

METHOD, APPARATUS, DEVICE, MEDIUM AND PRODUCT FOR PAGE INTERACTION

[0001] The present application claims priority to Chinese Patent Application No. 202411281795.8, filed on September 12, 2024, and entitled "METHOD, APPARATUS, DEVICE, MEDIUM AND PRODUCT FOR PAGE INTERACTION ", which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] Example embodiments of the present disclosure generally relate to the field of computers, and in particular, to a method, an apparatus, a device, and a computer-readable storage medium for page interaction.

BACKGROUND

[0003] With the rapid development of Internet technologies, various applications have become important tools in people's daily life. Different applications often have different functions, and a user may implement a specific service through a specific application having a specific function.

[0004] In order to integrate more functions and provide more content in an application, the application is usually associated with a plurality of pages to provide different content. In the case where a plurality of pages are associated, the application may provide a navigation display area to implement seeks between the pages based on navigation tabs in the navigation display area. The navigation display area may be located at the top, the bottom, or a side area of a page for presenting navigation tabs. The navigation display area plays a role of linking various pages in a website or an application.

SUMMARY

[0005] In a first aspect of the present disclosure, a method for page interaction is provided. The method includes: presenting a target interface element in association with a first navigation tab at a predetermined position of a navigation display area, where a plurality of navigation tabs of a navigation tab set are sequentially displayed in the navigation display area, and the target interface element indicates that the associated navigation tab is in a selected state; and in response to detecting a navigation switching indication from the first navigation tab to a second navigation tab and in response to at least one navigation tab of the navigation tab set in a predetermined ranking direction not being presented in the navigation display area, moving the second navigation tab to the predetermined position associated with the target interface element to replace the first navigation tab in the navigation display area while maintaining the target interface element to be presented at the predetermined position, and hiding the first navigation tab at least partially in the navigation display area.

[0006] In a second aspect of the present disclosure, an apparatus for page interaction is provided. The apparatus includes: an interface element presenting module configured to present a target interface element in association with a first navigation tab at a predetermined position of a navigation display area, where a plurality of navigation tabs of a navigation tab set are sequentially displayed in the navigation display area, and the target interface element indicates that the associated navigation tab is in a selected state; and a navigation tab processing module configured to: in response to detecting a navigation switching indication from the first navigation tab to a second

navigation tab and in response to at least one navigation tab of the navigation tab set in a predetermined ranking direction not being presented in the navigation display area, move the second navigation tab to the predetermined position associated with the target interface element to replace the first navigation tab in the navigation display area while maintaining the target interface element to be presented at the predetermined position, and hide the first navigation tab at least partially in the navigation display area.

[0007] In a third aspect of the present disclosure, an electronic device is provided. The device includes at least one processor; and at least one memory coupled to the at least one processor and storing instructions for execution by the at least one processor, the instructions, when executed by the at least one processor, causing the device to perform the method of the first aspect.

[0008] In a fourth aspect of the present disclosure, a computer-readable storage medium is provided. The computer-readable storage medium has computer-executable instructions stored thereon, the computer-executable instructions being executable by a processor to implement the method of the first aspect.

[0009] In a fifth aspect of the present disclosure, a computer program product is provided. The computer program product is tangibly stored in a computer storage medium and includes computer-executable instructions, the computer-executable instructions, when executed by a device, causing the device to perform the method of the first aspect.

[0010] It is understood that the content described in this Summary section is neither intended to define key or essential features of the embodiments of the present disclosure, nor is it intended to limit the scope of the present disclosure. Other features of the present disclosure will be readily understood through the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The above and other features, advantages and aspects of the embodiments of the present disclosure will become more apparent in combination with the drawings and with reference to the following detailed description. In the drawings, the same or similar reference symbols refer to the same or similar elements, where:

[0012] FIG. 1 shows a schematic diagram of an example environment in which the embodiments of the present disclosure may be implemented;

[0013] FIGS. 2A to 2E show schematic diagrams of example interfaces for page interaction according to some embodiments of the present disclosure;

[0014] FIGS. 3A to 3E show schematic diagrams of example interfaces for page interaction according to some other embodiments of the present disclosure;

[0015] FIG. 4 shows a flowchart of a process for page interaction according to some embodiments of the present disclosure;

[0016] FIG. 5 shows a schematic structural block diagram of an apparatus for page interaction according to some embodiments of the present disclosure; and

[0017] FIG. 6 shows a block diagram of an electronic device in which one or more embodiments of the present disclosure may be implemented.

DETAILED DESCRIPTION OF EMBODIMENTS

[0018] The embodiments of the present disclosure will be described in more detail below with reference to the

drawings. Although some embodiments of the present disclosure are shown in the drawings, it is understood that the present disclosure may be implemented in various forms and should not be construed as being limited to the embodiments set forth herein. Instead, these embodiments are provided for a more thorough and complete understanding of the present disclosure. It is understood that the drawings and embodiments of the present disclosure are only for illustrative purposes, and are not intended to limit the protection scope of the present disclosure.

[0019] In the description of the embodiments of the present disclosure, the term "include/comprise" and similar terms thereto should be understood as open-ended inclusions, that is, "include/comprise but not limited to". The term "based on" should be understood as "at least partially based on". The term "one embodiment" or "the embodiment" should be understood as "at least one embodiment". The term "some embodiments" should be understood as "at least some embodiments". Other explicit and implicit definitions may also be included below.

[0020] Herein, unless explicitly stated, performing a step "in response to A" does not mean that the step is performed immediately after "A", but may include one or more intermediate steps.

[0021] It is understood that the data involved in the technical solution (including but not limited to the data itself, acquisition or use of the data) should comply with requirements of corresponding laws, regulations and related provisions.

[0022] It is understood that before using the technical solution disclosed in the embodiments of the present disclosure, the user should be informed of the type, range of use, use scenarios, etc., of personal information involved in the present disclosure and the authorization of the user should be obtained in an appropriate manner in accordance with relevant laws and regulations.

[0023] For example, in response to receiving an active request from a user, prompt information is sent to the user to clearly prompt the user that the requested operation will require access to and use of the user's personal information, so that the user may independently choose whether to provide the personal information to software or hardware, such as an electronic device, an application, a server or a storage medium, that performs the operations of the technical solution of the present disclosure based on the prompt information.

[0024] As an optional but non-restrictive implementation, in response to receiving the active request from the user, the prompt information may be sent to the user in the form of, for example, a pop-up window, in which the prompt information may be presented in text. In addition, the pop-up window may also include a selection control for the user to choose whether to "agree" or "disagree" to provide the personal information to the electronic device.

[0025] It is understood that the above process of notifying and obtaining user authorization is only illustrative, and does not limit the implementation of the present disclosure. Other methods that satisfy the relevant laws and regulations may also be applied in the implementation of the present disclosure.

[0026] FIG. 1 shows a schematic diagram of an example environment 100 in which the embodiments of the present disclosure may be implemented. In this example environment 100, an application 120 is installed on a terminal device 110. A user 140 may interact with the application 120 via the terminal device 110 and/or an attachment device of the terminal device 110. The application 120 may be a content acquisition application (e.g., a video online acquisition application), an online shopping application, or any other appropriate application.

[0027] In the environment 100 of FIG. 1, if the application 120 is in an active state, the terminal device 110 may

present a page 150 of the application 120. The page 150 may include various types of pages that may be provided by the application 120, such as a content presentation page, a content creation page, a content posting page, a message page, a personal homepage, and so on. The application 120 may provide a content viewing function to view various types of content posted in the application 120. Via a corresponding page, the application 120 may provide the user 140 with online content, such as media content. Via an appropriate method, such as clicking or selecting a page element, the application 120 may also provide the user 140 with switching between a plurality of pages for presenting content. The application 120 may also have a posting function, allowing the user 140 to post the created media content. As used herein, "media content" includes one or more types of content, such as images, image sets, videos, animated images, audio, text, and so on.

[0028] In some embodiments, the terminal device 110 communicates with a server 130 to implement provision of services of the application 120. The terminal device 110 may be any type of mobile terminal, fixed terminal, or portable terminal, including a mobile phone, a desktop computer, a laptop computer, a notebook computer, a netbook computer, a tablet computer, a media computer, a multimedia tablet, a personal communication system (PCS) device, a personal navigation device, a personal digital assistant (PDA), an audio/video player, a digital camera/video camera, a positioning device, a television receiver, a radio broadcast receiver, an e-book device, a gaming device, or any combination of the foregoing, including fittings and peripherals of these devices or any combination thereof. In some embodiments, the terminal device 110 may also support any type of user-specific interface (such as "wearable" circuitry, etc.). The server 130 may be various types of computing systems/servers that may provide computing power, including but not limited to mainframes, edge computing nodes, computing devices in cloud environments, and so on.

[0029] It is understood that the structure and functions of various elements in the environment 100 are described only for the purpose of illustration, without suggesting any limitation to the scope of the present disclosure.

[0030] Generally, a plurality of types of content may be provided in an application, and different pages may be used to present the content. For example, navigation tabs associated with the pages may be provided, so that a user may seek to a page to be viewed by selecting a navigation tab. Generally, the navigation tabs may be integrated in a navigation display area of the application. There may be a plurality of navigation tabs in the navigation display area for page switching. In addition, the navigation display area may be presented in a floating manner in the page of the application, so as to avoid the page content from affecting the use of the navigation display area.

[0031] Generally, if a navigation tab is in a selected state, the selection of the navigation tab is indicated by displaying a selection bar or the like. At present, in most cases, the selection bar for indicating the selected state is presented in the center of the navigation display area. Accordingly, if the user switches the navigation tabs left and right, the leftmost or rightmost navigation tab in the navigation display area is hidden. For example, if the terminal device detects that the user switches the navigation tabs left and right, it judges a relationship between a position of a target navigation tab to which the user wants to switch and a navigation tab in an intermediate position in the navigation display area. If the position of the target navigation tab is on the left side of the navigation tab in the intermediate position, all the navigation tabs in the navigation display area are moved to the right, and the rightmost navigation tab is hidden, instead of hiding the previously selected navigation tab. However, in this way, only when the user switches to a navigation tab in a position left of center in the navigation

display area, the logic of fixedly displaying the selected navigation tab in the center of the navigation display area is triggered, causing the trailing navigation tab to be displayed later, which has a great impact on the display of the navigation tab ranked in the rear.

[0032] In view of this, according to the embodiments of the present disclosure, an improved solution for page interaction is proposed. The solution includes presenting a target interface element in association with a first navigation tab at a predetermined position of a navigation display area, where a plurality of navigation tabs of a navigation tab set are sequentially displayed in the navigation display area, and the target interface element indicates that the associated navigation tab is in a selected state. Then, if a navigation switching indication from the first navigation tab to a second navigation tab is detected and at least one navigation tab of the navigation tab set in a predetermined ranking direction is not presented in the navigation display area, the second navigation tab is moved to the predetermined position associated with the target interface element to replace the first navigation tab in the navigation display area while maintaining the target interface element to be presented at the predetermined position, and the first navigation tab is at least partially hidden in the navigation display area. The second navigation tab is a tab ranked after the first navigation tab in the predetermined ranking direction in the navigation tab set.

[0033] Therefore, with the present disclosure, the display space of the navigation tab in the leading rank may be reduced, and the display of the navigation tab in the trailing rank may be improved, thereby helping to improve the page browsing efficiency and user experience. Accordingly, the present disclosure also facilitates the user to switch the navigation tab.

[0034] Some example embodiments of the present disclosure will be described below with continued reference to the drawings. It is understood that the pages shown in the drawings are only examples, and various page designs may actually exist. Each graphic element in the page may have different arrangements and different visual representations, one or more of which may be omitted or replaced, and there may also be one or more other elements. The embodiments of the present disclosure are not limited in this regard. In addition, in the following, the example embodiments will be mainly described with respect to the terminal device 110. It is understood that the actions described with respect to the terminal device 110 may be performed by the application 120 on the terminal device 110, or may be performed by the application 120 in cooperation with its server (e.g., the server 130).

[0035] In the embodiments of the present disclosure, when providing the page 150 for the user, the terminal device 110 may present one or more navigation tabs in a certain rank of the arrangement in a navigation display area of the page 150. Generally, the number of navigation tabs presented in the navigation display area may be preset based on the space occupied by the navigation tabs and the total space provided by the navigation display area, so as to avoid presenting too many navigation tabs at the same time, resulting in the navigation tabs being too small and inconvenient for the user to use.

[0036] For example, in the case where the navigation tabs are arranged horizontally, the rank of arrangement may be determined based on a certain arrangement logic, for example, the navigation tabs are arranged in sequence from left to right or from right to left. For example, the navigation tabs in the navigation display area in FIGS. 2A to 2E and FIGS. 3A to 3E are arranged in sequence from right to left as follows: a "recommend" navigation tab, a "mall" navigation tab, a "follow" navigation tab, ..., a "hotspot" navigation tab, where the

"recommend" navigation tab is ranked first, and the "hotspot" navigation tab is ranked last. For ease of understanding, the following description will be made with reference to this sequence, but this is only illustrative and the present disclosure is not limited thereto. It is understood that the above rank of arrangement and the arrangement logic based on are only shown as examples, and are not intended to be limited in any way. For example, the above rank of arrangement may also be from right to left, or in a vertical direction from top to bottom or from bottom to top, and so on. As such, the navigation tabs are prevented from being presented in a messy manner.

[0037] In addition, the page may also include a plurality of navigation display areas, and one or more navigation tabs may be arranged in different navigation display areas. In some embodiments, the page may include a top navigation display area and a bottom navigation display area. Alternatively or additionally, the page may also include a side navigation display area, such as a left navigation display area and/or a right navigation display area.

[0038] In some embodiments, the terminal device 110 presents a target interface element in association with a first navigation tab at a predetermined position of a navigation display area. In some examples, in a case where a page corresponding to the first navigation tab is in the active state, the terminal device 110 may present the target interface element (which may also be referred to as a selection bar) in association with the first navigation tab at a predetermined position of the navigation display area (for example, the rightmost side of the top navigation display area). In some embodiments, a plurality of navigation tabs of a navigation tab set are sequentially displayed in the navigation display area.

[0039] In some embodiments, the predetermined position at which the target interface element is presented is configured at a head position or a tail position along a movable direction of the navigation display area. If the movable direction of the navigation display area is a left-right direction, the head position or the tail position is the rightmost position or the leftmost position. If the movable direction of the navigation display area is an up-down direction, the head position or the tail position is the topmost position or the bottommost position.

[0040] In some embodiments, the target interface element indicates that the associated navigation tab is in the selected state. It is understood that in a case where the target interface element (which may also be referred to as a selection bar) is presented in the top navigation display area in association with the first navigation tab, it indicates that the first navigation tab is in the selected state. In some examples, a page corresponding to the navigation tab in the selected state is determined to be an active page, which may be presented by the application to the user.

[0041] Generally, after detecting that the application 120 is launched, the terminal device 110 may set a default navigation tab to the selected state, so as to present a page corresponding to the default navigation tab to the user. Generally, the default selected navigation tab is a navigation tab ranked first in the navigation tab set.

[0042] In some embodiments, if a switch from the first navigation tab to a subsequent second navigation tab of the navigation tab set is detected and at least one navigation tab of the navigation tab set in a predetermined ranking direction is not presented in the navigation display area, the terminal device 110 moves the second navigation tab to the predetermined position associated with the target interface element to replace the first navigation tab in the navigation display area while maintaining the target interface element to be presented at the predetermined position. The second navigation tab is a tab ranked after the first navigation tab in the

predetermined ranking direction in the navigation tab set. Accordingly, the terminal device 110 at least partially hides the first navigation tab in the navigation display area. The processing of the navigation tab by the terminal device 110 in this case will be described in detail below.

[0043] In some embodiments, whether at least one navigation tab of the navigation tab set in the predetermined ranking direction is not presented in the navigation display area. For example, the user expects to switch to a trailing navigation tab, and assuming that the navigation tabs are in a right-to-left ranking direction, the user expects to switch to a certain trailing navigation tab.

[0044] In some examples, the navigation tabs of the navigation tab set are ranked according to a predetermined ranking rule and respond to the user's sequential navigation switching indications in a predetermined ranking direction. For example, if the user's navigation switching indication corresponds to switching to the next navigation tab, the terminal device 110 determines the next navigation tab ranked after the currently selected navigation tab in the predetermined ranking direction. If the user's navigation switching indication corresponds to switching to the previous navigation tab, the previous navigation tab ranked before the currently selected navigation tab is determined in the predetermined ranking direction.

[0045] In some embodiments, the navigation switching indication may be based on a click operation from the user, and the second navigation tab is a navigation tab selected by the click operation. In some examples, if the user chooses to switch by clicking, the user may choose to switch to any navigation tab. Accordingly, the second navigation tab may be any navigation tab selected by the user clicking. The user clicking on the second navigation tab to switch to the second navigation tab is described below with reference to FIGS. 2A to 2D.

[0046] In some embodiments, the navigation switching indication may also be based on a swipe operation from the user, and the second navigation tab is determined based on a ranking position of the first navigation tab in the navigation tab set and a swipe direction of the swipe operation. In some examples, if it is sequential switching, for example, the user chooses to switch by swiping left and right or by sequentially clicking, the second navigation tab may be the next navigation tab from left to right. The user switching the navigation tab based on the swipe operation is described below with reference to FIGS. 3A to 3E.

[0047] For ease of understanding, the solution for page interaction according to the present disclosure will be described below with reference to FIGS. 2A to 2E and FIGS. 3A to 3E. FIGS. 2A to 2E show schematic diagrams of example interfaces 200A to 200E for page interaction according to some embodiments of the present disclosure. FIGS. 3A to 3E show schematic diagrams of example interfaces 300A to 300E for page interaction according to some embodiments of the present disclosure. The example interfaces 200A to 200E and 300A to 300E shown in FIGS. 2A to 2E and FIGS. 3A to 3E may be any page of the application 120. Although it is described that these embodiments may be implemented at the terminal device 110 in FIG. 1, in particular, at the application client of the terminal device 110, in other embodiments, the terminal device 110 may perform these operations with the assistance of the server 130.

[0048] In the embodiments of the present disclosure, the terminal device 110 may present a plurality of navigation tabs in a navigation display area in the page 150. As described above, the plurality of navigation tabs may be arranged and presented in a certain rank. For the convenience of description, the rank of arrangement used here and hereinafter is illustrated by horizontal arrangement from right to left. That is, the navigation tab on the rightmost side of the navigation display area may be considered as the front-most navigation tab, and the

navigation tab on the leftmost side of the navigation display area may be considered as the rear-most navigation tab. Accordingly, due to the limited size of the navigation display area, some navigation tabs may need to be hidden and cannot be displayed in the navigation display area.

[0049] As shown in the example interface 200A in FIG. 2A, the terminal device 110 presents a "recommend" navigation tab 214, a "mall" navigation tab 212, and so on in a navigation display area 210 (which may also be referred to as a top navigation display area). In some examples, the "mall" navigation tab 212 is used to navigate to a mall page for the user 140 to make purchases. After detecting that the application 120 is launched, the terminal device 110 may set the "recommend" navigation tab 214 associated with the target interface element 211 to the selected state, so as to present a page corresponding to the "recommend" navigation tab 214 to the user.

[0050] If the terminal device 110 detects that the user 140 clicks on the "mall" navigation tab 212, it receives a navigation switching indication that the user 140 expects to switch from the "recommend" navigation tab 214 to the "mall" navigation tab 212 in a right-to-left direction. Subsequently, based on the navigation switching indication of the user 140 to switch to the "mall" navigation tab 212, the terminal device 110 determines whether at least one navigation tab of the navigation tab set in the right-to-left direction is not presented in the navigation display area. The processing method for the navigation tab by the terminal device 110 will continue to be described below.

[0051] In some embodiments, if the terminal device 110 determines that at least one navigation tab in the predetermined ranking direction is not presented in the navigation display area, it moves the second navigation tab to the predetermined position associated with the target interface element to replace the first navigation tab in the navigation display area while maintaining the target interface element to be presented at the predetermined position. Accordingly, the terminal device 110 at least partially hides the first navigation tab in the navigation display area.

[0052] As shown in the example interfaces 200A to 200B in FIGS. 2A to 2B, it is assumed that the target interface element 211 is on the rightmost side, that is, the current page is a page corresponding to the "recommend" navigation tab 214 on the rightmost side. If the terminal device 110 detects that the user 140 clicks on the "mall" navigation tab 212 in the second position and determines that there is at least one navigation tab (for example, the navigation tab 213) not presented in the right-to-left direction, it moves the "mall" navigation tab 212 to the rightmost position where the target interface element 211 is located. That is, the "mall" navigation tab 212 is set to the selected state. At this time, at least partial information of the "recommend" navigation tab 214 is hidden.

[0053] As shown in the example interfaces 300A to 300B in FIGS. 3A to 3B, it is assumed that the target interface element 311 is on the rightmost side, that is, the current page is a page corresponding to the "recommend" navigation tab 314 on the rightmost side. If the terminal device 110 detects that the user 140 swipes right to switch to the "mall" navigation tab 322 and determines that there is at least one navigation tab (for example, the navigation tab 312) not presented in the right-to-left direction, it moves the "mall" navigation tab 322 to the rightmost position where the target interface element 311 is located. That is, the "mall" navigation tab 322 is set to the selected state. At this time, at least partial information of the "recommend" navigation tab 314 is hidden.

[0054] In some embodiments, if the terminal device 110 determines that one or more navigation tabs between the first navigation tab and the second navigation tab are presented in the navigation display area, it at least partially hides the presented first navigation tab and the one or more navigation tabs. In some examples, if the user selects the third or further navigation tab on the left, that is, if there are more navigation tabs between the first navigation tab and the second navigation tab to be currently switched to, the first navigation tab and other navigation tabs between the first navigation tab and the second navigation tab are hidden.

[0055] As shown in the example interfaces 200A and 200C in FIGS. 2A and 2C, it is assumed that the target interface element 211 is on the rightmost side, that is, the current page is a page corresponding to the "recommend" navigation tab 214 on the rightmost side. If the terminal device 110 detects that the user 140 clicks on the "follow" navigation tab 224 in the third position and determines that there is at least one navigation tab not presented in the right-to-left direction, it moves the "follow" navigation tab 224 to the rightmost position where the target interface element 211 is located. That is, the "mall" navigation tab 212 is set to the selected state. At this time, the terminal device 110 may hide at least partial information of the "recommend" navigation tab 214 and the "mall" navigation tab 212 in the second position.

[0056] Next, as shown in the example interfaces 300B to 300C in FIGS. 3B to 3C, it is assumed that the target interface element 311 is on the rightmost side, that is, the current page is a page corresponding to the "mall" navigation tab 322 on the rightmost side. If the terminal device 110 detects that the user 140 continues to swipe right to switch to the "follow" navigation tab 331 and determines that there is at least one navigation tab (for example, the navigation tab 312) not presented in the right-to-left direction, it moves the "follow" navigation tab 331 to the rightmost position where the target interface element 311 is located. That is, the "follow" navigation tab 331 is set to the selected state. At this time, at least partial information of the "recommend" navigation tab 314 and the "mall" navigation tab 322 is hidden.

[0057] In some embodiments, the terminal device 110 presents a predetermined interface element in the navigation display area after at least the first navigation tab is hidden. As shown in the example interface 200B in FIG. 2B, after at least partial information of the "recommend" navigation tab 214 is hidden, the terminal device 110 may present a predetermined interface element (for example, a return arrow) 221 in the navigation display area 210. As shown in the example interface 300B in FIG. 3B, after at least partial information of the "recommend" navigation tab 314 is hidden, the terminal device 110 may present a predetermined interface element (for example, a return arrow) 321 in the navigation display area 310.

[0058] In some embodiments, if the terminal device 110 detects a trigger on the predetermined interface element, it presents the target interface element at the predetermined position and switches a navigation tab ranked first in the predetermined ranking direction in the navigation tab set to the predetermined position associated with the target interface element in the navigation display area. In some examples, if the terminal device 110 detects a trigger (for example, a click) on the return arrow, the navigation display area returns to the initial state, where the navigation tab ranked first is in the selected state, and the selection bar is in the predetermined position on the rightmost side.

[0059] As shown in the example interfaces 200B to 200A in FIGS. 2B to 2A, if the terminal device 110 detects that the user 140 clicks on the predetermined interface element 221, it moves the navigation tab ranked first (that is, the "recommend" navigation tab 214) to the rightmost position where the target interface element 211 is

located. That is, the "recommend" navigation tab 214 is set to the selected state. As shown in the example interfaces 200C and 200A in FIGS. 2C and 2A, if the terminal device 110 detects that the user 140 clicks on the predetermined interface element 221 based on the interface corresponding to the "follow" navigation tab 224 in the third position after switching, it may move the navigation tab ranked first (that is, the "recommend" navigation tab 214) to the rightmost position where the target interface element 211 is located. That is, the "recommend" navigation tab 214 is set to the selected state.

[0060] As shown in the example interfaces 300B to 300A in FIGS. 3B to 3A, if the terminal device 110 detects that the user 140 clicks on the predetermined interface element 321, it moves the navigation tab ranked first (that is, the "recommend" navigation tab 314) to the rightmost position where the target interface element 311 is located. That is, the "recommend" navigation tab 314 is set to the selected state. Accordingly, the user 140 may also swipe left to return to the "recommend" navigation tab 314 ranked first.

[0061] As shown in the example interfaces 300C and 300A in FIGS. 3C and 3A, if the terminal device 110 detects that the user 140 clicks on the predetermined interface element 321 based on the interface corresponding to the "follow" navigation tab 224 in the third position after switching, it may move the navigation tab ranked first (that is, the "recommend" navigation tab 314) to the rightmost position where the target interface element 311 is located. That is, the "recommend" navigation tab 314 is set to the selected state. In some examples, the user 140 may also swipe left continuously to return to the "recommend" navigation tab 314 ranked first.

[0062] In some embodiments, if the terminal device 110 determines that at least one navigation tab in the predetermined ranking direction is not presented in the navigation display area, it presents one or more navigation tabs that are not presented in the predetermined ranking direction in the navigation display area. It is understood that if the terminal device 110 determines that at least one navigation tab in the right-to-left direction is not presented in the navigation display area after switching the navigation tab, it displays one or more trailing occluded navigation tabs on the left side.

[0063] As shown in FIGS. 2A to 2B, after switching from the "recommend" navigation tab 214 to the "mall" navigation tab 212, if the terminal device 110 determines that at least one navigation tab (for example, the navigation tab 213) in the right-to-left direction is not presented in the navigation display area, it presents the navigation tab 213 in the navigation display area as shown in the example interface 200B. As shown in FIGS. 3A to 3B, after switching from the "recommend" navigation tab 314 to the "mall" navigation tab 322, if the terminal device 110 determines that at least one navigation tab (for example, the navigation tab 312) in the right-to-left direction is not presented in the navigation display area, it presents the "city" navigation tab 312 in the navigation display area as shown in the example interface 300B.

[0064] As shown in FIGS. 2A and 2C, after switching from the "recommend" navigation tab 214 to the "follow" navigation tab 224 in the third position, if the terminal device 110 determines that at least one navigation tab (for example, the navigation tab 213 and the navigation tab 223) in the right-to-left direction is not presented in the navigation display area, it presents the "city" navigation tab 213 and the "featured" navigation tab 223 in the navigation display area as shown in the example interface 200C.

[0065] In some embodiments, if the terminal device 110 determines that the second navigation tab is presented in the navigation display area and there is no navigation tab in the predetermined ranking direction that is not presented in the navigation display area, it moves the target interface element to a presentation position of the

second navigation tab. In some examples, if the navigation tab ranked last (as shown in FIG. 2D, the "hotspot" navigation tab 231 in the last position) has currently been displayed in the navigation display area, that is, there is no navigation tab that has not been displayed, the position of the target interface element (that is, the selection bar) will be moved to the position of the second navigation tab currently being switched to.

[0066] As shown in the example interfaces 200D to 200E in FIGS. 2D to 2E, it is assumed that the current target interface element 211 is on the rightmost side, that is, the current page is a page corresponding to the "group purchase" navigation tab 232 on the rightmost side. If the terminal device 110 detects that the user 140 clicks on the "city" navigation tab 242 and determines that there is no navigation tab not presented in the right-to-left direction, it moves the target interface element 211 from the position corresponding to the "group purchase" navigation tab 232 to the position of the "city" navigation tab 242 as shown in 200E. That is, the "city" navigation tab 242 is set to the selected state. At this time, the terminal device 110 may hide at least partial information of the navigation tabs such as the "recommend" navigation tab 214 on the right side and the "mall" navigation tab 212 in the second position.

[0067] As shown in the example interfaces 300D to 300E in FIGS. 3D to 3E, it is assumed that the current target interface element 311 is on the rightmost side, that is, the current page is a page corresponding to the "group purchase" navigation tab 341 on the rightmost side. If the terminal device 110 detects that the user 140 swipes right to switch to the "city" navigation tab 351 and determines that there is no navigation tab not presented in the right-to-left direction, it moves the target interface element 311 from the position corresponding to the "group purchase" navigation tab 341 to the position of the "city" navigation tab 351 as shown in 300E. That is, the "city" navigation tab 351 is set to the selected state. At this time, the terminal device 110 may hide at least partial information of the navigation tabs such as the "recommend" navigation tab 314 on the right side and the "mall" navigation tab 322 in the second position.

[0068] In summary, in the case where the user clicks on a navigation tab to switch, if the user switches by clicking on other navigation tab, the navigation tab currently in the selected state and other navigation tabs ranked higher (if any) will be hidden or partially hidden. At this time, the selected navigation tab may be displayed in the rightmost position of the navigation display area, and the navigation display area may use more display space to display other navigation tabs ranked lower. Accordingly, a quick return arrow may also be provided to facilitate the user to return to the first place of the navigation tab sequence.

[0069] If any other selected navigation tab at this time is a trailing navigation tab in the navigation display area, and the last navigation tab can be completely displayed in the navigation display area, the position of any other selected navigation tab is unchanged, and the selection bar is displayed following the position of any other selected navigation tab. At this time, the user may still return to the navigation tab ranked first by clicking on the quick return arrow. If the user needs to view the occluded navigation tab, the user may first return to the navigation tab ranked first, and then click to enter a certain occluded navigation tab.

[0070] Further, in the case where the user switches by swiping the interface corresponding to the navigation tab, if it is detected that the user performs a swipe right operation in the page corresponding to the first navigation tab currently in the selected state, the first navigation tab switches to the second navigation tab ranked after the first navigation tab. At this time, the first navigation tab is moved to the right and occluded, and a quick return arrow may be displayed. The switched second navigation tab will replace the first navigation tab and be displayed

on the rightmost side.

[0071] If the user continuously performs swiping right, the corresponding navigation tab is switched to in turn, but the position of the selected navigation tab is on the rightmost side. When it is determined that the last navigation tab in the navigation display area has been completely displayed, if the user continues to swipe right in the current page, the navigation tab no longer moves to the right. At this time, the selection bar is switched to the position corresponding to the corresponding selected navigation tab. Accordingly, when the user swipes left in the current page, the opposite effect is presented. If it is determined that the navigation tab ranked last is not fully displayed, the position of the selected navigation tab will be re-fixed to the rightmost side of the navigation display area. When switching to the rightmost navigation tab, the return arrow will disappear, and the navigation tab ranked first will be fully displayed.

[0072] Therefore, when the user switches the navigation tab by clicking on the navigation tab or swiping the area of the media content corresponding to the navigation tab, the leading navigation tab is preferentially hidden, which may reduce the display of the leading navigation tab. By setting the position of the selected navigation tab on the rightmost side (and/or the leftmost side), the display area of the trailing navigation tab may be increased, thereby making it easier for the user to click to enter the trailing navigation tab.

[0073] In summary, according to various embodiments of the present disclosure, the navigation tab ranked lower may be presented in the navigation display area. Considering that the size of the navigation display area is limited, the leading navigation tab ranked higher may be hidden. Generally speaking, the user may be more concerned about the navigation tab that is ranked lower and has not been displayed. Therefore, such a navigation switching mechanism may make it more convenient for the user to switch the navigation tab and view the corresponding page content. Thus, it helps to improve the page browsing efficiency and user experience.

[0074] FIG. 4 shows a flowchart of a process 400 for page interaction according to some embodiments of the present disclosure. The process 400 may be implemented at the terminal device 110. The process 400 is described below with reference to FIG. 1.

[0075] At block 410, the terminal device 110 presents a target interface element in association with a first navigation tab at a predetermined position of a navigation display area, where a plurality of navigation tabs of a navigation tab set are sequentially displayed in the navigation display area, and the target interface element indicates that the associated navigation tab is in a selected state.

[0076] At block 420, the terminal device 110, in response to detecting a navigation switching indication from the first navigation tab to a second navigation tab and in response to at least one navigation tab of the navigation tab set in a predetermined ranking direction not being presented in the navigation display area, moves the second navigation tab to the predetermined position associated with the target interface element to replace the first navigation tab in the navigation display area while maintaining the target interface element to be presented at the predetermined position, and hides the first navigation tab at least partially in the navigation display area.

[0077] In some embodiments, the process 400 further includes: presenting, in the navigation display area, one or more navigation tabs that are not presented in the predetermined ranking direction, in response to the at least one navigation tab in the predetermined ranking direction not being presented in the navigation display area.

[0078] In some embodiments, hiding the first navigation tab at least partially in the navigation display area includes: hiding the presented first navigation tab and one or more navigation tabs at least partially, in response

to the one or more navigation tabs between the first navigation tab and the second navigation tab being presented in the navigation display area.

[0079] In some embodiments, the process 400 further includes: moving, in response to the second navigation tab being presented in the navigation display area and no navigation tab in the predetermined ranking direction not being presented in the navigation display area, the target interface element to a presentation position of the second navigation tab.

[0080] In some embodiments, the navigation switching indication is based on a click operation, and the second navigation tab is a navigation tab selected by the click operation.

[0081] In some embodiments, the navigation switching indication is based on a swipe operation, and where the second navigation tab is determined based on a ranking position of the first navigation tab of the navigation tab set and a swipe direction of the swipe operation.

[0082] In some embodiments, the target position is configured at a head position or a tail position along a movable direction of the navigation display area.

[0083] In some embodiments, the process 400 further includes: presenting a predetermined interface element in the navigation display area after at least the first navigation tab is hidden; and in response to detecting a trigger on the predetermined interface element, presenting the target interface element at the predetermined position and switching a navigation tab of the navigation tab set ranked first in the predetermined ranking direction to the predetermined position associated with the target interface element in the navigation display area.

[0084] FIG. 5 shows a schematic structural block diagram of an apparatus 500 for page interaction according to some embodiments of the present disclosure. The apparatus 500 may be implemented as or included in the terminal device 110. Various modules/components in the apparatus 500 may be implemented by hardware, software, firmware, or any combination thereof.

[0085] As shown in the figure, the apparatus 500 includes an interface element presenting module 510 configured to present a target interface element in association with a first navigation tab at a predetermined position of a navigation display area. A plurality of navigation tabs of a navigation tab set are sequentially displayed in the navigation display area, and the target interface element indicates that the associated navigation tab is in a selected state. The apparatus 500 further includes a navigation tab processing module 520 configured to: in response to detecting a navigation switching indication from the first navigation tab to a second navigation tab and in response to at least one navigation tab of the navigation tab set in a predetermined ranking direction not being presented in the navigation display area, move the second navigation tab to the predetermined position associated with the target interface element to replace the first navigation tab in the navigation display area while maintaining the target interface element to be presented at the predetermined position, and hide the first navigation tab at least partially in the navigation display area.

[0086] In some embodiments, the apparatus 500 further includes a navigation tab presenting module configured to: present, in the navigation display area, one or more navigation tabs that are not presented in the predetermined ranking direction, in response to the at least one navigation tab in the predetermined ranking direction not being presented in the navigation display area.

[0087] In some embodiments, the navigation tab processing module 520 is further configured to: hide the presented first navigation tab and one or more navigation tabs at least partially, in response to the one or more

navigation tabs between the first navigation tab and the second navigation tab being presented in the navigation display area.

[0088] In some embodiments, the apparatus 500 further includes a target interface element moving module configured to: move, in response to the second navigation tab being presented in the navigation display area and no navigation tab in the predetermined ranking direction not being presented in the navigation display area, the target interface element to a presentation position of the second navigation tab.

[0089] In some embodiments, the navigation switching indication is based on a click operation, and the second navigation tab is a navigation tab selected by the click operation.

[0090] In some embodiments, the navigation switching indication is based on a swipe operation, and where the second navigation tab is determined based on a ranking position of the first navigation tab of the navigation tab set and a swipe direction of the swipe operation.

[0091] In some embodiments, the predetermined position is configured at a head position or a tail position along a movable direction of the navigation display area.

[0092] In some embodiments, the navigation tab processing module 520 is further configured to: present a predetermined interface element in the navigation display area after at least the first navigation tab is hidden; and in response to detecting a trigger on the predetermined interface element, present the target interface element at the predetermined position and switch a navigation tab of the navigation tab set ranked first in the predetermined ranking direction to the predetermined position associated with the target interface element in the navigation display area.

[0093] FIG. 6 shows a block diagram of an electronic device 600 in which one or more embodiments of the present disclosure may be implemented. It is understood that the electronic device 600 shown in FIG. 6 is only illustrative, without suggesting any limitation to the functions and scope of the embodiments described herein. The electronic device 600 shown in FIG. 6 may be used to implement the terminal device 110 in FIG. 1 or the apparatus 500 in FIG. 5.

[0094] As shown in FIG. 6, the electronic device 600 is in a form of a general-purpose electronic device. Components of the electronic device 600 may include, but are not limited to, one or more processing units or a processor 610, a memory 620, a storage device 630, one or more communication units 640, one or more input devices 650, and one or more output devices 660. The processor 610 may be an actual or virtual processor, and may perform various processes based on a program stored in the memory 620. In a multi-processor system, a plurality of processors execute computer-executable instructions in parallel, so as to improve the parallel processing capability of the electronic device 600.

[0095] The electronic device 600 typically includes a plurality of computer storage media. Such media may be any available media accessible by the electronic device 600, including but not limited to volatile and non-volatile media, removable and non-removable media. The memory 620 may be a volatile memory (for example, a register, cache, a random access memory (RAM), a non-volatile memory (such as a read-only memory (ROM), an electrically erasable programmable read-only memory (EEPROM), a flash memory), or any combination thereof. The storage device 630 may be any removable or non-removable media, and may include a machine-readable media such as a flash drive, a disk, or any other media, which may be used to store information and/or data (such as training data for training) and may be accessed within the electronic device 600.

[0096] The electronic device 600 may further include additional removable/non-removable, volatile/non-volatile memory media. Although not shown in FIG. 6, a disk drive for reading from or writing into removable and non-volatile disks (such as a "floppy disk"), and an optical disk drive for reading from or writing into removable and non-volatile optical disks may be provided. In these cases, each drive may be connected to a bus (not shown) by one or more data medium interfaces. The memory 620 may include a computer program product 625 having one or more program modules configured to perform various methods or actions of various embodiments of the present disclosure.

[0097] The communication unit 640 implements communication with other electronic devices through a communication medium. Additionally, the functions of the components of the electronic device 600 may be implemented by a single computing cluster or a plurality of computing machines, which may communicate through communication connections. Therefore, the electronic device 600 may use a logical connection with one or more other servers, a network personal computer (PC) or another network node to operate in a networked environment.

[0098] The input device 650 may be one or more input devices, such as a mouse, a keyboard, a tracking ball, and so on. The output device 660 may be one or more output devices, such as a display, a speaker, a printer, and so on. The electronic device 600 may further communicate with one or more external devices (not shown) as needed via the communication unit 640, the external devices such as a storage device, a display device, etc., communicate with one or more devices that enable the user to interact with the electronic device 600, or communicate with any devices (e.g., a network card, a modem, etc.) that enable the electronic device 600 to communicate with one or more other electronic devices. Such communication may be performed via input/output (I/O) interfaces (not shown).

[0099] According to an example implementation of the present disclosure, there is provided a computer-readable storage medium having computer-executable instructions stored thereon, where the computer-executable instructions are executed by a processor to implement the method described above. According to an example implementation of the present disclosure, there is further provided a computer program product tangibly stored on a non-transitory computer-readable medium and including computer-executable instructions, which are executed by a processor to implement the method described above.

[0100] Various aspects of the present disclosure are described herein with reference to flowcharts and/or block diagrams of a method, an apparatus, a device and a computer program product implemented according to the present disclosure. It is understood that each block of the flowcharts and/or block diagrams, and combinations of blocks in the flowcharts and/or block diagrams, may be implemented by computer-readable program instructions.

[0101] These computer-readable program instructions may be provided to a processor of a general-purpose computer, a special-purpose computer, or other programmable data processing apparatus to produce a machine, such that when the instructions are executed by the processor of the computer or other programmable data processing apparatus, an apparatus for implementing the functions/actions specified in one or more blocks of the flowcharts and/or block diagrams is produced. These computer-readable program instructions may also be stored in a computer-readable storage medium, which instructions cause a computer, a programmable data processing apparatus, and/or other devices to work in a particular manner, and thus the computer-readable medium having

the instructions stored therein includes an article of manufacture, which includes instructions for implementing various aspects of the functions/actions specified in one or more blocks of the flowcharts and/or block diagrams.

[0102] The computer-readable program instructions may be loaded onto a computer, another programmable data processing apparatus, or other devices, so that a series of operations and steps are performed on the computer, the other programmable data processing apparatus, or the other devices to generate a computer-implemented process, such that the instructions executed on the computer, the other programmable data processing apparatus, or the other devices implement the functions/actions specified in one or more blocks of the flowcharts and/or block diagrams.

[0103] The flowcharts and block diagrams in the drawings show the possibly implemented architectures, functions, and operations of the system, the method, and the computer program product according to various implementations of the present disclosure. In this regard, each block in the flowcharts or block diagrams may represent a module, a program segment, or a portion of instruction, which includes one or more executable instructions for implementing the specified logical functions. In some alternative implementations, the functions marked in the blocks may also occur in an rank different from that marked in the drawings. For example, two consecutive blocks may actually be performed substantially in parallel, or they may sometimes be performed in the reverse rank, depending on the functions involved. It would also be noted that each block of the block diagrams and/or flowcharts, and combinations of the blocks in the block diagrams and/or flowcharts, may be implemented by a special-purpose hardware-based system that perform the specified functions or actions, or may be implemented by a combination of special-purpose hardware and computer instructions.

[0104] Various implementations of the present disclosure have been described above, and the above description is illustrative, non-exhaustive, and not limited to the disclosed implementations. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the described implementations. The terminology used herein is chosen to best explain the principles of the implementations, the practical applications, or improvements to the technology in the market, or to enable other those of ordinary skill in the art to understand the implementations disclosed herein.

CLAIMS

1. A method for page interaction, comprising:

presenting a target interface element in association with a first navigation tab at a predetermined position of a navigation display area, wherein a plurality of navigation tabs of a navigation tab set are sequentially displayed in the navigation display area, and the target interface element indicates that the associated navigation tab is in a selected state; and

in response to detecting a navigation switching indication from the first navigation tab to a second navigation tab and in response to at least one navigation tab of the navigation tab set in a predetermined ranking direction not being presented in the navigation display area,

moving the second navigation tab to the predetermined position associated with the target interface element to replace the first navigation tab in the navigation display area, while maintaining the target interface element to be presented at the predetermined position, and

at least partially hiding the first navigation tab in the navigation display area.

2. The method of claim 1, further comprising:

presenting, in the navigation display area, one or more navigation tabs that are not presented in the predetermined ranking direction, in response to the at least one navigation tab in the predetermined ranking direction not being presented in the navigation display area.

3. The method of claim 1, wherein at least partially hiding the first navigation tab in the navigation display area comprises:

at least partially hiding the presented first navigation tab and one or more navigation tabs, in response to the one or more navigation tabs between the first navigation tab and the second navigation tab being presented in the navigation display area.

4. The method of claim 1, further comprising:

moving, in response to the second navigation tab being presented in the navigation display area and no navigation tab in the predetermined ranking direction not being presented in the navigation display area, the target interface element to a presentation position of the second navigation tab.

5. The method of claim 1, wherein the navigation switching indication is based on a click operation, and the second navigation tab is a navigation tab selected by the click operation.

6. The method of claim 1, wherein the navigation switching indication is based on a swipe operation, and wherein the second navigation tab is determined based on a ranking position of the first navigation tab of the navigation tab set and a swipe direction of the swipe operation.

7. The method of claim 1, wherein the predetermined position is configured at a head position or a tail

position along a movable direction of the navigation display area.

8. The method of claim 1, further comprising:

presenting a predetermined interface element in the navigation display area after at least the first navigation tab is hidden; and

in response to detecting a trigger on the predetermined interface element,

presenting the target interface element at the predetermined position, and

switching a navigation tab of the navigation tab set ranked first in the predetermined ranking direction to the predetermined position associated with the target interface element in the navigation display area.

9. An apparatus for page interaction, comprising:

an interface element presenting module configured to present a target interface element in association with a first navigation tab at a predetermined position of a navigation display area, wherein a plurality of navigation tabs of a navigation tab set are sequentially displayed in the navigation display area, and the target interface element indicates that the associated navigation tab is in a selected state; and

a navigation tab processing module configured to: in response to detecting a navigation switching indication from the first navigation tab to a second navigation tab and in response to at least one navigation tab of the navigation tab set in a predetermined ranking direction not being presented in the navigation display area,

move the second navigation tab to the predetermined position associated with the target interface element to replace the first navigation tab in the navigation display area, while maintaining the target interface element to be presented at the predetermined position, and

at least partially hide the first navigation tab in the navigation display area.

10. An electronic device, comprising:

at least one processor; and

at least one memory coupled to the at least one processor and storing instructions for execution by the at least one processor, the instructions, when executed by the at least one processor, causing the electronic device to perform the method of any of claims 1 to 8.

11. A computer-readable storage medium having computer-executable instructions stored thereon, the computer-executable instructions being executable by a processor to implement the method of any of claims 1 to 8.

12. A computer program product tangibly stored in a computer storage medium and comprising computer-executable instructions, the computer-executable instructions, when executed by a device, causing the device to perform the method of any of claims 1 to 8.