[0017]** FIG. 1 is a schematic flowchart illustrating a smartwatch aggregation code service processing method, according to one or more embodiments of this specification;

[0018] FIG. 2 is a schematic flowchart illustrating a first SPI invocation decision solution, according to one or more embodiments of this specification;

[0019] FIG. 3 is a schematic flowchart illustrating a watch face theme interface control
10 solution, according to one or more embodiments of this specification;

[0020] FIG. 4 is a schematic flowchart illustrating an implementation of the method in FIG. 1 in an application scenario, according to one or more embodiments of this specification;

[0021] FIG. 5 is a schematic diagram illustrating some watch face display content on the smartwatch involved in the implementation in FIG. 4 in an application scenario, according to one
15 or more embodiments of this specification;

[0022] FIG. 6 is a schematic flowchart illustrating another smartwatch aggregation code service processing method, according to one or more embodiments of this specification;

[0023] FIG. 7 is a schematic structural diagram illustrating a smartwatch aggregation code service processing apparatus, according to one or more embodiments of this specification;

20 **[0024]** FIG. 8 is a schematic structural diagram illustrating another smartwatch aggregation code service processing apparatus, according to one or more embodiments of this specification;

[0025] FIG. 9 is a schematic structural diagram illustrating a smartwatch aggregation code service processing device, according to one or more embodiments of this specification; and

[0026] FIG. 10 is a schematic structural diagram illustrating another smartwatch aggregation
25 code service processing device, according to one or more embodiments of this specification.

DESCRIPTION OF EMBODIMENTS

[0027] Embodiments of this specification provide smartwatch aggregation code service processing methods, apparatuses, and devices, and storage media.

[0028] To make a person skilled in the art better understand the technical solutions in this

specification, the following clearly and comprehensively describes the technical solutions in the embodiments of this specification with reference to the accompanying drawings in the embodiments of this specification. Clearly, the described embodiments are merely some but not all of the embodiments of this application. All other embodiments obtained by a person of ordinary skill in the art based on the embodiments of this specification without creative efforts shall fall within the protection scope of this application.

[0029] Services described in this application, which are typical payment services, are target services to be performed by users. For ease of description, some embodiments below are mainly described by using a payment service scenario as an example. Certainly, some other services with similar problems may also be resolved by using the solution of this application, such as e-commerce services, activity registration services, health services, and advertising services.

[0030] As understood in the background, smartwatches have more limited capabilities compared with smartphones. For example, constrained by operating system capabilities of smartwatches, it is difficult to locally implement an H5 container environment on smartwatches (smartwatch manufacturers often remove H5 container functionality to improve watch operating efficiency and reduce resource consumption). Therefore, it is difficult to implement H5 container-based aggregation code payment solutions. This can easily lead to payment failure with smartwatches. For payment service providers, this can subsequently easily lead to loss of users and payment services. Especially in a scenario of children's smartwatches, children's smartwatches are often only mobile payment devices of children, failure to perform aggregation code payment with the devices very easily lead to loss, which is difficult to recover, let alone secondary payment. This is regrettable for the platform and causes users to lose the chance to experience improvements.

[0031] To resolve the problems mentioned in the background and enable smartwatches to better support aggregation code payment, the applicant initially attempts to develop the following solution: Use a smartwatch to scan an aggregation code; when scanning succeeds, synchronously open an H5 container in the cloud and load an aggregation code link in the container; when a smartwatch user performs an operation to enter an amount and tap to pay, synchronize related operations to the cloud; and the cloud container can intercept a payment request and return order information to the smartwatch to advance payment. However, testing reveals that this solution still has problems, mainly including: the need for the cloud container to adapt to various types of aggregation codes, identify amounts entered and payment UIs, and intercept the corresponding

operations, resulting in insufficient compatibility and relatively high costs.

[0032] For the above-mentioned problems, the applicant develops, and provides in this application, an aggregation code service processing solution more suitable for smartwatches, such as an aggregation code payment solution, to solve these problems.

5 **[0033]** The following continues to describe the solutions of this application based on such an overall situation.

[0034] FIG. 1 is a schematic flowchart illustrating a smartwatch aggregation code service processing method, according to one or more embodiments of this specification. An execution body of this procedure may include an application server, which is a server corresponding to a smartwatch. Here, the smartwatch, at a software level, mainly refers to software (such as a payment application client or a mini-program, in this case, the application server is a payment server) used to provide a target service. Certainly, at a hardware level, the smartwatch is the smartwatch mobile device itself.

[0035] The smartwatch mentioned in this application has hardware modules, such as a camera, used to support a code scanning function. Applications on the smartwatch can invoke these hardware modules to implement two-dimensional code scanning and identification within the application.

[0036] The procedure in FIG. 1 includes the following steps.

[0037] S102: Receive a service trigger instruction sent by a smartwatch by scanning an aggregation code displayed by a target merchant.

[0038] The aggregation code, as a code, can simultaneously support the same type of service from a plurality of different channels (and, certainly, also has the capability to support a plurality of different types of services simultaneously). For example, a payment aggregation code simultaneously supports different payment methods provided by two or more different payment service providers. When a user scans the code, the payment method corresponding to the application used for scanning can be automatically identified for adoption based on the application used. Currently, aggregation codes are still mainly represented in the form of two-dimensional codes, and may evolve into higher-dimensional codes in the future.

[0039] Different merchants have own exclusive aggregation codes, which can be pre-generated with support of an aggregation code service provider and displayed for users to scan and use. The aggregation code service provider can master a correct correspondence between different

aggregation codes and different merchants.

[0040] The user uses the scanning function provided in a certain application client or mini-program serving as the smartwatch to scan and identify the aggregation code displayed by the target merchant. Based on a scanning and identification result, the service trigger instruction is sent to the corresponding application server.

[0041] In one or more embodiments of this specification, the service trigger instruction can be used to request to query information of the current target merchant, to prompt the user, so that the user has sufficient awareness to confirm a service to be performed. The service trigger instruction can include at least part of code values of the aggregation code, or a parsing result obtained by parsing these code values.

[0042] It is worthwhile to note that the term "merchant" as used in this application can be understood in a broader sense. Merchants are entities that uses a platform of the application service provider to provide services to users. Besides the common merchants who sell goods in e-commerce scenarios, entities that use the platform to organize other activities for users, provide non-product services, or perform management assessments can also be broadly considered as merchants from the perspective of the application service provider.

[0043] S104: Send a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction, so that the smartwatch obtains information that is of the target merchant and that is queried by the aggregation code service provider.

[0044] In one or more embodiments of this specification, the SPI (i.e., the service provider interface) mentioned in this application is defined by the application service provider at an interface level, and is on the side of an independent software developer or the merchant that cooperates with the application service provider at an implementation level. In an aggregation code scenario, specifically, for example, the SPI is implemented by the aggregation code service provider. As such, the same SPI defined by the application service provider to which the application server belongs can be implemented by different aggregation code service providers differently according to actual needs. This achieves good compatibility and helping efficiently access more aggregation code service providers, and there is no need for the application service provider to make frequent changes. Therefore, from the perspective of the application service provider, the SPI is sufficiently standardized and shields the user side from these differences.

- [0045]** The first SPI can be mainly used to request to query the information of the target merchant, that is, the first SPI can serve as a merchant information query interface. The information that is of the target merchant and that is queried by the aggregation code service provider can be directly returned to the smartwatch by the aggregation code service provider, or indirectly returned to the smartwatch via transit through the application server. It is worthwhile to note that there is not necessarily only one first SPI, and the first SPI can alternatively be a set including a plurality of SPIs. Each SPI in the set can be responsible for more refined functions. For example, there is a first SPI for initiating the merchant information query request, and another first SPI for returning the merchant information query result, etc.
- 10 **[0046]** S106: Receive a service execution request sent by the smartwatch based on the information of the target merchant.
- [0047]** The smartwatch displays a confirmation interface to the user based on the information of the target merchant. The confirmation interface can prompt the user about a specific merchant being targeted, for example, a merchant name, and a merchant LOGO. In addition, the smartwatch can further describe a service of the merchant, such as information of a product to be paid, and an amount to be paid. The user can perform a confirmation operation on the confirmation interface (and can further be provided with more specific service selection functions, so that the user can confirm which service to execute among a plurality of optional services), thereby triggering the smartwatch to send the service execution request to the application server.
- 15 **[0048]** In one or more embodiments of this specification, the smartwatch may not support an H5 container, or may not even support an H5 page. The solution of this application can particularly demonstrate advantages over the conventional technology in such a case. In this case, the confirmation interface does not belong to a page in an H5 container, and may not even belong to an H5 page.
- 20 **[0049]** In addition, considering that the application server, through the SPI, has the ability to shield the differences in interface implementation by different aggregation code service providers (such as differences in input/output parameters, data formats, field meanings, compliance requirements, and algorithms used), the confirmation interface can also be presented in a more standardized manner. In this case, the confirmation interface may not be a page or interface obtained from the aggregation code service provider, thereby reducing implementation costs for the aggregation code service provider and helping alleviate potential compatibility situations
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between the confirmation interface and the smartwatch. In addition, considering support for both direct and indirect return of merchant information by the aggregation code service provider, the confirmation interface can be generated locally by the smartwatch based on the information of the target merchant, rather than being a page obtained from the application server. This allows the smartwatch to more flexibly adapt to own capabilities to generate the confirmation interface, especially generating a page that has a more simplified form and that is suitable for being displayed and viewed on a smartwatch. From the perspective of the application service provider, such an operation has a higher standardization level while considering personalization, and can alleviate excessive limitation imposed by the aggregation code service provider or the application server.

5 **[0050]** S108: Send a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, so that the aggregation code service provider places a corresponding order with an open platform corresponding to the application server, where the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

15 **[0051]** References can be made to the first SPI described above to similarly understand the second SPI. The main difference between the first SPI and the second SPI lies in purpose, and the second SPI is mainly used to create a merchant service order.

20 **[0052]** The service execution request sent by the smartwatch can also be considered as an order placement operation. Here, the placed order (referred to as an order placed by the user for ease of distinction) is placed by the smartwatch user for the merchant, while the merchant service order is placed by the merchant (or executed by the aggregation code service provider on behalf the merchant) for the service provider. The service provider serves as a third party between the user and the merchant, providing a service platform for the user and the merchant. The order placed by the user is for the user to request the execution of a business, and the merchant service order is to request to obtain a corresponding benefit (generally provided by the user) based on providing a service corresponding to the business. For example, in a payment scenario, the order placed by the user can be a payment order for a service of the merchant, while the merchant service order can be a merchant transaction request. It can be seen that the two order placement operations correspond to each other, are unified, and essentially belong to the same service transaction.

25 **[0053]** The open platform is a platform provided by the application service provider, and is

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mainly oriented to merchants or developers. In this application, the open platform can be used for the aggregation code service provider or the merchant to place orders. The open platform and the application server can be different entities. Direct interaction of the user mainly involves the application server and hardly ever involves the open platform. Certainly, if corresponding
5 functions of the open platform are integrated into the application server, the aggregation code service provider can also place orders through the application server, and this process may involve interaction between different modules in the application server. Alternatively, the application server can obtain needed information from the aggregation code service provider to generate the merchant service order for the aggregation code service provider. This method places higher
10 demands on the application server compared with an interaction method based on the open platform.

[0054] S110: Receive a merchant service order generated and returned by the open platform in response to the placed order, and advance a service processing process to completion based on the merchant service order.

[0055] In one or more embodiments of this specification, based on the merchant service order, a cost paid by the user (e.g., a deducted payment amount) can be obtained from the user and settled accordingly to the merchant. This is described by using logic of a common payment service. Certainly, for a service not involving payment, the application server can similarly complete the service for the user and the merchant based on the merchant service order, thereby fulfilling the
20 task as a third party.

[0056] Through the method in FIG. 1, SPIs are defined by an application service provider (represented by an application server) for querying and placing orders, and these SPIs are correspondingly implemented by one or more aggregation code service providers, so that interaction between the application service provider and the aggregation code service provider is
25 standardized. The solution does not rely on an H5 container, and has better stability compared with an H5 container-based solution, thereby helping improve a service success rate. In addition, the solution reduces access costs between the application service provider and the aggregation code service provider and provides better flexibility for the aggregation code service provider, so that even if smartwatches do not support H5 containers, the smartwatches can still reliably and
30 conveniently implement payment and other services based on aggregation codes. Therefore, the solution has relatively good applicability to smartwatches and helps improve smartwatch user

experience.

[0057] Based on the method shown in FIG. 1, this specification further provides some specific implementations and extension solutions of the method, which are further described below.

5 [0058] Based on the principle of the above-mentioned solution, one or more embodiments of this specification provide a schematic flowchart illustrating a first SPI invocation decision solution, as shown in FIG. 2.

[0059] The procedure in FIG. 2 includes the following steps.

[0060] S202: After receiving the service trigger instruction sent by the smartwatch, determine whether the smartwatch supports an H5 container based on the service trigger instruction.

10 [0061] If an H5 container is not supported, the solution based on the SPI is preferentially used. If an H5 container is supported, switching to a solution based on the H5 container and service interception can be considered.

[0062] To facilitate determination, the service trigger instruction can carry capability information of the smartwatch. Certainly, if a type of a sending device can be determined based on the service trigger instruction, a more simplified determination can be made, which is more efficient. For example, based on the service trigger instruction, it is determined whether the sending device is a smartwatch or a smartphone, and if the sending device is a smartwatch, subsequent steps continues to be performed.

15 [0063] S204: If no, send a merchant information query request carrying a code value of the aggregation code and an identifier of the smartwatch to the aggregation code service provider by invoking the first SPI based on the service trigger instruction, so that the aggregation code service provider queries the information of the target merchant based on the code value of the aggregation code, and returns the information of the target merchant to the smartwatch based on the identifier of the smartwatch.

20 [0064] If the aggregation code service provider indirectly returns the information of the target merchant to the smartwatch through the application server, the merchant information query request may not carry the identifier of the smartwatch.

25 [0065] In a case where the smartwatch does not support an H5 container, or even does not support an H5 interface, for the confirmation interface, this application considers not using a separate additional page but using a watch face theme (which at least includes a home screen of the smartwatch) for presentation. This allows clear and non-intrusive prompts to the user,

facilitates persistent accumulation and dynamic display of service situations of the user over a period without needing to enter specific service applications, thereby consuming minimal processing resources.

[0066] Based on this idea, one or more embodiments of this specification provide a schematic flowchart illustrating a watch face theme interface control solution, as shown in FIG. 3.

[0067] The procedure in FIG. 3 includes the following steps.

[0068] S302: Pre-define a watch face theme characteristic parameter for the first SPI, where the watch face theme characteristic parameter is used for the aggregation code service provider to assign values based on the queried merchant information, and the information of the target merchant is represented by the assigned watch face theme characteristic parameter, and is returned (directly returned by the aggregation code service provider or indirectly returned by the application server) to the smartwatch through the first SPI.

[0069] The watch face theme characteristic parameter can include, for example, control layout, home screen, style, icons, and text. For the merchant information of different merchants, assignment can be differently performed to obtain different watch face theme characteristic parameters. After assignment, the merchant and/or a current service to be performed can be reflected from one or more parameter dimensions, allowing for intuitive understanding by the user.

[0070] S304: Receive the service execution request sent by the smartwatch in response to a confirmation operation performed on a temporary watch face theme interface serving as the confirmation interface, where the temporary watch face theme interface is generated based on the assigned watch face theme characteristic parameter, and is automatically switched from a default watch face theme interface for use.

[0071] In one or more embodiments of this specification, the default watch face theme interface can be a watch face theme interface used by the smartwatch when scanning the aggregation code displayed by the target merchant. After switching, the user can clearly perceive that the user is currently in a process of interacting with the service of the corresponding merchant, can more clearly identify which merchant the merchant is, thereby also helping promote the merchant. In this case, the user can maintain the smartwatch on the home screen without separately displaying a page overlaying the home screen, resulting in low resource consumption and no interference with other operations performed by the user during this time. The temporary watch face theme interface can be accompanied by a control for performing the confirmation operation,

such as a certain icon on the home screen, or even directly using a physical button or knob on the smartwatch as a confirmation button or knob.

[0072] S306: After the merchant service order advancing the service processing process to completion, send a watch face theme interface restoration instruction to the smartwatch, so that the smartwatch switches back from the temporary watch face theme interface to the default watch face theme interface.

[0073] Similarly, the smartwatch can alternatively automatically switch and restore the watch face theme interface, and the watch face theme interface is not necessarily instructed and triggered by the application server.

[0074] In one or more embodiments of this specification, the default watch face theme interface can be dynamically updated correspondingly based on the user's service interactions with different merchants on the smartwatch, to simultaneously represent the situations of these merchants (e.g., showing all merchants involved on a current day, using the day as a cycle). As such, the default watch face theme interface itself is equivalent to a cumulative poster of merchant interaction records, and can be continuously displayed on the smartwatch for a clear overview. This continuity does not consume additional processing resources and enhances a practical value of the watch face theme for the user.

[0075] In this case, in step S306, the default watch face theme interface that is switched back to can be an updated previous default watch face theme interface (adding the situation of the current merchant) based on the temporary watch face theme interface.

[0076] In addition, for the dynamically updated default watch face theme interface based on merchant information, the user can choose different modes for presentation as needed. For example, if the user is more concerned with information content, an "information mode" can be used for presentation for clearer reflection of the involved merchant information. If the user is more concerned with aesthetics, an "artistic mode" can be used for presentation. In this case, the merchant information can be blurred and artistically processed for presentation, which reduces intuitiveness but potentially enhances visual appeal.

[0077] In addition, even after the service is completed, the user can continue to use the temporary watch face theme interface as needed, without necessarily switching back.

[0078] According to the above-mentioned descriptions, and for ease of understanding, using the payment service application scenario as an example, one or more embodiments of this

specification provide a schematic flowchart illustrating an implementation of the method in FIG. 1 in this scenario, as shown in FIG. 4.

[0079] In this scenario, the above-mentioned application server is specifically a payment server (the application is specifically a payment application), the smartwatch is specifically a payment client, the application service provider is specifically a payment service provider, the service execution request is specifically a payment request, and the merchant service order is specifically a merchant transaction request.

[0080] For the solution in FIG. 4, advance preparation work is needed. This includes defining two SPIs used to query merchant information and create a merchant payment collection order in the aggregation code scenario, respectively. The two interfaces are implemented by the aggregation code service provider and serve as the first SPI and the second SPI described above. The entire procedure is also mainly divided based on the work involved with the two interfaces.

[0081] For querying the merchant information, main logic includes: The user opens the payment client on the smartwatch and scans the aggregation code displayed by the current merchant; then, the payment server is triggered to invoke the first SPI to pass information such as the code value of the aggregation code of the merchant to the aggregation code service provider; the aggregation code service provider queries, based on the information, the merchant information corresponding to the code, such as a merchant name, a merchant LOGO, a merchant ID, and a payment amount, and then returns the information to the payment client through the first SPI; and after receiving the information, the payment client renders and displays a confirmation interface corresponding to the merchant for the user to confirm and verify the merchant information, and perform confirmation after the merchant information is verified to be correct.

[0082] For the merchant payment collection order in the aggregation code scenario, main logic includes: the user clicks "Confirm" on the confirmation interface corresponding to the merchant; then the payment server is triggered to invoke the second SPI to pass information, such as a paying user and a payment amount, to the aggregation code service provider; the aggregation code service provider can place an order on the open platform of the payment service provider based on the information to obtain the merchant payment collection order; after order placement is completed, related information such as an order number is returned to the payment server through the second SPI; and after obtaining the order information, the payment server can initiate and complete payment.

[0083] Visually, one or more embodiments of this specification further provide a schematic diagram illustrating some watch face display content on the smartwatch involved in the implementation in FIG. 4 in an application scenario, as shown in FIG. 5.

[0084] FIG. 5 includes five sub-figures, in order from left to right and from top to bottom. The first sub-figure shows a prompt for the user to scan a two-dimensional code. Assume that the user scans an aggregation code displayed by a certain merchant, a confirmation interface is rendered and displayed locally, as shown in the second sub-figure. The confirmation interface is a simplified page designed for the smartwatch, and is not an H5 page in an H5 container. The confirmation interface includes, for example, the merchant's name "XX Grocery Store". The user can tap the "Pay" button, and then an interface in the third sub-figure is entered, and the interface shows that a payment amount can be manually specified when initiating payment. After confirming the payment amount, an interface in the fourth sub-figure is entered, and the user can further tap the "Confirm Payment" button to place an order and initiate payment. After a payment procedure is completed, an interface in the fifth sub-figure is entered for notifying the user of successful payment. The entire display process and content are clear and straightforward, consume fewer resources, are friendly to smartwatches, and facilitate user understanding and operation.

[0085] Through the solution in FIG. 4, based on the SPIs that are defined for querying the merchant information and creating the aggregation payment collection order and that are implemented by the aggregation code service provider, compatibility problems are alleviated, and stability and a success rate of aggregation code payment are effectively improved. Compared with the H5 container-based aggregation code payment solution, the solution has better stability and a higher payment success rate, thereby helping accessed aggregation code service providers and effectively retain more users, especially users of children's smartwatches.

[0086] The above-mentioned description is mainly from the perspective of the application server. Based on the same concept, one or more embodiments of this specification further provide another smartwatch aggregation code service processing method, which is described from the perspective of the smartwatch. FIG. 6 is a schematic flowchart of this other method.

[0087] The procedure in FIG. 6 includes the following steps.

[0088] S602: Send a service trigger instruction to an application server by scanning an aggregation code displayed by a target merchant, so that the application server sends a merchant information query request to an aggregation code service provider by invoking a first SPI based

on the service trigger instruction.

[0089] S604: Obtain information that is of the target merchant and that is queried by the aggregation code service provider, and send a service execution request to the application server based on the information of the target merchant, so that the application server sends a
5 corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, and receive a merchant service order and advance a service processing process to completion based on the merchant service order, where the merchant service order is generated and returned to the aggregation code service provider by the aggregation code service provider placing a corresponding order with an open
10 platform corresponding to the application server in response to the service order creation request, and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

[0090] References can be made to the above-mentioned description for understanding specific
15 content. Details are not described here again.

[0091] Based on the same idea, one or more embodiments of this specification further provide apparatuses and devices corresponding to the above-mentioned methods, as shown in FIG. 7 to FIG. 10. The apparatuses and the devices can correspondingly perform the above-mentioned methods and related optional solutions.

[0092] A trigger receiving module 702, configured to receive a service trigger instruction sent
20 by a smartwatch by scanning an aggregation code displayed by a target merchant;

a first invocation module 704, configured to send a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction, so that the smartwatch obtains information that is of the target merchant and that is
25 queried by the aggregation code service provider;

an execution receiving module 706, configured to receive a service execution request sent by the smartwatch based on the information of the target merchant;

a second invocation module 708, configured to send a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on
30 the service execution request, so that the aggregation code service provider places a corresponding order with an open platform corresponding to the application server, where the first SPI and the

second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider; and

a service advancing module 710, configured to receive a merchant service order generated and returned by the open platform in response to the placed order, and advance a service processing process to completion based on the merchant service order.

[0093] Optionally, the first invocation module 704 is configured to send a merchant information query request carrying a code value of the aggregation code and an identifier of the smartwatch to the aggregation code service provider, so that the aggregation code service provider queries the information of the target merchant based on the code value of the aggregation code, and returns the information of the target merchant to the smartwatch based on the identifier of the smartwatch.

[0094] Optionally, the first invocation module 704 is configured to, before the sending a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction, determine whether the smartwatch supports an H5 container based on the service trigger instruction, and determine that a determining result is no.

[0095] Optionally, the execution receiving module 706 is configured to receive a service execution request sent by the smartwatch in response to a confirmation operation performed on a confirmation interface, where

the confirmation interface does not belong to a page in an H5 container.

[0096] Optionally, the confirmation interface is an interface generated locally by the smartwatch based on the information of the target merchant, and is not a page obtained from the aggregation code service provider or the application server.

[0097] Optionally, the first SPI defines a watch face theme characteristic parameter, where the watch face theme characteristic parameter is used for the aggregation code service provider to assign values based on the queried merchant information, and the information of the target merchant is represented by the assigned watch face theme characteristic parameter, and is returned to the smartwatch through the first SPI.

[0098] The execution receiving module 706 is configured to receive the service execution request sent by the smartwatch in response to a confirmation operation performed on a temporary watch face theme interface serving as the confirmation interface, where the temporary watch face theme interface is generated based on the assigned watch face theme characteristic parameter, and

is automatically switched from a default watch face theme interface for use.

[0099] Optionally, the service advancing module 710 is configured to, after the merchant service order advancing the service processing process to completion, send a watch face theme interface restoration instruction to the smartwatch, so that the smartwatch switches back from the temporary watch face theme interface to the default watch face theme interface.

[0100] Optionally, the open platform is a platform provided by the application service provider for the aggregation code service provider or a merchant to place an order, and the open platform and the application server are different entities.

[0101] Optionally, the application server includes a payment server, the application service provider includes a payment service provider, the service execution request includes a payment request, and the merchant service order includes a merchant payment collection order.

[0102] FIG. 8 is a schematic structural diagram illustrating another smartwatch aggregation code service processing apparatus, according to one or more embodiments of this specification. The apparatus is applied to a smartwatch, and includes:

a scanning trigger module 802, configured to send a service trigger instruction to an application server by scanning an aggregation code displayed by a target merchant, so that the application server sends a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction; and

an execution request module 804, configured to obtain information that is of the target merchant and that is queried by the aggregation code service provider, and send a service execution request to the application server based on the information of the target merchant, so that the application server sends a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, and receive a merchant service order and advance a service processing process to completion based on the merchant service order, where the merchant service order is generated and returned to the aggregation code service provider by the aggregation code service provider placing a corresponding order with an open platform corresponding to the application server in response to the service order creation request, and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

[0103] FIG. 9 is a schematic structural diagram illustrating a smartwatch aggregation code

service processing device, according to one or more embodiments of this specification. The device is applied to a payment server, and includes:

at least one processor; and

a storage communicatively connected to the at least one processor, where

5 the storage stores instructions executable by the at least one processor, and the instructions are executed by the at least one processor to enable the at least one processor to perform the following operations:

receiving a service trigger instruction sent by a smartwatch by scanning an aggregation code displayed by a target merchant;

10 sending a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction, so that the smartwatch obtains information that is of the target merchant and that is queried by the aggregation code service provider;

receiving a service execution request sent by the smartwatch based on the information
15 of the target merchant;

sending a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, so that the aggregation code service provider places a corresponding order with an open platform corresponding to the application server, where the first SPI and the second SPI are interfaces that
20 are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider; and

receiving a merchant service order generated and returned by the open platform in response to the placed order, and advancing a service processing process to completion based on the merchant service order.

25 **[0104]** FIG. 10 is a schematic structural diagram illustrating another smartwatch aggregation code service processing device, according to one or more embodiments of this specification. The device is applied to a smartwatch, and includes:

at least one processor; and

a storage communicatively connected to the at least one processor, where

30 the storage stores instructions executable by the at least one processor, and the instructions are executed by the at least one processor to enable the at least one processor to

perform the following operations:

 sending a service trigger instruction to an application server by scanning an aggregation code displayed by a target merchant, so that the application server sends a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction; and

5 obtaining information that is of the target merchant and that is queried by the aggregation code service provider, and sending a service execution request to the application server based on the information of the target merchant, so that the application server sends a corresponding merchant service order creation request to the aggregation code service provider by
10 invoking a second SPI based on the service execution request, and receiving a merchant service order and advancing a service processing process to completion based on the merchant service order, where the merchant service order is generated and returned to the aggregation code service provider by the aggregation code service provider placing a corresponding order with an open platform corresponding to the application server in response to the service order creation request,
15 and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

[0105] Based on the same idea, one or more embodiments of this specification further provide a non-volatile computer storage medium, applied to a payment server. The medium stores
20 computer-executable instructions, and the computer-executable instructions are set to perform the following operations:

 receiving a service trigger instruction sent by a smartwatch by scanning an aggregation code displayed by a target merchant;

 sending a merchant information query request to an aggregation code service provider
25 by invoking a first SPI based on the service trigger instruction, so that the smartwatch obtains information that is of the target merchant and that is queried by the aggregation code service provider;

 receiving a service execution request sent by the smartwatch based on the information of the target merchant;

30 sending a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, so that the

aggregation code service provider places a corresponding order with an open platform corresponding to the application server, where the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider; and

5 receiving a merchant service order generated and returned by the open platform in response to the placed order, and advancing a service processing process to completion based on the merchant service order.

[0106] One or more embodiments of this specification further provide another non-volatile computer storage medium, applied to a smartwatch. The medium stores computer-executable instructions, and the computer-executable instructions are set to perform the following operations:

10 sending a service trigger instruction to an application server by scanning an aggregation code displayed by a target merchant, so that the application server sends a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction; and

15 obtaining information that is of the target merchant and that is queried by the aggregation code service provider, and sending a service execution request to the application server based on the information of the target merchant, so that the application server sends a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, and receiving a merchant service order and advancing a service processing process to completion based on the merchant service order, where the merchant service order is generated and returned to the aggregation code service provider by the aggregation code service provider placing a corresponding order with an open platform corresponding to the application server in response to the service order creation request, and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

[0107] In the 1990s, whether a technical improvement is a hardware improvement (for example, an improvement to a circuit structure, such as a diode, a transistor, or a switch) or a software improvement (an improvement to a method procedure) can be clearly distinguished.

30 However, as technologies develop, current improvements to many method procedures can be considered as direct improvements to hardware circuit structures. Almost all designers obtain the

corresponding hardware circuit structure by programming the improved method process into the hardware circuit. Therefore, a method procedure can be improved by using a hardware entity module. For example, a programmable logic device (PLD) (for example, a field programmable gate array (FPGA)) is such an integrated circuit, and a logical function of the PLD is determined by a user through device programming. The designer performs programming to "integrate" a digital system into a PLD without requesting a chip manufacturer to design and produce an application-specific integrated circuit chip. In addition, currently, instead of manually manufacturing an integrated circuit chip, such programming is mostly implemented by using "logic compiler" software. The "logic compiler" software is similar to a software compiler used to develop and write a program. Original code needs to be written in a particular programming language before being compiled. The language is referred to as a hardware description language (HDL). There are many HDLs such as the Advanced Boolean Expression Language (ABEL), the Altera Hardware Description Language (AHDL), Confluence, the Cornell University Programming Language (CUPL), HDCal, the Java Hardware Description Language (JHDL), Lava, Lola, MyHDL, PALASM, and the Ruby Hardware Description Language (RHDL). Currently, the Very-High-Speed Integrated Circuit Hardware Description Language (VHDL) and Verilog are most commonly used. It should also be clear to a person skilled in the art that a hardware circuit for implementing a logical method procedure can be easily obtained by performing slight logic programming on the method procedure by using the above-mentioned several hardware description languages and programming the method procedure into an integrated circuit.

[0108] A controller can be implemented by using any appropriate method. For example, the controller can be in a form of a microprocessor or a processor, a computer-readable medium that stores computer-readable program code (such as software or firmware) that can be executed by the microprocessor or the processor, a logic gate, a switch, an application-specific integrated circuit (ASIC), a programmable logic controller, or an embedded microcontroller. Examples of the controller include but are not limited to the following microcontrollers: ARC 625D, Atmel AT91SAM, Microchip PIC18F26K20, and Silicon Labs C8051F320. A storage controller can also be implemented as a part of control logic of a storage. A person skilled in the art also knows that in addition to implementing the controller by using only the computer-readable program code, logic programming can be performed on method steps to enable the controller to implement the same function in a form of a logic gate, a switch, an application-specific integrated circuit, a

programmable logic controller, an embedded microcontroller, etc. Therefore, the controller can be considered as a hardware component, and an apparatus that is configured to implement various functions and that is included in the controller can also be considered as a structure in the hardware component. Alternatively, the apparatus configured to implement various functions can even be
5 considered as both a software module implementing a method and a structure in the hardware component.

[0109] The system, apparatus, module, or unit described in the above-mentioned embodiments can be specifically implemented by a computer chip or an entity, or can be implemented by a product having a certain function. A typical implementation device is a computer. For example,
10 the computer can be, for example, a personal computer, a laptop computer, a cellular phone, a camera phone, a smartphone, a personal digital assistant, a media player, a navigation device, an email device, a game console, a tablet computer, or a wearable device, or a combination of any of these devices.

[0110] For ease of description, the above apparatus is described by dividing functions into
15 various units. Certainly, when this specification is implemented, functions of the units can be implemented in one or more pieces of software and/or hardware.

[0111] A person skilled in the art should understand that embodiments of this specification can be provided as methods, systems, or computer program products. Therefore, the embodiments of this specification can use a form of hardware only embodiments, software only embodiments, or
20 embodiments with a combination of software and hardware. In addition, a form of a computer program product that is implemented on one or more computer-usable storage media (including but not limited to a disk storage, a CD-ROM, an optical storage, etc.) that include computer-usable program code can be used in the embodiments of this specification.

[0112] This specification is described with reference to the flowcharts and/or block diagrams
25 of the method, the device (system), and the computer program product according to embodiments of this specification. It is worthwhile to understand that computer program instructions can be used to implement each procedure and/or each block in the flowcharts and/or the block diagrams and a combination of procedures and/or a combination of blocks in the flowcharts and/or the block diagrams. These computer program instructions can be provided for a general-purpose computer,
30 a special-purpose computer, an embedded processor, or a processor of another programmable data processing device to generate a machine, so that the instructions executed by the computer or the

processor of the another programmable data processing device generate an apparatus for implementing a specific function in one or more procedures in the flowcharts and/or in one or more blocks in the block diagrams.

5 [0113] These computer program instructions can alternatively be stored in a computer-readable storage that can instruct the computer or the another programmable data processing device to work in a specific way, so the instructions stored in the computer-readable storage generate an artifact that includes an instruction apparatus. The instruction apparatus implements a specific function in one or more procedures in the flowcharts and/or in one or more blocks in the block diagrams.

10 [0114] These computer program instructions can alternatively be loaded onto the computer or the another programmable data processing device, so that a series of operation steps are performed on the computer or the another programmable device, thereby generating computer-implemented processing. Therefore, the instructions executed on the computer or the another programmable device provide steps for implementing a specific function in one or more procedures in the flowcharts and/or in one or more blocks in the block diagrams.

[0115] In a typical configuration, a computing device includes one or more central processing units (CPU), input/output interfaces, network interfaces, and memories.

[0116] The memory can include a non-persistent storage, a random access memory (RAM), a non-volatile memory, and/or another form in a computer-readable medium, for example, a read-only memory (ROM) or a flash random access memory (flash RAM). The memory is an example of the computer-readable medium.

[0117] Computer-readable media, including permanent and non-permanent, removable and non-removable media, can be implemented by any method or technology for information storage. The information can be computer-readable instructions, a data structure, a program module, or other data. Examples of the computer storage medium include but are not limited to a phase-change random access memory (PRAM), a static random access memory (SRAM), a dynamic random access memory (DRAM), another type of random access memory (RAM), a read-only memory (ROM), an electrically erasable programmable read-only memory (EEPROM), a flash memory or another memory technology, a compact disc read-only memory (CD-ROM), a digital versatile disc (DVD) or another optical storage, a cassette magnetic tape, a magnetic tape/magnetic disk storage or another magnetic storage device, or any other non-transmission medium. The computer storage

medium can be configured to store information accessible to a computing device. As described in this specification, the computer-readable medium does not include computer-readable transitory media such as a modulated data signal and a carrier.

[0118] It should also be noted that the term "include", "include" or any other variant thereof is intended to cover non-exclusive inclusion, so that a process, method, commodity, or device that includes a series of elements includes not only those elements but also other elements that are not explicitly listed, or includes elements inherent in such a process, method, commodity, or device. Without more constraints, an element preceded by "includes a ..." does not preclude the existence of additional identical elements in the process, method, product, or device that includes the element.

[0119] This specification can be described in the general context of computer-executable instructions executed by a computer, for example, a program module. Generally, the program module includes a routine, a program, an object, a component, a data structure, etc. executing a specific task or implementing a specific abstract data type. This specification can alternatively be practiced in distributed computing environments. In the distributed computing environments, tasks are performed by remote processing devices connected through a communication network. In a distributed computing environment, the program module can be located in both local and remote computer storage media including storage devices.

[0120] The embodiments of this specification are described in a progressive manner. For same or similar parts in the embodiments, references can be made to each other. Each embodiment focuses on a difference from another embodiment. Particularly, the apparatus, device, and non-volatile computer storage medium embodiments are basically similar to the method embodiment, and therefore is briefly described. For a related part, refer to some descriptions in the method embodiment.

[0121] Specific embodiments of this specification are described above. Other embodiments fall within the scope of the appended claims. In some cases, the actions or steps described in the claims can be performed in an order different from that in the embodiments and desired results can still be achieved. In addition, the process depicted in the accompanying drawings does not necessarily require the shown particular execution order to achieve the desired results. In some implementations, multitasking and parallel processing are feasible or may be advantageous.

[0122] The above-mentioned content is merely one or more embodiments of this specification, and is not intended to limit this specification. A person skilled in the art knows that one or more

embodiments of this specification can have various modifications and changes. Any modification, equivalent replacement, improvement, etc. made within the spirit and principle of one or more embodiments of this specification shall fall within the scope of the claims of this specification.

CLAIMS

What is claimed is:

1. A smartwatch aggregation code service processing method, applied to an application server, wherein the method comprises:

5 receiving a service trigger instruction sent by a smartwatch by scanning an aggregation code displayed by a target merchant;

10 sending a merchant information query request to an aggregation code service provider by invoking a first service provider interface (SPI) based on the service trigger instruction, so that the smartwatch obtains information that is of the target merchant and that is queried by the aggregation code service provider;

receiving a service execution request sent by the smartwatch based on the information of the target merchant;

15 sending a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, so that the aggregation code service provider places a corresponding order with an open platform corresponding to the application server, wherein the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider; and

20 receiving a merchant service order generated and returned by the open platform in response to the placed order, and advancing a service processing process to completion based on the merchant service order.

25 2. The method according to claim 1, wherein the sending a merchant information query request to an aggregation code service provider, so that the smartwatch obtains information that is of the target merchant and that is queried by the aggregation code service provider specifically comprises:

30 sending a merchant information query request carrying a code value of the aggregation code and an identifier of the smartwatch to the aggregation code service provider, so that the aggregation code service provider queries the information of the target merchant based on the code value of the aggregation code, and returns the information of the target merchant to the smartwatch based on the identifier of the smartwatch.

3. The method according to claim 1, wherein before the sending a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction, the method further comprises:

5 determining whether the smartwatch supports an H5 container based on the service trigger instruction, and determining that a determining result is no.

4. The method according to claim 1, wherein the receiving a service execution request sent by the smartwatch based on the information of the target merchant specifically comprises:

receiving a service execution request sent by the smartwatch in response to a confirmation operation performed on a confirmation interface, wherein
10 the confirmation interface does not belong to a page in an H5 container.

5. The method according to claim 4, wherein the confirmation interface is an interface generated locally by the smartwatch based on the information of the target merchant, and is not a page obtained from the aggregation code service provider or the application server.

6. The method according to claim 4 or 5, wherein the first SPI defines a watch face theme
15 characteristic parameter, the watch face theme characteristic parameter is used for the aggregation code service provider to assign values based on the queried merchant information, and the information of the target merchant is represented by the assigned watch face theme characteristic parameter, and is returned to the smartwatch through the first SPI; and

the receiving a service execution request sent by the smartwatch based on the information of
20 the target merchant specifically comprises:

receiving the service execution request sent by the smartwatch in response to a confirmation operation performed on a temporary watch face theme interface serving as the confirmation interface, wherein the temporary watch face theme interface is generated based on the assigned watch face theme characteristic parameter, and is automatically switched from a default watch face
25 theme interface for use.

7. The method according to claim 6, wherein after the merchant service order advancing a service processing process to completion, the method further comprises:

sending a watch face theme interface restoration instruction to the smartwatch, so that the smartwatch switches back from the temporary watch face theme interface to the default watch face
30 theme interface.

8. The method according to claim 1, wherein the open platform is a platform provided by the

application service provider for the aggregation code service provider or a merchant to place an order, and the open platform and the application server are different entities.

9. The method according to claim 1, wherein the application server comprises a payment server, the application service provider comprises a payment service provider, the service
5 execution request comprises a payment request, and the merchant service order comprises a merchant payment collection order.

10. A smartwatch aggregation code service processing method, applied to a smartwatch, wherein the method comprises:

10 sending a service trigger instruction to an application server by scanning an aggregation code displayed by a target merchant, so that the application server sends a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction;

obtaining information that is of the target merchant and that is queried by the aggregation code service provider, and sending a service execution request to the application server based on
15 the information of the target merchant, so that the application server sends a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, and receiving a merchant service order and advancing a service processing process to completion based on the merchant service order, wherein the merchant service order is generated and returned to the aggregation code service provider by
20 the aggregation code service provider placing a corresponding order with an open platform corresponding to the application server in response to the service order creation request, and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

25 11. A smartwatch aggregation code service processing apparatus, applied to a payment server, wherein the apparatus comprises:

a trigger receiving module, configured to receive a service trigger instruction sent by a smartwatch by scanning an aggregation code displayed by a target merchant;

a first invocation module, configured to send a merchant information query request to an
30 aggregation code service provider by invoking a first SPI based on the service trigger instruction, so that the smartwatch obtains information that is of the target merchant and that is queried by the

aggregation code service provider;

an execution receiving module, configured to receive a service execution request sent by the smartwatch based on the information of the target merchant;

5 a second invocation module, configured to send a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, so that the aggregation code service provider places a corresponding order with an open platform corresponding to the application server, wherein the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider; and
10 a service advancing module, configured to receive a merchant service order generated and returned by the open platform in response to the placed order, and advance a service processing process to completion based on the merchant service order.

12. The apparatus according to claim 11, wherein the first invocation module is configured to send a merchant information query request carrying a code value of the aggregation code and an
15 identifier of the smartwatch to the aggregation code service provider, so that the aggregation code service provider queries the information of the target merchant based on the code value of the aggregation code, and returns the information of the target merchant to the smartwatch based on the identifier of the smartwatch.

13. The apparatus according to claim 11, wherein the first invocation module is configured
20 to, before the sending a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction, determine whether the smartwatch supports an H5 container based on the service trigger instruction, and determine that a determining result is no.

14. The apparatus according to claim 11, wherein the execution receiving module is
25 configured to receive a service execution request sent by the smartwatch in response to a confirmation operation performed on a confirmation interface, wherein

the confirmation interface does not belong to a page in an H5 container.

15. The apparatus according to claim 14, wherein the confirmation interface is an interface generated locally by the smartwatch based on the information of the target merchant, and is not a
30 page obtained from the aggregation code service provider or the application server.

16. The apparatus according to claim 14 or 15, wherein the first SPI defines a watch face

theme characteristic parameter, the watch face theme characteristic parameter is used for the aggregation code service provider to assign values based on the queried merchant information, and the information of the target merchant is represented by the assigned watch face theme characteristic parameter, and is returned to the smartwatch through the first SPI; and

5 the execution receiving module is configured to receive the service execution request sent by the smartwatch in response to a confirmation operation performed on a temporary watch face theme interface serving as the confirmation interface, wherein the temporary watch face theme interface is generated based on the assigned watch face theme characteristic parameter, and is automatically switched from a default watch face theme interface for use.

10 17. The apparatus according to claim 16, wherein the service advancing module is configured to, after the merchant service order advancing the service processing process to completion, send a watch face theme interface restoration instruction to the smartwatch, so that the smartwatch switches back from the temporary watch face theme interface to the default watch face theme interface.

15 18. The apparatus according to claim 11, wherein the open platform is a platform provided by the application service provider for the aggregation code service provider or a merchant to place an order, and the open platform and the application server are different entities.

19. The apparatus according to claim 11, wherein the application server comprises a payment server, the application service provider comprises a payment service provider, the service
20 execution request comprises a payment request, and the merchant service order comprises a merchant payment collection order.

20. A smartwatch aggregation code service processing apparatus, applied to a smartwatch, wherein the apparatus comprises:

25 a scanning trigger module, configured to send a service trigger instruction to an application server by scanning an aggregation code displayed by a target merchant, so that the application server sends a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction; and

30 an execution request module, configured to obtain information that is of the target merchant and that is queried by the aggregation code service provider, and send a service execution request to the application server based on the information of the target merchant, so that the application server sends a corresponding merchant service order creation request to the aggregation code

service provider by invoking a second SPI based on the service execution request, and receive a merchant service order and advance a service processing process to completion based on the merchant service order, wherein the merchant service order is generated and returned to the aggregation code service provider by the aggregation code service provider placing a
5 corresponding order with an open platform corresponding to the application server in response to the service order creation request, and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

21. A smartwatch aggregation code service processing device, applied to a payment server,
10 wherein the device comprises:

at least one processor; and

a storage communicatively connected to the at least one processor, wherein

the storage stores instructions executable by the at least one processor, and the instructions are executed by the at least one processor to enable the at least one processor to perform the
15 following operations:

receiving a service trigger instruction sent by a smartwatch by scanning an aggregation code displayed by a target merchant;

sending a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction, so that the smartwatch obtains
20 information that is of the target merchant and that is queried by the aggregation code service provider;

receiving a service execution request sent by the smartwatch based on the information of the target merchant;

sending a corresponding merchant service order creation request to the aggregation code
25 service provider by invoking a second SPI based on the service execution request, so that the aggregation code service provider places a corresponding order with an open platform corresponding to the application server, wherein the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider; and

30 receiving a merchant service order generated and returned by the open platform in response to the placed order, and advancing a service processing process to completion based on the

merchant service order.

22. A smartwatch aggregation code service processing device, applied to a smartwatch, wherein the device comprises:

at least one processor; and

5 a storage communicatively connected to the at least one processor, wherein

the storage stores instructions executable by the at least one processor, and the instructions are executed by the at least one processor to enable the at least one processor to perform the following operations:

10 sending a service trigger instruction to an application server by scanning an aggregation code displayed by a target merchant, so that the application server sends a merchant information query request to an aggregation code service provider by invoking a first SPI based on the service trigger instruction; and

obtaining information that is of the target merchant and that is queried by the aggregation code service provider, and sending a service execution request to the application server based on
15 the information of the target merchant, so that the application server sends a corresponding merchant service order creation request to the aggregation code service provider by invoking a second SPI based on the service execution request, and receiving a merchant service order and advancing a service processing process to completion based on the merchant service order, wherein the merchant service order is generated and returned to the aggregation code service provider by
20 the aggregation code service provider placing a corresponding order with an open platform corresponding to the application server in response to the service order creation request, and the first SPI and the second SPI are interfaces that are defined by an application service provider to which the application server belongs and that are implemented by the aggregation code service provider.

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