# INFORMATION PROCESSING METHOD AND APPARATUS, DEVICE, COMPUTER READABLE STORAGE MEDIUM, AND COMPUTER PROGRAM PRODUCT

## RELATED APPLICATION

**[0001]** Embodiments of this application claim priority to Chinese Patent Application No. 202410923003.6 filed on July 10, 2024, which is incorporated herein by reference in its entirety.

## FIELD OF THE TECHNOLOGY

**[0002]** The present disclosure relates to the field of computer technologies, and in particular, to an information processing method and apparatus, a device, a storage medium, and a program product.

## BACKGROUND OF THE DISCLOSURE

**[0003]** In social recommendation applications, an increasing quantity of products provide recommendations of related information for a user through the user's interactions, for example, information with which a user A interacts is recommended to a friend user B. In this case, the user B can view the information with which the user A interacts, and after the user B interacts with the information, other top recommended information on a social platform is recommended to the user B. It can be seen that, in this manner, interactions between the user B and the user A are relatively limited. If the user B wants to perform further interactions with the user A, the user B has to find the user A in an address book before the interactions, which leads to low efficiency of the interactions between the user A and the user B.

## SUMMARY

**[0004]** Embodiments of the present disclosure provide an information processing method and apparatus, an electronic device, a computer-readable storage medium, and a computer program product, which can improve depth and efficiency of social interactions.

**[0005]** Technical solutions of the embodiments of the present disclosure are implemented as follows:

**[0006]** An embodiment of the present disclosure provides an information processing method, including:

**[0007]** displaying, on an information page of a first object, first recommendation information with which a second object interacts, the second object having a social relationship with the first object; and

**[0008]** updating, in response to an interaction operation by the first object for the first recommendation information, the first recommendation information to second recommendation information associated with the second object.

**[0009]** An embodiment of the present disclosure provides an information processing apparatus, including:

**[0010]** an information display module, configured to display, on an information page of a first object, first recommendation information with which a second object interacts, the second object having a social relationship with the first object; and

**[0011]** an information updating module, configured to update, in response to an interaction operation by the first object for the first recommendation information, the first recommendation information to second recommendation information associated with the second object.

**[0012]** An embodiment of the present disclosure provides an electronic device, including:

**[0013]** a memory, configured to store computer-executable instructions or a computer program; and

**[0014]** a processor, configured to implement the information processing method provided in the embodiments of the present disclosure when executing the computer-executable instructions or the computer program stored in the memory.

**[0015]** An embodiment of the present disclosure provides a computer-readable storage medium, having computer-executable instructions or a computer program stored therein, the computer-executable instructions or the computer program, when executed by a processor, implementing the information processing method provided in the embodiments of the present disclosure.

**[0016]** An embodiment of the present disclosure provides a computer program product, including a computer program or computer-executable instructions, the computer program or the computer-executable instructions, when executed by a processor, implementing the information processing method provided in the embodiments of the present disclosure.

**[0017]** The embodiments of the present disclosure have the following beneficial effects:

**[0018]** In application of the embodiments of the present disclosure, when the first object executes the interaction operation for the first recommendation information with which the second object interacts, the first recommendation information displayed on the information page is immediately updated to the second recommendation information associated with the second object, improving timeliness of interaction feedback. In addition, as the first object has the social relationship with the second object, and after the first object engages in interactions, information recommended to the first object is the second recommendation information associated with the second object, it is easy for the first object and the second object to reach deeper understanding and perform deeper interactions with each other, which improves depth and efficiency of social interactions between the first object and the second object, thereby further improving an interaction initiative to enhance a retention rate of an information flow product.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0019]** FIG. 1 is a schematic architectural diagram of an information processing system 100 according to an embodiment of the present disclosure.

**[0020]** FIG. 2 is a schematic structural diagram of an electronic device 500 according to an embodiment of the present disclosure.

**[0021]** FIG. 3 is a schematic flowchart of an information processing method according to an embodiment of the present disclosure.

**[0022]** FIG. 4 is a schematic diagram 1 of updating of recommendation information according to an embodiment of the present disclosure.

**[0023]** FIG. 5 is a schematic diagram 2 of updating of recommendation information according to an embodiment of the present disclosure.

**[0024]** FIG. 6 is a schematic diagram 3 of updating of recommendation information according to an embodiment of the present disclosure.

**[0025]** FIG. 7 is a schematic diagram 4 of updating of recommendation information according to an embodiment of the present disclosure.

**[0026]** FIG. 8 is a schematic diagram 1 of display of an interaction identifier according to an embodiment of the present disclosure.

**[0027]** FIG. 9 is a schematic diagram 2 of display of an interaction identifier according to an embodiment of the present disclosure.

**[0028]** FIG. 10 is a schematic diagram of page jumping according to an embodiment of the present disclosure.

**[0029]** FIG. 11 is a schematic diagram of display of a recommendation reason identifier according to an embodiment of the present disclosure.

**[0030]** FIG. 12 is a schematic flowchart of an information processing method according to an embodiment of the present disclosure.

## DESCRIPTION OF EMBODIMENTS

**[0031]** To make the objectives, technical solutions, and advantages of the present disclosure clearer, the following describes the present disclosure in further detail with reference to the accompanying drawings. The described embodiments are not to be considered as a limitation to the present disclosure. All other embodiments obtained by a person of ordinary skill in the art without creative efforts shall fall within the protection scope of the present disclosure.

**[0032]** In embodiments of the present disclosure, relevant data such as user information is involved. When the embodiments of the present disclosure are applied to specific products or technologies, permission or consent of the user needs to be obtained, and collection, use, and processing of the relevant data need to comply with relevant laws, regulations, and standards.

**[0033]** In the following descriptions, related "some embodiments" describe a subset of all possible embodiments. However, the "some embodiments" may be the same subset or different subsets of all the possible embodiments, and may be combined with each other without conflict.

**[0034]** In the following descriptions, the involved term "first/second" is merely intended to distinguish similar objects but does not necessarily indicate a specific order of an object. It may be understood that "first/second" is interchangeable in terms of a specific order or sequence if permitted, so that the embodiments of the present disclosure described herein can be implemented in a sequence in addition to the sequence shown or described herein.

**[0035]** In the embodiments of the present disclosure, a term "module" or "unit" refers to a computer program with a preset function or a part of the computer program, and works with other related parts to implement a predetermined objective, and may implement an entire predetermined objective or a part of the predetermined objective by using software, hardware (such as a processing circuit or a memory), or combination of thereof. Similarly, a processor (or a plurality of processors or memories) may be used to implement one or more modules or units. In addition, each module or unit may be a part of an integrated module or a unit including functions of the module or the unit.

**[0036]** Unless otherwise defined, meanings of all technical and scientific terms used in this specification are the same as those usually understood by a person skilled in the art to which the present disclosure belongs. Terms used in this specification are merely intended to describe objectives of the embodiments of the present disclosure, but are not intended to limit the present disclosure.

**[0037]** Before the embodiments of the present disclosure are further described in detail, nouns and terms involved in the embodiments of the present disclosure are described. The nouns and terms provided in the embodiments of the present disclosure are applicable to the following explanations.

**[0038]** (1) A client is an application program running in a terminal and configured to provide various services, such as a video playback client, a game client, a music client, or an instant messaging client.

**[0039]** (2) "In response to" is used for representing a condition or status on which one or more operations to be performed depend. When the condition or status is satisfied, the one or more operations may be performed immediately or after a set delay. Unless specially stated, there is no limitation on a sequence in which a plurality of operations are performed.

**[0040]** Embodiments of the present disclosure provide an information processing method and apparatus, an electronic device, a computer-readable storage medium, and a computer program product, which can improve depth and efficiency of social interactions. The following describes the exemplary application of the electronic device provided in the embodiments of the present disclosure. The electronic device provided in the embodiments of the present disclosure may be implemented as various types of user terminals such as a notebook computer, a tablet computer, a desktop computer, a set-top box, a mobile device (for example, a mobile phone, a portable music player, a personal digital assistant (PDA), a dedicated messaging device, or a portable game device), a smartphone, a smart speaker, a smart watch, an intelligent television, an in-vehicle terminal, an augmented reality (AR) device, or a virtual reality (VR) device, or may be implemented as a server. The following describes the exemplary application of the device when being implemented as a terminal.

**[0041]** With reference to FIG. 1, FIG. 1 is a schematic architectural diagram of an information processing system 100 according to an embodiment of the present disclosure. To implement and support an exemplary application, terminals (a terminal 400-1 and a terminal 400-2 are shown as an example) are connected to a server 200 through a network 300. The network 300 may be a wide area network or a local area network, or a combination thereof.

**[0042]** In some embodiments, a client (that is, an application program for providing various services) is set on the terminal, such as a video playback client, a game client, a music client, an instant messaging client, or a short video client. The server 200 is a backend server corresponding to the client, which may be an independent physical server, or may be a server cluster or a distributed system formed by a plurality of physical servers, or may be a cloud server that provides basic cloud computing services such as a cloud service, a cloud database, cloud computing, a cloud function, cloud storage, a network service, cloud communication, a middleware service, a domain name service, a security service, a content delivery network (CDN), big data, and an artificial intelligence (AI) platform. The terminal and the server may be directly or indirectly connected in a wired or wireless communication manner. This is not limited in the embodiments of the present disclosure.

**[0043]** In actual application, the terminal 400-1 is a terminal on a side of a first object and the terminal 400-2 is a terminal on a side of a second object. The first object and the second object establish a social relationship based on the client set on the terminals. After the second object interacts with first recommendation information through an information page on the terminal 400-2, the first recommendation information with which the second object interacts is displayed on an information page on the terminal 400-1 on the side of the first object. In response to an interaction operation by the first object for the first recommendation information, an information update request is transmitted to the server 200. The server 200 obtains, based on the information update request, second recommendation information associated with the second object, and returns the obtained second recommendation information associated with the second object to the terminal 400-1, to update the first recommendation information displayed on the information page on the terminal 400-1 to the second recommendation information associated with the second object.

**[0044]** With reference to FIG. 2, FIG. 2 is a schematic structural diagram of an electronic device 500 according to an embodiment of the present disclosure. Using an example in which the electronic device 500 is the terminal in FIG. 1, the electronic device 500 shown in FIG. 2 includes: at least one processor 510, a memory 550, at least one network interface 520, and a user interface 530. All components in the electronic device 500 are coupled together by using a bus system 540. The bus system 540 is configured to implement connection and communication between the components. In addition to a data bus, the bus system 540 further includes a power bus, a control bus, and a state signal bus. However, for ease of clear description, all types of buses are marked as the bus system 540 in FIG. 2.

**[0045]** The processor 510 may be an integrated circuit chip having a signal processing capability, for example, a general purpose processor, a digital signal processor (DSP), or another programmable logic device (PLD), discrete gate, transistor logical device, or discrete hardware component. The general purpose processor may be a microprocessor, any conventional processor, or the like.

**[0046]** The memory 550 includes a volatile memory or a non-volatile memory, or may include both a volatile memory and a non-volatile memory. The non-volatile memory may be a read only memory (ROM), and the volatile memory may be a random access memory (RAM). The memory 550 described in this embodiment of the present disclosure intends to include any other suitable type of memories. In some embodiments, the memory 550 includes one or more storage devices away from the processor 510 in a physical position.

**[0047]** In some embodiments, the memory 550 can store data to support various operations. Examples of the data include a program, a module, and a data structure, or a subset or a superset thereof, which are described below by using examples.

**[0048]** An operating system 551 includes a system program configured to process various basic system services and execute a hardware-related task, such as a framework layer, a core library layer, or a driver layer, and is configured to implement various basic services and process a hardware-based task. A network communication module 552 is configured to reach another electronic device through one or more (wired or wireless) network interfaces 520. Exemplary network interfaces 520 include: Bluetooth, wireless compatible authentication (Wi-Fi), a universal serial bus (USB), and the like.

**[0049]** In some embodiments, the information processing apparatus provided by the embodiments of the present disclosure may be implemented by using software. The information processing apparatus provided by the embodiments of the present disclosure may be provided as various software embodiments, including various forms of application programs, software, software modules, scripts, or code. FIG. 2 shows an information processing apparatus 555 stored in the memory 550. The information processing apparatus 555 may be software in a form of a program, a plug-in, or the like, and includes a series of modules, including an information display module 5551 and an information updating module 5552. These modules are logical modules, and may be combined or further divided in different manners based on a function to be implemented. The following describes a function of each module.

**[0050]** In some other embodiments, the apparatus provided in the embodiments of the application may be implemented by using hardware. For example, the apparatus provided in the

embodiments of the application may be a processor in a form of a hardware decoding processor, programmed to execute the information processing method provided in the embodiments of the application. For example, the processor in the form of the hardware decoding processor may be one or more application-specific integrated circuits (ASICs), DSPs, PLDs, complex programmable logic devices (CPLDs), field-programmable gate arrays (FPGAs), or other electronic components.

**[0051]** In some embodiments, the terminal or the server may implement the information processing method provided in the embodiments of the present disclosure by running various computer-executable instructions or computer programs. For example, computer-executable instructions may be microprogram-level commands, machine instructions, or software instructions. A computer program may be a native program or a software module in an operating system, or may be a native application (APP), that is, a program that needs to be installed in the operating system before running, such as an instant messaging APP or a live streaming APP, or may be a mini program that can be embedded in any APP, that is, a program that only needs to be downloaded to a browser environment before running. In conclusion, the foregoing computer-executable instructions may be any form of instructions, and the foregoing computer program may be any form of an application program, a module, or a plug-in.

**[0052]** As described above, the information processing method provided in the embodiments of the present disclosure may be implemented by various types of electronic devices. For example, the method may be independently executed by any one of the terminal and the server 200 in FIG. 1, or may be cooperatively executed by the terminal and the server 200 in FIG. 1. Next, descriptions are made by using an example in which the information processing method provided in the embodiments of the present disclosure is independently executed by the terminal in FIG. 1. With reference to FIG. 3, FIG. 3 is a schematic flowchart of an information processing method provided by an embodiment of the present disclosure, which is described with reference to operations shown in FIG. 3.

**[0053]** Operation 101: The terminal displays, on an information page of a first object, first recommendation information with which a second object interacts.

**[0054]** In actual application, the information page is a page, provided in a client, configured for displaying recommendation information, such as a friend's update, moments, a post, a forum, a video stream, or other information pages. With a sliding operation, a drag operation, or other operations for the information page, the recommendation information displayed on the information page changes synchronously. Therefore, a user may view more recommendation information by moving the information page through a related operation. The recommendation information

generally refers to media information recommended to the user. Presentation forms of the recommendation information include but are not limited to at least one of the following: a text, a picture, or a video.

**[0055]** After a login account of the first object is logged on to the client, recommendation information created and published by other objects or with which the other objects interact may be displayed on the information page displayed on the client, the other objects having a social relationship with the first object, for example, the first recommendation information with which the second object interacts is displayed, the second object having the social relationship with the first object. The having the social relationship means that the first object and the second object establish a mutual association relationship on the client. Such an association relationship is based on an interaction, following, or other forms of connections between the first object and the second object. For example, the first object and the second object having the social relationship may indicate that the first object and the second object are mutual friends on the client (both parties proactively add each other as friends or followed objects, namely, establishing a mutual following relationship). When one party (such as the second object) having the social relationship posts a new update (such as publishing a new message or interacting with the media information on the information page), the new update may be viewed on the information page of the other party (such as the first object). It works the other way as well. To be specific, when one party (such as the first object) having the social relationship posts a new update (such as publishing a new message or interacting with the media information on the information page), the new update of the first object may be viewed on the information page of the other party (such as the second object). In addition, the first object and the second object having the social relationship may also indicate a one-way following relationship, for example, the first object follows the second object, but the second object does not follow the first object. In this case, the first object may view an update and interaction content of the second object, but the second object does not necessarily see an update and interaction of the first object.

**[0056]** Interaction manners in which the second object and the first object engage in interactions include but are not limited to at least one of the following manners: giving a like, commenting, forwarding, and adding to favorites.

**[0057]** Operation 102: Update, in response to an interaction operation by the first object for the first recommendation information, the first recommendation information to second recommendation information associated with the second object.

**[0058]** In actual application, when the first object views the first recommendation information with which the second object interacts and that is displayed on the information page,

the interaction operation may be executed for the first recommendation information. When the first object executes the interaction operation for the first recommendation information, the terminal updates, in response to the interaction operation, the first recommendation information displayed on the information page to the second recommendation information associated with the second object. The second recommendation information associated with the second object may be recommendation information with which the second object directly interacts, or may be recommendation information with which the second object indirectly interacts. That the second object indirectly interacts with the recommendation information may be reflected through a case that a third object having the social relationship with the second object directly interacts with the recommendation information. The following describes various cases.

**[0059]** In some embodiments, the terminal may update the first recommendation information to the second recommendation information associated with the second object in the following manner: updating the first recommendation information to the second recommendation information with which the second object interacts.

**[0060]** In this case, for the first recommendation information with which the second object interacts and that is displayed on the information page of the first object, if the first object continues to execute the interaction operation for the first recommendation information, the first recommendation information displayed on the information page is updated to other media information (that is, the second recommendation information) with which the second object directly interacts.

**[0061]** For example, with reference to FIG. 4, FIG. 4 is a schematic diagram 1 of updating of recommendation information according to an embodiment of the present disclosure. Using an example in which the manner in which the second object (user A) interacts is giving a like (that is, the interaction operation is a like operation), first recommendation information 402 liked by the second object is displayed on an information page 401 of the first object. If the first object continues to execute the like operation for the first recommendation information 402, the terminal updates, in response to the like operation, the first recommendation information 402 displayed on the information page 401 to second recommendation information 403 liked by the second object.

**[0062]** If the first object continues to execute the like operation for the second recommendation information, the second recommendation information may be updated to other recommendation information liked by the second object. The first object may also continue to execute the like operation for the other recommendation information that is newly updated, to view all recommendation information liked by the second object, improving timeliness of interaction

feedback, so that it is easy for the first object to have a deep understanding of the second object, which improves depth and an interaction initiative of social interactions between the first object and the second object, thereby enhancing a retention rate of an information flow product (that is, the client).

**[0063]** In some embodiments, the terminal may update the first recommendation information to the second recommendation information with which the second object interacts in the following manner: updating the first recommendation information to second recommendation information with which the second object interacts and that is associated with information details of the first recommendation information.

**[0064]** The information details may be a subject or an involved topic of the recommendation information. Being associated with the information details means that subjects, topics, scenarios, or the like involved in the first recommendation information and the second recommendation information are associated. For example, when a similarity of the subjects (or the topics, or the scenarios) of the first recommendation information and the second recommendation information exceeds a similarity threshold, it is considered that the information details of the first recommendation information and the second recommendation information are associated.

**[0065]** For example, when the first recommendation information liked by the second object is the recommendation information of a scenic area A, the second recommendation information associated with the information details of the first recommendation information may be other recommendation information of the scenic area A (with the same scenarios), or may be the recommendation information of a scenic area B (with the same subjects and topics). If the first object also executes the like operation for the first recommendation information after viewing the first recommendation information (the recommendation information of the scenic area A) liked by the second object, the first recommendation information may be updated to the other recommendation information of the scenic area A once liked by the second object or the recommendation information of the scenic area B.

**[0066]** In the foregoing manner, in a case that the second object directly interacts with the second recommendation information, the information details of the second recommendation information are associated with the information details of the first recommendation information. In this way, in a case that the first object is interested in the first recommendation information, the second object once interacted with the recommendation information recommended to the first object and the recommendation information recommended to the first object is associated with the information details of the first recommendation information, which can improve pertinence and

accuracy of information recommendation especially when there is relatively much recommendation information with which the second object once interacted.

**[0067]** In some embodiments, the terminal may update the first recommendation information to the second recommendation information with which the second object interacts in the following manner: updating the first recommendation information to second recommendation information with which the second object interacts and that is published by a publisher of the first recommendation information.

**[0068]** In actual application, before updating the first recommendation information to the second recommendation information, the terminal may first determine the publisher of the first recommendation information, and obtain the second recommendation information published by the publisher and with which the second object interacts, to update the first recommendation information to the second recommendation information. For example, when the first recommendation information liked by the second object is published by a user A, after the first object executes the like operation for the first recommendation information, the second recommendation information pushed to the first object is media information that is also once liked by the second object and published by the user A.

**[0069]** In the foregoing manner, in a case that the first object is interested in the first recommendation information, the second object once interacted with the second recommendation information recommended to the first object and the second recommendation information recommended to the first object is the recommendation information that has the same publisher as the first recommendation information, which can improve the pertinence and the accuracy of the information recommendation especially when there is relatively much recommendation information with which the second object once interacted.

**[0070]** In some embodiments, the terminal may update the first recommendation information to the second recommendation information associated with the second object in the following manner: updating the first recommendation information to the second recommendation information with which the third object interacts, the third object having the social relationship associated with the second object and an interaction with the first recommendation information by the second object being triggered based on an interaction with the first recommendation information by the third object.

**[0071]** In actual application, the second recommendation information associated with the second object is not the media information with which the second object directly interacts, but the media information with which the third object having the social relationship with the second object

directly interacts, and the first recommendation information with which the second object interacts is triggered based on the interaction with the first recommendation information by the third object. For example, after the third object likes the first recommendation information, the first recommendation information liked by the third object is displayed on the information page on the side of the second object having the social relationship with the third object. If the second object also likes the first recommendation information, the first recommendation information liked by the second object is displayed on the information page on the side of the first object. If the first object also executes the like operation for the first recommendation information, other media information with which the third object interacts is recommended to the first object. In this way, the second object functions as an interaction bridge, and the first object can know more media information with which the third object interacts, which improves universality of interaction objects.

**[0072]** In other words, there is a direct social relationship (such as being friends) between the first object and the second object, and there is a direct social relationship (such as being friends) between the second object and the third object. If there is no direct social relationship (such as not being friends) between the first object and the third object, the first object is indirectly connected with the third object through the second object.

**[0073]** The manner is not only limited to a two-level social relationship (the first object, the second object, and the third object), but may also expand to a more complex multi-level relationship chain. For example, the third object has the social relationship with a fourth object. An interaction operation by the fourth object may also trigger a further update of the recommendation information, and media information for which the fourth object executes the interaction operation is recommended to the first object or the second object.

**[0074]** In the foregoing manner, not only can the recommendation information be provided based on the user's direct social relationship, but also the recommendation information can be updated through an indirect social relationship and even a more complex social relationship chain and an interaction triggering mechanism. The user can have access to interaction content of a broader social circle, which further expands a propagation scope and enhances propagation efficiency of information, and improves interaction universality between users, thereby enhancing an activity level and user stickiness of an entire social platform.

**[0075]** In some embodiments, the terminal may also display a social establishment entry for the third object after updating the first recommendation information to the second recommendation information with which the third object interacts. The terminal transmits, in response to a triggering operation for the social establishment entry, a social establishment invitation to the third object. The

terminal establishes, in response to a response operation by the third object for the social establishment invitation, a social relationship between the first object and the third object.

**[0076]** In actual application, the third object may establish the social relationship with the first object in advance, or may not establish the social relationship in advance. When the third object does not establish the social relationship with the first object yet, the terminal displays the second recommendation information with which the third object interacts on the information page on the side of the first object, and may also display the social establishment entry (a friend adding button, a friend adding prompt, or the like) for the third object on the information page simultaneously. The social establishment invitation (which is configured for inviting the third object to establish the social relationship with the first object) may be triggered through the social establishment entry and be transmitted to the third object. In this case, when the third object triggers the response operation (that is, the third object agrees to establish the social relationship with the first object) for the social establishment invitation, the direct social relationship between the first object and the third object is established.

**[0077]** For example, with reference to FIG. 5, FIG. 5 is a schematic diagram 2 of updating of recommendation information according to an embodiment of the present disclosure. Using an example in which the manner in which the second object (the user A) interacts is giving a like (that is, the interaction operation is the like operation), it is assumed that the first object already establishes the social relationship with the second object, the second object also already establishes the social relationship with the third object, but the first object does not establish the social relationship with the third object yet, and the third object executes the like operation for the first recommendation information. In this case, the first recommendation information liked by the third object is displayed on the information page on the side of the second object having the social relationship with the third object. If the second object also likes the first recommendation information, first recommendation information 502 liked by the second object is displayed on an information page 501 on the side of the first object. If the first object continues to execute the like operation for the first recommendation information 502, the terminal updates, in response to the like operation, the first recommendation information 502 displayed on the information page 501 to second recommendation information 503 liked by the third object (assumed to be a user D), and displays a social establishment entry (such as adding friends) 504. The first object may invite the third object to establish the social relationship through the social establishment entry 504, and may view more recommendation information associated with the third object after the first object establishes the social relationship with the third object.

**[0078]** In the foregoing manner, the second object is not only a transmitter of the recommendation information, but also becomes a bridge for establishing the social relationship between the first object and the third object. As a result, diversity of the interaction manners is significantly improved, and after the social relationship is established, the first object can know more media information with which the third object interacts, and the first object, the second object, and the third object can perform deep understanding of each other easily, thereby improving depth and an interaction initiative of social interactions among the first object, the second object, and the third object and further improving a retention rate of an information flow product.

**[0079]** In some embodiments, with recommendation of the second object as a social establishment bridge, after the first object establishes the social relationship with the third object, the terminal may also transmit interaction feedback information to the second object, to indicate that the first object already establishes the social relationship with the third object under a recommendation effect of the second object, thereby further improving the depth of an interaction between the first object and the second object.

**[0080]** The feedback information may include specific information content, such as "The first object and the third object already become friends under your recommendation!" or "The first object follows the third object. Thanks for your recommendation!". The feedback information may be transmitted to the second object through forms of a system message, a notification, or a chat interface, to ensure that the forms of the feedback information are clear and simplified, so that the user can quickly understand the information.

**[0081]** In the foregoing manner, through transmitting the interaction feedback information, the second object can clearly know a social bridge role the second object plays between the first object and the third object, thereby enhancing depth of interactions of the third object with the first object and the third object. Such a mechanism not only improves direct interactions between objects, but also further strengthens connectivity of an entire social network through the feedback information, and enhances social connections between users.

**[0082]** In some embodiments, the terminal may update the first recommendation information to the second recommendation information associated with the second object in the following manner: updating, in response to a case that there are a plurality of second objects, the first recommendation information to second recommendation information associated with a target object in the plurality of second objects, the target object including a second object satisfying at least one of the following conditions: an interaction level being higher than a level threshold; an interaction frequency with the first object reaching a frequency threshold; a social relationship

associated with the first object being a target relationship; a matching degree with the first object reaching a matching degree threshold; and interaction time for the first recommendation information falling within a target time period.

**[0083]** In actual application, when the plurality of second objects ("plurality of" refers to two or more, and the plurality of second objects all establish the social relationship with the first object) interact with the first recommendation information, for different second objects, recommendation priorities of second recommendation information associated with the second objects are different. The first recommendation information may be preferentially updated to second recommendation information associated with a target object with the highest recommendation priority based on the recommendation priorities of the second recommendation information associated with the second objects. In other words, the second recommendation information associated with the target object with the highest recommendation priority is preferentially recommended to the first object, to improve pertinence and accuracy of the information recommendation.

**[0084]** The recommendation priority relates to at least one of the following: the interaction level of the second object, the interaction frequency between the second object and the first object, a type of the social relationship between the second object and the first object, the matching degree between the second object and the first object, and the interaction time during which the second object interacts with the first recommendation information.

**[0085]** For example, the recommendation priority is positively correlated with the interaction level (which may be determined through registration duration, the interaction frequency, and the like of the second object on the client) of the second object. In other words, a higher interaction level of the second object indicates a higher recommendation priority of the second recommendation information associated with the second object, that is, the second recommendation information associated with the second object (that is, the target object) with the interaction level higher than the level threshold (which may be set based on an actual requirement) is preferentially recommended to the first object. For example, the second recommendation information associated with the second object (that is, the target object) with the highest interaction level or a specific interaction level is preferentially recommended to the first object.

**[0086]** The recommendation priority is positively correlated with the interaction frequency (which refers to a quantity of interaction times between the second object and the first object within a target time period) between the second object and the first object. In other words, a higher interaction frequency between the second object and the first object indicates a higher

recommendation priority of the second recommendation information associated with the second object, that is, the second recommendation information associated with the second object (that is, the target object) whose interaction frequency reaches the frequency threshold (which may be set based on an actual requirement) is preferentially recommended to the first object. For example, the second recommendation information associated with the second object (that is, the target object) with the highest interaction frequency or a specific interaction frequency is preferentially recommended to the first object.

**[0087]** The recommendation priority is correlated with the type of the social relationship between the second object and the first object, the types of the social relationship including, but are not limited to: a spousal relationship, a romantic relationship, a colleague relationship, a close female friend relationship, a teacher-student relationship, a classmate relationship, and the like. A corresponding recommendation priority may be set based on the type of the social relationship, and the second recommendation information associated with the second object (that is, the target object) whose social relationship with the first object is a target relationship (such as the spousal relationship) may be preferentially recommended to the first object.

**[0088]** The recommendation priority is positively correlated with the matching degree between the second object and the first object, where the matching degree between the second object and the first object may be determined based on object features (such as age, gender, education background, job, and hobby) of the first object and the second object. Generally, a higher matching degree between the second object and the first object indicates a higher recommendation priority of the second recommendation information associated with the second object, that is, the second recommendation information associated with the second object (that is, the target object) whose matching degree reaches the matching degree threshold (which may be set based on an actual requirement) is preferentially recommended to the first object. For example, the second recommendation information associated with the second object (that is, the target object) with the highest matching degree or a specific matching degree is preferentially recommended to the first object.

**[0089]** The recommendation priority is correlated with the interaction time during which the second object interacts with the first recommendation information. A corresponding recommendation priority may be set based on the interaction time, and the second recommendation information associated with the second object (that is, the target object) whose interaction time is the earliest, the latest, or falls within the target time period (that is, a specific time period) may be preferentially recommended to the first object.

**[0090]** In actual application, the target object (that is, the second object with the highest recommendation priority) may be determined with reference to a plurality of the foregoing factors. For example, second recommendation information associated with a second object whose social association with the first object is the close female friend relationship and interaction time for the first recommendation information falls within a period from 22:00 to 24:00 is recommended to the first object, further improving pertinence of the information recommendation.

**[0091]** In the foregoing manner, in the case that there are a plurality of second objects, the terminal intelligently recommends the second recommendation information associated with the target object with the highest recommendation priority to the first object, making the information recommendation more intelligent, improving pertinence and accuracy of the information recommendation, enhancing the depth of interactions between objects, and optimizing user experience.

**[0092]** In some embodiments, the terminal may update the first recommendation information to the second recommendation information associated with the second object in the following manners: displaying, in response to a case that there are a plurality of second objects, object selection controls corresponding to the second objects; and updating, in response to an object selection operation, the first recommendation information to second recommendation information associated with a second object corresponding to a selected object selection control.

**[0093]** In actual application, when the plurality of second objects (the plurality of second objects all establish the social relationship with the first object) interact with the first recommendation information, the object selection controls corresponding to the second objects may be provided. The object selection control may be an object identifier of the second object, such as an avatar or an account. The object selection operation may be triggered through the object selection control, and the first recommendation information is updated to the second recommendation information associated with the second object corresponding to the selected object selection control.

**[0094]** For example, with reference to FIG. 6, FIG. 6 is a schematic diagram 3 of updating of recommendation information according to an embodiment of the present disclosure. Assuming that a second object A, a second object B, and a second object C having the social relationship with the first object all like the first recommendation information, first recommendation information 601 and object identifiers (such as avatars) corresponding respectively to the second object A, the second object B, and the second object C are displayed on the information page of the first object, and the object identifiers are used as object selection controls. After the first object executes the like

operation for the first recommendation information 601, the object identifiers corresponding respectively to the second object A, the second object B, and the second object C are controlled to be in a selectable and operable state (that is, the object selection controls may be triggered). If the first object triggers an object identifier (an avatar) corresponding to the second object B, the terminal may receive the object selection operation, the object selection operation indicating that a selected second object is the second object B, and the terminal updates, in response to the object selection operation, the first recommendation information 601 to second recommendation information 602 associated with the second object B. In this case, the first object can select the second object with which the first object wants to interact or in which the first object is interested in a targeted manner, enhancing autonomy and an engagement degree of user interactions, improving depth and pertinence of the interactions, and improving pertinence and accuracy of the information recommendation.

**[0095]** In some embodiments, the terminal may update the first recommendation information to the second recommendation information associated with the second object in the following manner: updating, in response to a case that a plurality of pieces of second recommendation information are associated with the second object, the first recommendation information to target recommendation information in the plurality of pieces of second recommendation information, where the target recommendation information includes second recommendation information satisfying at least one of the following conditions: interaction popularity being higher than a popularity threshold; a quantity of interaction objects having the social relationship with the first object in all associated interaction objects exceeding a quantity threshold; and interaction time corresponding to the second object falling within a target time period.

**[0096]** In actual application, when a plurality of pieces of second recommendation information are associated with the second object, different second recommendation information corresponds to different recommendation priorities. Second recommendation information (that is, the target recommendation information) with the highest recommendation priority may be recommended to the first object based on the recommendation priorities of the second recommendation information, to improve pertinence and accuracy of the information recommendation. The recommendation priority is correlated with at least one of the following: the interaction popularity of the second recommendation information, the quantity of interaction objects having the social relationship with the first object in all associated interaction objects, and the interaction time during which the second object interacts with the second recommendation information.

**[0097]** For example, the recommendation priority is positively correlated with the interaction popularity (which may be determined through a quantity of interaction times (such as a quantity of likes, a quantity of comments, and a quantity of forwarding times) for which the interaction object interacts with the second recommendation information). In other words, higher interaction popularity of the second recommendation information indicates a higher recommendation priority of the second recommendation information, that is, the second recommendation information (that is, the target recommendation information) whose interaction popularity is higher than the popularity threshold (which may be set based on an actual requirement) is preferentially recommended to the first object. For example, the second recommendation information (that is, the target recommendation information) with the highest interaction popularity or specific interaction popularity is preferentially recommended to the first object. In this case, the first object can view the most popular recommendation information associated with the second object, improving pertinence and accuracy of the information recommendation.

**[0098]** An object interacting with the second recommendation information is the interaction object associated with the second recommendation information. Each piece of second recommendation information may be associated with a plurality of interaction objects. A larger quantity of interaction objects having the social relationship with the first object in all interaction objects associated with the second recommendation information indicate a higher recommendation priority of the second recommendation information. For example, when there are 10 interaction objects (of which five are friends of the first object) that like second recommendation information 1 and 10 interaction objects (of which one is a friend of the first object) that like second recommendation information 2, a recommendation priority of the second recommendation information 1 is higher than that of the second recommendation information 2, and the second recommendation information 1 is preferentially recommended to the first object. In this case, the first object can know interaction information of the plurality of interaction objects having the social relationship with the first object (that is, know the media information with which most friends interact and in which most friends are interested), improving the depth of an interaction.

**[0099]** The recommendation priority of the second recommendation information is correlated with the interaction time during which the second object interacts with the second recommendation information. A corresponding recommendation priority may be set based on the interaction time, and the second recommendation information with which the second object (that is, the target object) whose interaction time is the earliest, the latest, or falls within the target time period (that is, a specific time period) interacts may be preferentially recommended to the first object.

**[00100]** In actual application, the target recommendation information (that is, the second recommendation information with the highest recommendation priority) may be determined with reference to a plurality of the foregoing factors. For example, the second recommendation information whose interaction popularity is the highest and interaction time during which the second object interacts with the second recommendation information falls within a period from 22:00 to 24:00 is recommended to the first object, further improving pertinence of the information recommendation.

**[00101]** In some embodiments, the terminal may update the first recommendation information to the target recommendation information in the plurality of pieces of second recommendation information in the following manner: updating the first recommendation information to first target recommendation information in the plurality of pieces of second recommendation information, and automatically updating, when display of the first target recommendation information is completed, the first target recommendation information to second target recommendation information in the plurality of pieces of second recommendation information until a quantity of pieces of the second recommendation information that are updated and displayed reach a preset quantity.

**[00102]** In actual application, after the first object executes the interaction operation for the first recommendation information once, if there are a plurality of pieces of second recommendation information, the preset quantity of pieces of the second recommendation information may be automatically updated and displayed when the first recommendation information is updated to the second recommendation information. For example, the first recommendation information is updated to the first target recommendation information in the plurality of pieces of second recommendation information, the first target recommendation information is automatically updated to the second target recommendation information when the display of the first target recommendation information is completed, the second target recommendation information is automatically updated to third target recommendation information when display of the second target recommendation information is completed, and the other cases are analogous, until the quantity of pieces of the second recommendation information that are updated and displayed (that is, a sum of quantities of displayed target recommendation information, such as the first target recommendation information, the second target recommendation information, and the third target recommendation information) reaches the preset quantity (which may be set based on an actual requirement, for example, set to 4, 6, or 10).

**[00103]** A display manner of the target recommendation information may be displaying in full screen, displaying in card, displaying in scrolling list, or the like. In addition, an update frequency of the target recommendation information may also be dynamically adjusted based on a browsing speed or an interaction behavior of the first object. For example, if the first object quickly browses the recommendation information, the terminal may accelerate an update speed of the recommendation information, and if the first object has a relatively long dwell time on the target recommendation information, the terminal may appropriately lower the update speed of the recommendation information.

**[00104]** In this case, when the first object triggers the interaction operation once, the plurality of pieces of second recommendation information associated with the second object can be automatically updated and displayed. Such an update and display manner can provide continuous and diversified recommendation information for the first object, enhance user experience and consistency of information obtaining, facilitate the first object to have deeper interaction cognition of the second object, and improve the interaction depth and information recommendation efficiency.

**[00105]** In some embodiments, the terminal may update the first recommendation information to the second recommendation information associated with the second object in the following manners: displaying, in response to a case that there are a plurality of types of the second recommendation information associated with the second object, at least two types of category labels available for selection; and updating, in response to a category selection operation, the first recommendation information to second recommendation information corresponding to a selected category label.

**[00106]** With reference to FIG. 7, FIG. 7 is a schematic diagram 4 of updating of recommendation information according to an embodiment of the present disclosure. In actual application, when the first object triggers the interaction operation for first recommendation information 701, if there are a plurality of types of second recommendation information, category labels (which are configured for indicating the types corresponding to the second recommendation information) corresponding to the second recommendation information may be displayed, such as a picture, a text, a video, delicious food, a scenic area, beauty makeup, and an accessory. The category labels may float on the information page for selection by the user. When the first object selects the category label, the first recommendation information may be updated to second recommendation information corresponding to a selected category label. For example, if the first object selects an accessory label 702, the first recommendation information 701 is updated to

second recommendation information 703 associated with the second object and related to accessories.

**[00107]** In this case, through updating the recommendation information by introducing a category label selection mechanism, the terminal can significantly improve personalization of a recommendation system and enhance user experience. When the first object interacts with the first recommendation information, the terminal detects the plurality of types of second recommendation information, and then displays the category labels available for selection. Such a process is triggered based on selection of the user, ensuring timeliness and correlation of a recommendation update. When the user selects and views a specific category label in which the user is interested in a targeted manner, the terminal precisely updates the first recommendation information to the second recommendation information corresponding to the category label, which not only reduces time costs for user to screen massive information, but also further improves pertinence and accuracy of the information recommendation in an active selection manner by the user.

**[00108]** In some embodiments, the terminal may display the first recommendation information with which the second object interacts in the following manner: displaying the first recommendation information with which the second object interacts in a first interaction manner. Correspondingly, the terminal may update, in response to the interaction operation by the first object for the first recommendation information, the first recommendation information to the second recommendation information associated with the second object in the following manner: updating, in response to the interaction operation by the first object in a second interaction manner for the first recommendation information, the first recommendation information to second recommendation information associated with the second object and with which the second object interacts in the second interaction manner.

**[00109]** In actual application, the interaction manner in which the second object interacts with the first recommendation information may be the same as, or different from the interaction manner in which the first object interacts with the first recommendation information. For example, if the first object executes the like operation for the first recommendation information, the second object may also execute the like operation for the first recommendation information. In addition, the second object may alternatively execute other operations different from the like operation, such as a comment operation, a forwarding operation, and a favorite operation, for the first recommendation information. If the second recommendation information associated with the second object is the second recommendation information with which the second object interacts, the interaction manner in which the second object interacts with the second recommendation information may be the same

as the interaction manner in which the first object interacts with the first recommendation information. For example, following the foregoing example, if the first object executes the comment operation for the first recommendation information, and the second object executes the comment operation for the first recommendation information, the terminal may update, in response to the comment operation, the first recommendation information to second recommendation information commented by the second object. In this case, through displaying and updating the recommendation information by distinguishing between different interaction manners, the first object can view in a targeted manner, based on a specific interaction manner used by the first object to interact with the first recommendation information, second recommendation information with which the second object interacts in the specific interaction manner, which not only improves pertinence and accuracy of the information recommendation, but also enhances interactivity between the first object and the recommendation system, thereby further improving satisfaction and a degree of participation for the recommendation information by the user.

**[00110]** In actual application, the interaction manner in which the second object interacts with the second recommendation information may alternatively be different from the interaction manner in which the first object interacts with the first recommendation information. In other words, regardless of various interaction manners used by the first object to interact with the first recommendation information, the second recommendation information with which the second object interacts in the interaction manners can be viewed. For example, following the foregoing example, if the first object executes the like operation for the first recommendation information, and the second object executes the comment operation for the first recommendation information, the terminal may update, in response to the comment operation, the first recommendation information to second recommendation information with which the second object interacts (such as giving a like, commenting, forwarding, and adding to favorites). In this case, the first object can view the second recommendation information with which the second object interacts in the various interaction manners, which can improve universality and diversity of the information recommendation.

**[00111]** In some embodiments, after displaying the first recommendation information with which the second object interacts, the terminal may also display an interaction object identifier and an interaction manner identifier for the first recommendation information in a first association position of the first recommendation information, the interaction object identifier indicating the second object interacting with the first recommendation information, and the interaction manner identifier indicating a manner in which the second object interacts with the first recommendation information.

**[00112]** With reference to FIG. 8, FIG. 8 is a schematic diagram 1 of display of an interaction identifier according to an embodiment of the present disclosure. First recommendation information 801 with which the second object interacts is displayed on the information page of the first object, and an interaction object identifier (such as an avatar of the second object) 802 and an interaction manner identifier (such a heart-shaped identifier configured for representing a like interaction manner) 803 for the first recommendation information are displayed in the first association position of the first recommendation information.

**[00113]** In this case, the first object can know, through the interaction object identifier, which interaction objects interact with the first recommendation information and have the social relationship with the first object, and can know, through the interaction manner identifier, the interaction manners in which the interaction objects interact with the first recommendation information. Such a manner, based on a natural requirement for social interactions by the user, enhances credibility and correlation perception for the recommendation information by the user by providing a clear interaction source and manner, which strengthens the depth of an interaction between the first object and the second object.

**[00114]** In some embodiments, the terminal may display the interaction object identifier for the first recommendation information in the following manners: displaying, when there are a plurality of second objects, a target quantity of object identifiers, and using the target quantity of object identifiers as the interaction object identifiers for the first recommendation information, one object identifier corresponding to one second object; and displaying an interaction quantity identifier for the first recommendation information, the interaction quantity identifier indicating an overall quantity of the second objects interacting with the first recommendation information.

**[00115]** In actual application, when a plurality of second objects interact with the first recommendation information and have the social relationship with the first object, in view of limitation of a display area on the information page, only the target quantity of object identifiers can be displayed, and the interaction quantity identifier may be displayed to indicate the overall quantity of the second objects.

**[00116]** For example, with reference to FIG. 9, FIG. 9 is a schematic diagram 2 of display of an interaction identifier according to an embodiment of the present disclosure. Assuming that 30 second objects like the first recommendation information, only object identifiers (such as avatar 1 to avatar 5) of five second objects may be displayed to be used as interaction object identifiers 901, and an interaction quantity identifier (30) 902 may be displayed in an association position (such as an upper right corner) of the interaction manner, to indicate that there are 30 second objects that

interact with the first recommendation information with a like. The interaction quantity identifier changes with the quantity of interaction objects for the first recommendation information. If the first object also likes the first recommendation information, the interaction quantity identifier is updated from 30 to 31. Updating of the interaction quantity identifier may be completed instantaneously (FIG. 9 exemplarily shows the update of the interaction quantity identifier), and does not affect display of the second recommendation information.

**[00117]** The displayed target quantity of object identifiers are in essence the target quantity of object identifiers of the second objects. The target quantity of the second objects may be determined based on an interaction sequence of the first recommendation information. For example, the target quantity of object identifiers of the second objects preceding in the interaction sequence are used as the target quantity of object identifiers. In other words, the target quantity of object identifiers of the second objects that interact first are preferentially displayed. In addition, the target quantity of the second objects may alternatively be determined based on the type of the social relationship between the second object and the first object, the interaction frequency between the second object and the first object, the matching degree between the second object and the first object, and the like. A specific determining manner is similar with the foregoing determining manner of the target objects. Details are not described herein again.

**[00118]** In the foregoing manners, the first object can know the quantity of interaction objects that interact with the first recommendation information through the interaction object identifier and the interaction quantity identifier, so that the first object can decide whether to continue to interact with the first recommendation information. In addition, when a plurality of second objects interact with the first recommendation information, the terminal only displays the target quantity (such as top three or top five) of object identifiers, the object identifiers corresponding to the second objects that interact with the first recommendation information, and displays the interaction quantity identifier to clearly indicate the overall quantity of the second objects that interact with the first recommendation information. Such a manner, based on the user's attention preference for social interactions, can stimulate the user's curiosity and social recognition through displaying a limited quantity of interaction object identifiers, and also provide visual information of overall interaction popularity through the interaction quantity identifier, which not only improves perception for the recommendation information by the first object, but also helps strengthen the depth of an interaction between the first object and the second object, thereby enhancing an activity level and user stickiness of an entire social platform.

**[00119]** In some embodiments, the terminal jumps, in response to the triggering operation for the interaction object identifier, from the information page to a session page, the session page being configured for performing a session between the second object and the first object.

**[00120]** With reference to FIG. 10, FIG. 10 is a schematic diagram of page jumping according to an embodiment of the present disclosure. The first recommendation information with which the second object interacts is displayed on an information page 1001 of the first object, and an interaction object identifier (such as the avatar of the second object) 1002 for the first recommendation information is displayed in the first association position of the first recommendation information. When the first object triggers the interaction object identifier (that is, the avatar of the second object) 1002 of the second object, the terminal jumps, in response to the triggering operation, from the information page 1001 to a session page 1003. The first object and the second object may perform a further session interaction on the session page 1003. Compared with the related art in which a session can be performed only by finding the second object in an address book and then clicking/tapping the avatar of the second object, such an interaction extending manner shortens a session interaction path and improves session interaction efficiency.

**[00121]** In some embodiments, the terminal displays, after updating the first recommendation information to the second recommendation information associated with the second object, in a second association position of the second recommendation information, a recommendation reason identifier for the second recommendation information, the recommendation reason identifier being configured for indicating a recommendation reason for the second recommendation information.

**[00122]** In actual application, the recommendation reason may be determined based on the interaction manner in which the second object interacts with the first recommendation information, or may be determined based on the interaction manner in which the first object interacts with the first recommendation information. For example, assuming that the second object executes the like operation for the first recommendation information and the first object executes the comment operation for the first recommendation information, if the second recommendation information is other media information liked by the second object, which is recommended based on the like operation by the second object for the first recommendation information, the recommendation reason may be: being recommended based on like; if the second recommendation information is other media information commented by the first object, which is recommended based on the comment operation by the first object for the first recommendation information, the recommendation reason may be: being recommended based on comment.

**[00123]** With reference to FIG. 11, FIG. 11 is a schematic diagram of display of a recommendation reason identifier according to an embodiment of the present disclosure. For example, assuming that the second object executes the like operation for the first recommendation information and the first object also executes the like operation for the first recommendation information, after the first recommendation information is updated to the second recommendation information liked by the second object, a recommendation reason identifier (such as being recommended based on ❤, that is, being recommended based on like) 1101 configured for indicating the recommendation reason for the second recommendation information is displayed in the second association position (such as an area below) of the second recommendation information.

**[00124]** In the following manner, the terminal provides the user with a basis of the recommendation information through clearly displaying the recommendation reason identifier. The user has a certain understanding of the recommendation reason of the recommendation information, so that the user can quickly understands why the recommendation information is related to the user, providing interaction depth. Such a transparent display manner can stimulate sense of participation and interaction willingness of the user, help the user explore recommendation content more actively, and further improve effectiveness and user satisfaction of the entire recommendation system.

**[00125]** In some embodiments, if the first object executes the interaction operation for the first recommendation information, but the second recommendation information associated with the second object does not exist, the first recommendation information may be updated to third recommendation information associated with the first recommendation information.

**[00126]** In actual application, for the first recommendation information with which the second object interacts, if the second object also interacts with the first recommendation information, but the second recommendation information with which the second object interacts does not exist in an information library, in this case, the third recommendation information (such as information the same as or similar to the first recommendation information in terms of recommendation subject, topic, scenario or the like) associated with the first recommendation information is screened out for recommendation. This also satisfies, to a certain extent, an information access requirement of the first object for obtaining and knowing more media information related to the first recommendation information, and improves pertinence and accuracy of the information recommendation.

**[00127]** In the foregoing manner, when the first object executes the interaction operation for the first recommendation information with which the second object interacts, the first recommendation information displayed on the information page is immediately updated to the

second recommendation information associated with the second object, improving timeliness of interaction feedback. In addition, as the first object has the social relationship with the second object, and after the first object engages in interactions, information recommended to the first object is the second recommendation information associated with the second object, it is easy for the first object and the second object to reach deeper understanding of and perform interactions with each other, which improves depth and efficiency of social interactions between the first object and the second object, thereby further improving an interaction initiative to enhance a retention rate of an information flow product.

**[00128]** The following describes an exemplary application of this embodiment of the present disclosure in an actual application scenario. Using an example in which the interaction manner of the recommendation information is giving a like (that is, the interaction operation is the like operation), the information processing method provided in the present disclosure is further described below by using the terminals (a first terminal and a second terminal) and a server as an example.

**[00129]** The first terminal is the terminal on the side of the user A (that is, the foregoing second object) and the second terminal is the terminal on the side of a user B (that is, the foregoing first object). The user A has the social relationship with the user B. That the user A has the social relationship with the user B means that the user A and the user B are friends (such as becoming a follower of each other) on the client set on the terminal. When one party (such as the user A) in the social relationship has a new update (such as publishing a new message or interacting with the media information on the information page), the new update of the second object may be viewed on the information page of the other party (such an as the user B).

**[00130]** With reference to FIG. 12, FIG. 12 is a schematic flowchart of an information processing method according to an embodiment of the present disclosure. The method includes the following operations:

**[00131]** Operation 201: The first terminal transmits, in response to the like operation by the user A for the first recommendation information, a first information recommendation request to the server.

**[00132]** Operation 202: The server transmits, in response to the first information recommendation request, the first recommendation information to the second terminal.

**[00133]** The terminal transmits, in response to the first information recommendation request, updating of the like operation by the user A for the first recommendation information to other user

terminals having the social relationship with the second object, such as the second terminal on the side of the user B.

**[00134]** Operation 203: The second terminal displays the first recommendation information on the information page of the user B.

**[00135]** The information page further displays the interaction object identifier (which is configured for indicating an interaction object that gives a like, such as an avatar of the user A) of the first recommendation information and the interaction manner identifier (that is, the interaction manner in which the user A interacts with the first recommendation information, such as a heart-shaped symbol configured for representing a like manner).

**[00136]** Operation 204: The first terminal transmits, in response to the like operation by the user B for the first recommendation information, a second information recommendation request to the server.

**[00137]** If the user B wants to interact with the user A, the user B may continue to execute the like operation for the first recommendation information, that is, the user B also performs a follow-up like operation for the first recommendation information. The second terminal transmits, in response to the like operation, the second information recommendation request to the server.

**[00138]** Operation 205: The server transmits, in response to the second information recommendation request, the second recommendation information liked by the user A to the second terminal.

**[00139]** The server obtains, in response to the second information recommendation request, other content (that is, the second recommendation information) liked by the user A, sorts other information to be recommended and the second recommendation information liked by the user A, and preferentially recommends the second recommendation information liked by the user A to the second terminal on the side of the user B.

**[00140]** Operation 206: The second terminal updates the first recommendation information to the second recommendation information.

**[00141]** After the user B performs the follow-up like operation for the first recommendation information liked by the user A, the second recommendation information liked by the user A is displayed on the information page on the side of the user B, and the recommendation reason of the second recommendation information is displayed, for example, the recommendation reason may be: being recommended based on like. If the user B continues to perform the follow-up like operation for the second recommendation information as well, the server continues to recommend other

recommendation information liked by the user A. The foregoing process may be executed repeatedly. Each time the user B performs the follow-up like operation for the recommendation information liked by the user A, a piece of recommendation information is recommended until there is no content that is liked by the user A and is not read by the user B on the server.

**[00142]** When a piece of recommendation information is liked by more than one user having the social relationship, the server may also continue to recommend other recommendation information liked by other users when the user performs the follow-up like operation for the recommendation information. For example, for the foregoing first recommendation information, in addition to the user A, a user C having the social relationship with the user B also likes the first recommendation information. As a result, after the user B likes the first recommendation information, the server may recommend other recommendation information liked by the user C to the user B.

**[00143]** In the foregoing manner, after the user B performs the follow-up like operation for the first recommendation information liked by the user A, the second recommendation information liked by the user A is immediately recommended to the user B, improving timeliness of interaction feedback. In addition, as the user A has the social relationship with the user B, and as after the user B performs the follow-up like operation, information recommended to the user B is the second recommendation information liked by the user A, it is easy for the user B and the user A to reach deeper understanding of and perform interactions with each other, which improves depth and efficiency of social interactions between the user A and the user B, thereby further improving an interaction initiative to enhance a retention rate of an information flow product. For example, an experiment has proved that after the information processing method provided in the embodiments of the present disclosure is applied to the information flow product, an average quantity of follow-up likes per user on an information flow platform has increased by 6.8%, an overall follow-up like rate has increased by 8.45%, an exposure share of social recommendation content has increased by 0.6%, and overall dwell duration of the information flow product has increased by 0.049%.

**[00144]** So far, the information processing method provided in the embodiments of the present disclosure has been described with reference to the exemplary applications and implementations of the electronic device provided in the embodiments of the present disclosure. The following continues to describe that modules in an information processing apparatus 555 provided in an embodiment of the present disclosure cooperate with each other to implement an information processing solution.

**[00145]** An information display module 5551 is configured to display, on an information page of a first object, first recommendation information with which a second object interacts, the second object having a social relationship with the first object. An information updating module 5552 is configured to update, in response to an interaction operation by the first object for the first recommendation information, the first recommendation information to second recommendation information associated with the second object.

**[00146]** In some embodiments, the information updating module is further configured to update the first recommendation information to second recommendation information with which the second object interacts.

**[00147]** In some embodiments, the information updating module is further configured to update the first recommendation information to second recommendation information with which the second object interacts and that is associated with information details of the first recommendation information.

**[00148]** In some embodiments, the information updating module is further configured to update the first recommendation information to second recommendation information with which the second object interacts and that is published by a publisher of the first recommendation information.

**[00149]** In some embodiments, the information updating module is further configured to update the first recommendation information to second recommendation information with which a third object interacts, the third object having the social relationship associated with the second object and an interaction with the first recommendation information by the second object being triggered based on an interaction with the first recommendation information by the third object.

**[00150]** In some embodiments, after the first recommendation information is updated to second recommendation information with which the third object interacts, the apparatus further includes: a social establishment invitation module, configured to: display a social establishment entry for the third object; transmit, in response to a triggering operation for the social establishment entry, the social establishment invitation to the third object; and establish, in response to a response operation by the third object for the social establishment invitation, the social relationship between the first object and the third object.

**[00151]** In some embodiments, after the social relationship between the first object and the third object is established, the method and apparatus further includes: a feedback transmitting module, configured to transmit interaction feedback information to the second object, the interaction feedback information being configured for providing the second object with feedback on

a case that the first object and the third object has established the social relationship under a recommendation effect of the second object.

**[00152]** In some embodiments, the information updating module is further configured to update, in response to a case that there are a plurality of second objects, the first recommendation information to second recommendation information associated with a target object in the plurality of second objects, the target object including a second object satisfying at least one of the following conditions: an interaction level being higher than a level threshold; an interaction frequency with the first object reaching a frequency threshold; a social relationship associated with the first object being a target relationship; a matching degree with the first object reaching a matching degree threshold; and interaction time for the first recommendation information falling within a target time period.

**[00153]** In some embodiments, the information updating module is further configured to: display, in response to a case that there are a plurality of second objects, object selection controls corresponding to the second objects; and update, in response to an object selection operation, the first recommendation information to second recommendation information associated with a second object corresponding to a selected object selection control.

**[00154]** In some embodiments, the information updating module is further configured to update, in response to a case that a plurality of pieces of second recommendation information are associated with the second object, the first recommendation information to target recommendation information in the plurality of pieces of second recommendation information, where the target recommendation information includes second recommendation information satisfying at least one of the following conditions: interaction popularity being higher than a popularity threshold; a quantity of interaction objects having the social relationship with the first object in all associated interaction objects exceeding a quantity threshold; and interaction time corresponding to the second object falling within a target time period.

**[00155]** In some embodiments, the information updating module is further configured to: update the first recommendation information to first target recommendation information in the plurality of pieces of second recommendation information, and automatically update, when display of the first target recommendation information is completed, the first target recommendation information to second target recommendation information in the plurality of pieces of second recommendation information until a quantity of pieces of the second recommendation information that are automatically updated and displayed reaches a preset quantity.

**[00156]** In some embodiments, the information updating module is further configured to display, in response to a case that there are a plurality of types of second recommendation information associated with the second object, at least two types of category labels available for selection; and display, in response to a category selection operation, second recommendation information corresponding to a selected category label.

**[00157]** In some embodiments, the information display module is further configured to display first recommendation information with which the second object interacts in a first interaction manner. Correspondingly, the information updating module is further configured to update, in response to an interaction operation by the first object in a second interaction manner for the first recommendation information, the first recommendation information to second recommendation information associated with the second object and with which the second object interacts in the second interaction manner.

**[00158]** In some embodiments, after the first recommendation information with which the second object interacts is displayed, the apparatus further includes: an identifier display module, configured to display an interaction object identifier and an interaction manner identifier for the first recommendation information in a first association position of the first recommendation information, the interaction object identifier indicating the second object interacting with the first recommendation information, and the interaction manner identifier indicating a manner in which the second object interacts with the first recommendation information.

**[00159]** In some embodiments, the identifier display module is further configured to display, when there are a plurality of second objects, a target quantity of object identifiers, and use the target quantity of object identifiers as the interaction object identifiers for the first recommendation information, one object identifier corresponding to one second object; and display an interaction quantity identifier for the first recommendation information, the interaction quantity identifier indicating an overall quantity of the second objects interacting with the first recommendation information.

**[00160]** In some embodiments, the apparatus further includes: a page jumping module, configured to jump, in response to the triggering operation for the interaction object identifier, from the information page to a session page, the session page being configured for performing a session between the second object and the first object.

**[00161]** In some embodiments, the identifier display module is further configured to display, in a second association position of the second recommendation information, a recommendation reason identifier for the second recommendation information, the recommendation reason identifier

being configured for indicating a recommendation reason for the second recommendation information.

**[00162]** In some embodiments, the information updating module is further configured to update, when the second recommendation information associated with the second object does not exist, the first recommendation information to third recommendation information associated with the first recommendation information.

**[00163]** An embodiment of the present disclosure provides a computer program product, where the computer program product includes a computer program or computer-executable instructions, the computer program or the computer-executable instructions being stored in a computer-readable storage medium. A processor of an electronic device reads the computer-executable instructions from the computer-readable storage medium, and executes the computer-executable instructions, to cause the electronic device to perform the foregoing information processing method provided in the embodiments of the present disclosure.

**[00164]** An embodiment of the present disclosure provides a computer-readable storage medium having computer-executable instructions or a computer program stored therein. When the computer-executable instructions or the computer program is executed by a processor, the processor is caused to execute the information processing method provided in the embodiments of the present disclosure, for example, the information processing method shown in FIG. 3.

**[00165]** In some embodiments, the computer-readable storage medium may be a memory such as an FRAM, a ROM, a PROM, an EPROM, an EEPROM, a flash memory, a magnetic memory, a compact disc, or a CD-ROM; or may be various devices including one of or any combination of the foregoing memories.

**[00166]** In some embodiments, the computer-executable instructions may be written in a form of a program, software, a software module, a script, or code and according to a programming language (including a compiled or interpreted language or a declarative or procedural language) in any form, and may be deployed in any form, including an independent program or a module, a component, a subroutine, or another unit suitable for use in a computing environment.

**[00167]** In an example, the computer-executable instructions may, but do not necessarily, correspond to a file in a file system, and may be stored in a part of a file that saves another program or other data, for example, be stored in one or more scripts in a hypertext markup language (HTML) file, stored in a file that is specially configured for a program in discussion, or stored in a plurality

of collaborative files (for example, be stored in files of one or modules, subprograms, or code parts).

**[00168]** In an example, the computer-executable instructions may be deployed to be executed on an electronic device, or deployed to be executed on a plurality of electronic devices at the same location, or deployed to be executed on a plurality of electronic devices that are distributed in a plurality of locations and interconnected by using a communication network.

**[00169]** The foregoing descriptions are merely embodiments of the present disclosure and are not intended to limit the protection scope of the present disclosure. Any modification, equivalent replacement, or improvement made without departing from the spirit and range of the present disclosure shall fall within the protection scope of the present disclosure.

CLAIMS

1. A method for information processing, executed by an electronic device, the method comprising:

displaying, on an information page of a first object, first recommendation information with which a second object interacts, the second object having a social relationship with the first object; and

updating, in response to an interaction operation by the first object for the first recommendation information, the first recommendation information to second recommendation information associated with the second object.

2. The method according to claim 1, wherein the updating the first recommendation information to second recommendation information associated with the second object comprises:

updating the first recommendation information to second recommendation information with which the second object interacts.

3. The method according to either of claims 1 and 2, wherein the updating the first recommendation information to second recommendation information with which the second object interacts comprises:

updating the first recommendation information to second recommendation information with which the second object interacts and that is associated with information details of the first recommendation information.

4. The method according to any one of claims 1 to 3, wherein the updating the first recommendation information to second recommendation information with which the second object interacts comprises:

updating the first recommendation information to second recommendation information with which the second object interacts and that is published by a publisher of the first recommendation information.

5. The method according to any one of claims 1 to 4, wherein the updating the first recommendation information to second recommendation information associated with the second object comprises:

updating the first recommendation information to second recommendation information with which a third object interacts,

the third object having a social relationship associated with the second object, and an

interaction with the first recommendation information by the second object being triggered based on an interaction with the first recommendation information by the third object.

6. The method according to any one of claims 1 to 5, wherein after the updating the first recommendation information to second recommendation information with which a third object interacts, the method further comprises:

displaying a social establishment entry for the third object;

transmitting, in response to a triggering operation for the social establishment entry, a social establishment invitation to the third object; and

establishing, in response to a response operation by the third object for the social establishment invitation, the social relationship between the first object and the third object.

7. The method according to any one of claims 1 to 6, wherein after the establishing the social relationship between the first object and the third object, the method further comprises:

transmitting interaction feedback information to the second object, the interaction feedback information being configured for providing the second object with feedback on a case that the first object and the third object have established the social relationship under a recommendation effect of the second object.

8. The method according to any one of claims 1 to 7, wherein the updating the first recommendation information to second recommendation information associated with the second object comprises:

updating, in response to a case that there are a plurality of second objects, the first recommendation information to second recommendation information associated with a target object in the plurality of second objects,

the target object comprising a second object satisfying at least one of the following conditions:

an interaction level being higher than a level threshold;

an interaction frequency with the first object reaching a frequency threshold;

a social relationship associated with the first object being a target relationship;

a matching degree with the first object reaching a matching degree threshold; and

interaction time for the first recommendation information falling within a target time period.

9. The method according to any one of claims 1 to 8, wherein the updating the first recommendation information to second recommendation information associated with the second

object comprises:

displaying, in response to a case that there are a plurality of second objects, object selection controls corresponding to the second objects; and

updating, in response to an object selection operation, the first recommendation information to second recommendation information associated with a second object corresponding to a selected object selection control.

10. The method according to any one of claims 1 to 9, wherein the updating the first recommendation information to second recommendation information associated with the second object comprises:

updating, in response to a case that there are a plurality of pieces of second recommendation information associated with the second objects, the first recommendation information to target recommendation information in the plurality of pieces of second recommendation information,

the target recommendation information comprising second recommendation information satisfying at least one of the following conditions:

interaction popularity being higher than a popularity threshold;

a quantity of interaction objects having the social relationship with the first object in all associated interaction objects exceeding a quantity threshold; and

interaction time corresponding to the second object falling within a target time period.

11. The method according to any one of claims 1 to 10, wherein the updating the first recommendation information to target recommendation information in the plurality of pieces of second recommendation information comprises:

updating the first recommendation information to first target recommendation information in the plurality of pieces of second recommendation information, and automatically updating, when display of the first target recommendation information is completed, the first target recommendation information to second target recommendation information in the plurality of pieces of second recommendation information until a quantity of pieces of second recommendation information that are automatically updated and displayed reaches a preset quantity.

12. The method according to any one of claims 1 to 11, wherein the updating the first recommendation information to second recommendation information associated with the second object comprises:

displaying, in response to a case that there are a plurality of types of second recommendation

information associated with the second object, at least two types of category labels available for selection; and

updating, in response to a category selection operation, the first recommendation information to second recommendation information corresponding to a selected category label.

13. The method according to any one of claims 1 to 12, wherein the displaying first recommendation information with which a second object interacts comprises:

displaying first recommendation information with which the second object interacts in a first interaction manner; and

the updating, in response to an interaction operation by the first object for the first recommendation information, the first recommendation information to second recommendation information associated with the second object comprises:

updating, in response to an interaction operation by the first object for the first recommendation information in a second interaction manner, the first recommendation information to second recommendation information associated with the second object and with which the second object interacts in the second interaction manner.

14. The method according to any one of claims 1 to 13, wherein after the displaying first recommendation information with which a second object interacts, the method further comprises:

displaying, in a first association position of the first recommendation information, an interaction object identifier and an interaction manner identifier for the first recommendation information,

the interaction object identifier indicating the second object interacting with the first recommendation information, and the interaction manner identifier indicating a manner in which the second object interacts with the first recommendation information.

15. The method according to any one of claims 1 to 14, wherein the displaying an interaction object identifier for the first recommendation information comprises:

displaying, when there are a plurality of second objects, a target quantity of object identifiers, and using the target quantity of object identifiers as the interaction object identifiers for the first recommendation information, one object identifier corresponding to one second object; and

the method further comprises:

displaying an interaction quantity identifier for the first recommendation information, the interaction quantity identifier indicating an overall quantity of the second objects interacting with

the first recommendation information.

16. The method according to any one of claims 1 to 15, the method further comprising:

jumping, in response to a triggering operation for the interaction object identifier, from the information page to a session page, the session page being configured for performing a session between the second object and the first object.

17. The method according to any one of claims 1 to 16, wherein after the updating the first recommendation information to second recommendation information associated with the second object, the method further comprises:

displaying, in a second association position of the second recommendation information, a recommendation reason identifier for the second recommendation information, the recommendation reason identifier being configured for indicating a recommendation reason for the second recommendation information.

18. The method according to any one of claims 1 to 17, the method further comprising:

updating, when the second recommendation information associated with the second object does not exist, the first recommendation information to third recommendation information associated with the first recommendation information.

19. An information processing apparatus, the apparatus comprising:

an information display module, configured to display, on an information page of a first object, first recommendation information with which a second object interacts, the second object having a social relationship with the first object; and

an information updating module, configured to update, in response to an interaction operation by the first object for the first recommendation information, the first recommendation information to second recommendation information associated with the second object.

20. An electronic device, comprising:

a memory, configured to store computer-executable instructions or a computer program; and

a processor, configured to implement the information processing method according to any one of claims 1 to 18 when executing the computer-executable instructions or the computer program stored in the memory.

21. A computer-readable storage medium, having computer-executable instructions or a computer program stored therein, the computer-executable instructions or the computer program,

when executed by a processor, implementing the information processing method according to any one of claims 1 to 18.

22. A computer program product, comprising a computer program or computer-executable instructions, the computer program or the computer-executable instructions, when executed by a processor, implementing the information processing method according to any one of claims 1 to 18.