

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

The present application claims priority to Chinese Patent Application No. 202410505721.1, filed on April 25, 2024, and entitled "METHOD, APPARATUS, DEVICE, MEDIUM, AND PRODUCT FOR PAGE INTERACTION", which is incorporated herein by reference in its entirety.

FIELD

[0001] Example embodiments of the present disclosure generally relate to the field of computer technologies, and in particular, to a method, apparatus, device and computer-readable storage medium for page interaction.

BACKGROUND

[0002] With the rapid development of Internet technology, various applications have become important tools in people's daily life. Different applications often have different functions, and users may implement specific services through specific applications with specific functions.

[0003] 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 the application is associated with the plurality of pages, the application may provide a navigation region to implement page jumping based on a navigation tab in the navigation region. The navigation region may be located at the top, bottom, or side region of a page, and is used for presenting the navigation tab. The navigation region plays a role of linking various pages in a website or an application.

SUMMARY

[0004] In a first aspect of the present disclosure, a method for page interaction is provided. The method comprises: presenting at least one navigation tab in a first navigation region and presenting at least one navigation tab in a second navigation region, each navigation tab being configured to navigate to a corresponding page; presenting an editing panel in response to detecting a predetermined trigger on a first navigation tab in the first navigation region, the editing panel comprising at least one second navigation tab for replacing the first navigation tab, the second navigation tab currently being presented in the second navigation region; and switching the first navigation tab to a second navigation tab in the first navigation region and switching the second navigation tab to the first navigation tab in the second navigation region, in response to detecting a selection of the second navigation tab in the editing panel.

[0005] In a second aspect of the present disclosure, an apparatus for page interaction is provided. The apparatus comprises: a tab presenting module configured to present at least one navigation tab in a first navigation region and present at least one navigation tab in a second navigation region, each navigation tab being configured to navigate to a corresponding page; a panel presenting module configured to present an editing panel in response to detecting a predetermined trigger on a first navigation tab in the first navigation region, the editing panel comprising at least one second navigation tab for replacing the first navigation tab,

the second navigation tab currently being presented in the second navigation region; and a tab switching module configured to switch the first navigation tab to a second navigation tab in the first navigation region and switch the second navigation tab to the first navigation tab in the second navigation region, in response to detecting a selection of the second navigation tab in the editing panel.

[0006] In a third aspect of the present disclosure, an electronic device is provided. The device comprises 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, cause the device to perform the method of the first aspect.

[0007] In a fourth aspect of the present disclosure, a computer-readable storage medium is provided. The computer-readable storage medium has a computer program stored thereon which is executable by a processor to implement the method of the first aspect.

[0008] 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 comprises computer-executable instructions that, when executed by a device, cause the device to perform the method of the first aspect.

[0009] It should be understood that the content described in this Summary section is neither intended to identify the key features 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 become readily understood from the following description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] 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:

[0011] Fig. 1 illustrates a schematic diagram of an example environment in which the embodiments of the present disclosure can be implemented;

[0012] FIGS. 2A to 2J illustrate schematic diagrams of example interfaces for page interaction according to some embodiments of the present disclosure;

[0013] Fig. 3 illustrates a flowchart of a method for page interaction according to some embodiments of the present disclosure;

[0014] Fig. 4 illustrates a schematic structural block diagram of an apparatus for page interaction according to some embodiments of the present disclosure; and

[0015] Fig. 5 illustrates a block diagram of an electronic device in which one or more embodiments of the present disclosure can be implemented.

DETAILED DESCRIPTION OF EMBODIMENTS

[0016] 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 should be

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 should be understood that the drawings and embodiments of the present disclosure are only used for the purpose of example, and are not used to limit the protection scope of the present disclosure.

[0017] In the description of the embodiments of the present disclosure, the term "include/comprise" and similar terms should be understood as open-ended inclusions, that is, "include/comprise but not limited to". The term "based on" should be understood as "based at least in part 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". The following may also include other explicit and implicit definitions.

[0018] Here, unless explicitly stated, "in response to A" performing a step does not mean that the step is performed immediately after "A", but may include one or more intermediate steps.

[0019] It would be understood that the data involved in the subject matter (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.

[0020] It would be understood that before using subject matters disclosed in the embodiments of the present disclosure, the types, the usage scope, the usage scenario, and the like of personal information that may be involved in the present disclosure should be notified to the user in an appropriate manner according to the relevant laws and regulations, and the authorization of the user is obtained.

[0021] 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 obtaining and using of the user's personal information, so that the user may independently choose, based on the prompt information, 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 subject matters of the present disclosure.

[0022] 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 carry a selection control for the user to select "agree" or "disagree" to provide the personal information to the electronic device.

[0023] It would be understood that the above process of notifying and obtaining the authorization of the user is only illustrative, and does not constitute a limitation on the implementations of the present disclosure. Other methods that satisfy the relevant laws and regulations may also be applied to the implementations of the present disclosure.

[0024] Fig. 1 illustrates a schematic diagram of an example environment 100 in which the embodiments of the present disclosure can be implemented. In the 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

(for example, a video online acquisition application), an online shopping application, or any other suitable application.

[0025] In the environment 100 of Fig. 1, in response to the application 120 being active, 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 publishing 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 published 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 mode, such as clicking or selecting a page element, the application 120 may also provide the user 140 with the ability to switch between a plurality of pages for presenting content. The application 120 may also have a publishing function, allowing the user 140 to publish the created media content. As used herein, "media content" includes one or more types of content, such as an image, a set of images, a video, a gif, an audio, a text, and so on.

[0026] In some embodiments, the terminal device 110 communicates with a server 130 to implement the provision of services for 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 game device, or any combination of the foregoing, including accessories 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, and the like). 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.

[0027] It should be understood that the structure and function of each element in the environment 100 are described only for the purpose of example, and are not intended to imply any limitation on the scope of the present disclosure.

[0028] 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, a navigation tab associated with a page may be provided, so that the user may use the navigation tab to indicate and direct to a desired page. Generally, the navigation tab may be integrated in a navigation region of the application. There may be a set of navigation tabs in the navigation region to be used for switching pages. In addition, the navigation region may be presented in a floating manner on the page of the application, so as to prevent page content from affecting the use of the navigation region.

[0029] At present, the sorting and positions of navigation tabs in a navigation region of many applications are fixed, and do not support modification by a user, lacking flexibility. In addition, in the case where there are a relatively large number of available navigation tabs, considering that the size of the navigation region is limited, it is possible that only some fixed navigation tabs are presented, and more other navigation tabs may be presented only through complex operations. This will hinder the convenience of page browsing, so that

some tabs that are of interest to the user cannot be placed in a position that is easy to see and operate. For example, a certain navigation tab is always fixedly provided in some positions that are convenient for the user to select, but not all users are always interested in the page navigated to by the certain navigation tab. This will hinder the page interaction efficiency of some users.

[0030] According to the embodiments of the present disclosure, an improved solution for editing navigation tabs is proposed. The solution includes presenting at least one navigation tab in a first navigation region and presenting at least one navigation tab in a second navigation region, each navigation tab being configured to navigate to a corresponding page. An editing panel is presented in response to a terminal device detecting a predetermined trigger on a first navigation tab in the first navigation region. The editing panel includes at least one second navigation tab for replacing the first navigation tab, and the second navigation tab currently is presented in the second navigation region. Then, the terminal device switches the first navigation tab to a second navigation tab in the first navigation region and switches the second navigation tab to the first navigation tab in the second navigation region, in response to detecting a selection of the second navigation tab in the editing panel.

[0031] In this way, the user may select an appropriate adjustment mode for the navigation tabs based on the need to adjust the navigation tabs in the navigation region. This allows the user to customize the display positions of a plurality of navigation tabs conveniently and quickly, and to flexibly adjust the presentation of the navigation tabs according to the needs of use, which helps to improve the page browsing efficiency and user experience.

[0032] Some example embodiments of the present disclosure will be described below with continued reference to the drawings.

[0033] In the embodiments of the present disclosure, when providing a page 150 for the user, the terminal device 110 may present one or more navigation tabs in a navigation region of the page 150 according to a certain order. Generally, the number of navigation tabs presented in the navigation region may be preset based on the space occupied by the navigation tabs and the total space provided for the navigation region, so as to avoid that an excessive number of navigation tabs are presented at the same time, resulting in the navigation tabs being too small and inconvenient for the user to use.

[0034] For example, in the case where the navigation tabs are arranged horizontally, the order 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. It should be understood that the above order and the arrangement logic on which the order is based are only shown as examples, and are not intended to impose any limitation thereto. For example, the above order may also be vertical, from top to bottom, from bottom to top, or circular, and the like. In this way, the navigation tabs are prevented from being presented in a mess.

[0035] In addition, a page may also include a plurality of navigation regions, and one or more navigation tabs may be arranged in different navigation regions. In some embodiments, a page may include a top navigation region and a bottom navigation region. Alternatively or additionally, the page may further include a side navigation region, such as a left navigation region and/or a right navigation region.

[0036] In the embodiments of the present disclosure, the terminal device 110 may allow the user 140 to adjust a specific navigation tab in a navigation region as needed, so that the user 140 may customize the mode of the navigation tabs in some positions. This may provide the user with the ability to personally select and configure the navigation tab. In this way, the user 140 may still acquire a required navigation tab when the screen space is limited, improving the user experience.

[0037] The terminal device 110 may provide an editing panel for navigation editing, so that the user 140 may select, from the editing panel, other navigation tab to be used for replacing a current navigation tab. In the embodiments of the present disclosure, the navigation tabs in different navigation regions may be supported to be swapped, so that the user has a wider range and greater flexibility to adjust the navigation tab. For example, in response to a trigger operation of the user, the editing panel may be associated with a navigation tab A being presented, and the user 140 may use a navigation tab B selected from the editing panel in another navigation region to replace the navigation tab A.

[0038] For ease of understanding, the following will describe the solution for page interaction according to the present disclosure with reference to Fig. 2A to Fig. 2J. Fig. 2A to Fig. 2J illustrate schematic diagrams of example interfaces 200A to 200J for page interaction according to some embodiments of the present disclosure. The example interfaces 200A to 200J shown in Fig. 2A to Fig. 2J may be any pages of the application 120. Although it is described that these embodiments may be implemented at the terminal device 120 in Fig. 1, especially at an application client of the terminal device 120, in some other embodiments, the terminal device 120 may perform these operations with the assistance of the server 130.

[0039] In the embodiments of the present disclosure, the terminal device 110 may provide a plurality of navigation regions in a page 150, and one or more navigation tabs are presented in each navigation region. As described above, one or more navigation tabs may be arranged and presented in a certain order. For the convenience of description, the order used here and in the following is exemplified as a horizontal arrangement from right to left, that is, the navigation tab located on the rightmost side of a navigation region may be considered as the front-most navigation tab.

[0040] In some embodiments, the terminal device 110 presents at least one navigation tab in a first navigation region, and presents at least one navigation tab in a second navigation region. Each navigation tab is configured to navigate to a corresponding page. As shown in the example interface 200A in Fig. 2A, the terminal device 110 presents a navigation tab "homepage" 213, a navigation tab "friends" 212, a navigation tab "messages" 214, a navigation tab "me" 215, a navigation tab "shooting" 216, and so on, in a navigation region 211 (which may also be referred to as a bottom navigation region).

[0041] The terminal device 110 presents a navigation tab "recommend" 217, a navigation tab "follow" 218, a navigation tab "mall" 219, and so on, in a navigation region 210 (which may also be referred to as a top navigation region). In some examples, the navigation tab "shooting" 216 is configured to navigate to a shooting page for the user 140 to shoot. The navigation tab "mall" 219 is configured to navigate to a mall page for the user 140 to make purchases.

[0042] In the embodiments of the present disclosure, the terminal device 110 presents an editing panel in response to detecting a predetermined trigger on a first navigation tab in a first navigation region. The editing

panel includes at least one second navigation tab for replacing the first navigation tab. The second navigation tab is currently presented in a second navigation region other than the first navigation region. The number of navigation tabs in the editing panel that may be used to replace the first navigation tab may be one or more than one (for example, other navigation tabs are included in addition to the second navigation tab). In the case where a plurality of navigation tabs are included, the optional other navigation tabs may include one or more navigation tabs located in the first navigation region.

[0043] In some examples, the predetermined trigger by the user 140 on the navigation tab in the navigation region may be performed by long pressing the navigation tab, double-clicking the navigation tab, or clicking the navigation tab and selecting to edit navigation, and so on. The following will describe in detail that the terminal device 110 presents the editing panel based on the user 140 long pressing the navigation tab and/or clicking the navigation tab and selecting to edit navigation.

[0044] As shown in the example interfaces in Fig. 2A to Fig. 2B, in response to the terminal device 110 detecting a predetermined trigger (for example, a long press gesture operation) by the user 140 on the navigation tab "friends" 212 in the navigation region 211, the editing panel 220 is presented. The editing panel 220 includes at least one second navigation tab for replacing the navigation tab "friends" 212, such as the navigation tab "mall" 219, the navigation tab "follow" 218, and so on, which are currently presented in the navigation region 210.

[0045] The terminal device 110 switches the first navigation tab to a second navigation tab in the first navigation region in response to detecting a selection of the second navigation tab in the editing panel. Accordingly, the terminal device 110 switches the second navigation tab to the first navigation tab in the second navigation region.

[0046] As shown in the example interfaces 200C and 200E in Fig. 2C and Fig. 2E, the user 140 selects the navigation tab "mall" 219 in the editing panel 220, and clicks on a confirmation control 230. Subsequently, in response to the selection of the user, the terminal device 110 switches the navigation tab "friends" 212 to the navigation tab "mall" 219 in the navigation region 211 included in the interface 200E. Accordingly, the terminal device 110 switches the navigation tab "mall" 219 to the navigation tab "friends" 212 in the navigation region 210 included in the interface 200E.

[0047] That is to say, by providing the editing panel, the user may swap the navigation tabs in different navigation regions. This may allow the user to adjust a navigation tab that is of greater interest and accessed more frequently to a desired position, such as a position that is easier for the user to operate or to notice.

[0048] In some embodiments, in response to the terminal device 110 detecting the predetermined trigger on the first navigation tab and the selection of the second navigation tab when a page corresponding to a third navigation tab is presented, the terminal device 110 still presents a page corresponding to the second navigation tab in the first navigation region after switching the first navigation tab to the second navigation tab in the first navigation region and switching the second navigation tab to the first navigation tab in the second navigation region. The "third navigation tab" here may be any navigation tab in the first navigation region or the second navigation region. In this way, regardless of the page presented previously, after the swap of the navigation tabs at the first navigation tab is triggered, the page of the application 150 may always be

positioned to the page corresponding to the second navigation tab that is currently switched to the position of the original first navigation tab in the first navigation region.

[0049] As shown in the example interface 200D in Fig. 2D, the terminal device 110 detects a predetermined trigger on the navigation tab "friends" 212 and a selection of the navigation tab "mall" 219 when a page corresponding to any navigation tab (for example, the navigation tab "homepage" 213 or the navigation tab "recommend" 217) is presented.

[0050] At this time, after the terminal device 110 switches the navigation tab "friends" 212 to the navigation tab "mall" 219 in the navigation region 211, and switches the navigation tab "mall" 219 to the navigation tab "friends" 212 in the navigation region 210, the terminal device 110 presents a page 200D corresponding to the navigation tab "mall" 219 in the navigation region 211.

[0051] It would be understood that, regardless of the page corresponding to the navigation tab currently presented by the terminal device, as long as the user clicks on the first navigation tab and selects to switch to the second navigation tab, the terminal device 110 presents the page corresponding to the switched second navigation tab.

[0052] The following will continue to describe, with reference to Fig. 2A to Fig. 2J, that the terminal device 110 presents the editing panel based on the user 140 long pressing the navigation tab and/or clicking the navigation tab and selecting to edit navigation.

[0053] First, when the user 140 long presses a navigation tab, the terminal device 110 presents an editing panel in response to the trigger operation of the user 140. For ease of understanding, the description will be made in conjunction with Fig. 2A to Fig. 2E.

[0054] In some embodiments, the terminal device 110 presents the editing panel in response to detecting a first trigger operation on the first navigation tab. In some examples, the first trigger operation by the user 140 on the first navigation tab may be long pressing the first navigation tab or double-clicking the first navigation tab. In some examples, the first trigger operation may always trigger the presentation of the editing panel.

[0055] In response to the terminal device 110 detecting that the user 140 long presses or double-clicks on the navigation tab "friends" 212, the editing panel 220 will be presented. In response to a selection of the user in the editing panel 220, the terminal device 110 switches the navigation tab "friends" 212 to the navigation tab "mall" 219 in the navigation region 211, and switches the navigation tab "mall" 219 to the navigation tab "friends" 212 in the navigation region 210.

[0056] Another trigger mode for the editing panel will be described below with continued reference to Fig. 2F to Fig. 2J. In this mode, the terminal device 110 presents the editing panel based on the user 140 clicking on the navigation tab and selecting to edit navigation.

[0057] In some embodiments, the terminal device 110 presents an editing trigger control in response to detecting a second trigger operation on the first navigation tab. Then, the terminal device 110 presents the editing panel in response to detecting a selection of the editing trigger control.

[0058] As shown in the example interfaces 200F to 200I in Fig. 2F to Fig. 2I, in response to the terminal device 110 detecting a trigger operation of the user 140 clicking on the navigation tab "mall" 219 in the interface 200F, the editing trigger control 270 will be presented. Then, in response to the terminal device 110

detecting a selection operation of the user 140 on the editing trigger control 270, the editing panel 280 is presented.

[0059] In some embodiments, the second trigger operation is further configured to trigger a preset operation on a page corresponding to the first navigation tab, such as a refresh operation on the page content. The terminal device 110 performs the preset operation on the page corresponding to the first navigation tab with the editing trigger control being presented, in response to detecting the second trigger operation on the first navigation tab.

[0060] In some examples, in response to the terminal device 110 detecting the trigger operation of the user 140 clicking on the navigation tab "mall" 219, the page corresponding to the navigation tab "mall" 219 will also be refreshed with the editing trigger control 270 being presented.

[0061] As shown in the example interfaces 200G to 200H in Fig. 2G to Fig. 2H, the terminal device 110 detects a trigger operation of the user 140 clicking on a refresh control 271 for the page corresponding to the navigation tab "mall" 219, and the page corresponding to the navigation tab "mall" 219 will be refreshed to form a refreshed page 200H.

[0062] In such embodiments, the trigger gesture for triggering page operation is also configured to be able to trigger the editing of the navigation tab. Since the user may have previously known the trigger mode of the preset operation for the page, the user may notice the editing function of the navigation tab by sharing the trigger operation. In this way, when the user performs the second trigger operation, the user may not only continue to perform the page operation corresponding to the second trigger operation, but also determine whether to continue to trigger the editing of the navigation tab as needed.

[0063] In some embodiments, the terminal device 110 determines whether the editing trigger control was presented for a predetermined number of times previously, in response to detecting the second trigger operation on the first navigation tab. In response to the terminal device 110 determining that the editing trigger control was not presented for the predetermined number of times previously, the editing trigger control is presented.

[0064] In some examples, in response to the terminal device 110 detecting the second trigger operation on the navigation tab, it determines whether the editing trigger control was presented for a predetermined number of times (for example, X times) previously. In response to the editing trigger control not being presented for X times previously, the terminal device 110 continues to present the editing trigger control.

[0065] In some embodiments, in response to the terminal device 110 determining that the editing trigger control was presented for the predetermined number of times previously and the selection of the editing trigger control is not detected in presentations of the predetermined number of times, the terminal device 110 performs the preset operation for the page corresponding to the first navigation tab without presenting the editing trigger control.

[0066] In some examples, in response to the editing trigger control being presented for X times previously and the terminal device 110 not being received a click from the user 140 on the editing trigger control, the terminal device 110 will no longer display the editing trigger control. For example, in response to the editing trigger control being presented for X times and the terminal device 110 not being received a click from the

user 140 on the editing trigger control for X consecutive times, the terminal device 110 will not display the editing trigger control for Y days.

[0067] In response to the editing trigger control being presented for the predetermined number of times (for example, X times) previously but a click from the user not being received, it means that the user may not expect to edit the navigation tab in this way. In this case, when the user triggers the first navigation tab through the second trigger operation again, the editing trigger control may no longer be presented, and the page operation corresponding to the second trigger operation may be directly performed. In this way, the user may be prevented from being disturbed, and the user may smoothly perform the preset operation for the page.

[0068] In some embodiments, after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region, the navigation tabs may be further swapped or adjusted based on the user's operation. For example, the terminal device 110 presents an editing panel in response to detecting a predetermined trigger on the second navigation tab in the first navigation region. The editing panel includes at least the first navigation tab for replacing the second navigation tab. The terminal device 110 switches the second navigation tab to the first navigation tab in the first navigation region, and switches the first navigation tab to the second navigation tab in the second navigation region, in response to detecting a selection of the first navigation tab in the editing panel.

[0069] Continuing to refer to the example interface 200E shown in Fig. 2E, after the first switching is successful, in response to the terminal device 110 detecting a predetermined trigger on the navigation tab "mall" 219 in the navigation region 211, the editing panel will be presented. The editing panel includes at least the navigation tab "friends" 212 for replacing the navigation tab "mall" 219.

[0070] In response to the terminal device 110 detecting the selection of the navigation tab "friends" 212, the navigation tab "mall" 219 is replaced with the navigation tab "friends" 212 in the navigation region 211. Accordingly, the terminal device 110 replaces the navigation tab "friends" 212 with the navigation tab "mall" 219 in the navigation region 210. It would be understood that after the switching is successful, the user 140 may switch back the navigation tab by triggering the switched navigation tab again.

[0071] In some embodiments, the editing panel for swapping the navigation tabs in different navigation regions may be configured at a specific position in the first navigation region. For example, in the examples in Fig. 2A to Fig. 2D, in the position corresponding to the second navigation tab from left to right in the bottom navigation region 211, the user may always trigger the presentation of the editing panel through the first trigger operation or the second trigger operation to select the navigation tab presented at that position. In other embodiments, for the position corresponding to any navigation tab in a given navigation region, or for the position corresponding to any navigation tab, a similar adjustment mode for the navigation tab as described above may be provided.

[0072] In some embodiments, after the switching of the navigation tabs is completed, prompt information may also be provided to the user to make the user notice the switching of the navigation tabs, and/or to prompt the user of the subsequent switching mode. In some embodiments, the terminal device 110 presents first prompt information in a region associated with the second navigation tab after the first navigation tab is

switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region. The first prompt information includes at least one of the following: a switching state of the second navigation tab, or a guide to an editing mode of the second navigation tab.

[0073] In some examples, after the switching is successful, the terminal device 110 presents the first prompt information in the region associated with the second navigation tab. For example, the terminal device 110 may present the first prompt information in the region associated with the second navigation tab in the form of a bubble. In some examples, the first prompt information includes the switching state of the second navigation tab, for example, the switching is successful. The first prompt information may also include the guide to the editing mode of the second navigation tab. For example, the second navigation tab may be long pressed to edit again.

[0074] Referring back to the example interface 200D in Fig. 2D, after the switching is successful, the terminal device 110 presents the first prompt information 241 in the form of a bubble in the region associated with the navigation tab "mall" 219. For example, the first prompt information 241 is "Navigation tab "mall" 219 has been moved here, long press to edit again". For another example, the first prompt information 241 is "Switching is successful, long press the navigation tab "mall" 219 to edit again".

[0075] As shown in the example interfaces 200I to 200J in Fig. 2I to Fig. 2J, in response to the terminal device 110 detecting that the user 140 clicks on the navigation tab "mall" 219 and selects the editing trigger control 270, the editing panel 280 is presented. At this time, in response to the terminal device 110 detecting that the user 140 clicks on a close control 281 on the editing panel 280, the terminal device 110 will present, in the interface 200J, the prompt information "long press to edit" in the form of a bubble.

[0076] In some embodiments, after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region, the terminal device 110 presents second prompt information in a region associated with the first navigation tab in response to detecting that a page corresponding to a navigation tab in the second navigation region is presented.

[0077] In some examples, after the switching is successful, in response to the terminal device 110 detecting that the page corresponding to the navigation tab in the second navigation region is presented, the second prompt information is presented in the region associated with the first navigation tab.

[0078] Referring back to the example interface 200E in Fig. 2E, after the switching is successful, in response to the terminal device 110 detecting that the page corresponding to the navigation tab "recommend" 217 in the navigation region 210 is presented, the second prompt information 251 is presented in the form of a bubble in the region associated with the navigation tab "friends" 212. For example, the second prompt information 251 is "Navigation tab "friends" 212 has been moved here".

[0079] In some embodiments, the first navigation region and the second navigation region correspond to a target application. After the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region, the terminal device 110 presents at least one of the following in response to the target application being restarted:

first prompt information in a region associated with the second navigation tab, or second prompt information in a region associated with the first navigation tab.

[0080] It would be understood that after the navigation tab is successfully switched, in response to the target application being restarted, the terminal device 110 may present the first prompt information in the region associated with the second navigation tab. Additionally, the terminal device 110 may also present the second prompt information in the region associated with the first navigation tab.

[0081] In some examples, after the switching is completed, in response to the target application being restarted for the first time, the terminal device 110 presents the first prompt information in the region associated with the second navigation tab. Next, in response to the target application being restarted for the second time, the terminal device 110 presents the second prompt information in the region associated with the first navigation tab.

[0082] In summary, according to various embodiments of the present disclosure, the adjustment of the navigation tab in the navigation region may be implemented based on the selection of the user on the editing panel. This allows the user to customize the presentation positions of a plurality of navigation tabs conveniently and quickly, and to flexibly adjust the presentation of the navigation tabs according to the needs of use, which helps to improve the page browsing efficiency and user experience.

Example process

[0083] Fig. 3 illustrates a flowchart of a method 300 for page interaction according to some embodiments of the present disclosure. The method 300 may be implemented at the terminal device 110. The process 300 is described below with reference to Fig. 1.

[0084] At block 310, the terminal device 110 presents at least one navigation tab in a first navigation region and presents at least one navigation tab in a second navigation region, each navigation tab is configured to navigate to a corresponding page.

[0085] At block 320, the terminal device 110 presents an editing panel in response to detecting a predetermined trigger on a first navigation tab in the first navigation region, the editing panel comprises at least one second navigation tab for replacing the first navigation tab, the second navigation tab is currently presented in the second navigation region.

[0086] At block 330, the terminal device 110 switches the first navigation tab to a second navigation tab in the first navigation region and switches the second navigation tab to the first navigation tab in the second navigation region, in response to detecting a selection of the second navigation tab in the editing panel.

[0087] In some embodiments, presenting the editing panel comprises: presenting the editing panel in response to detecting a first trigger operation on the first navigation tab.

[0088] In some embodiments, presenting the editing panel comprises: presenting an editing trigger control in response to detecting a second trigger operation on the first navigation tab; and presenting the editing panel in response to detecting a selection of the editing trigger control.

[0089] In some embodiments, the second trigger operation is further configured to trigger a preset operation on a page corresponding to the first navigation tab, and presenting the editing trigger control comprises:

performing, in response to detecting the second trigger operation on the first navigation tab, the preset operation on the page corresponding to the first navigation tab with the editing trigger control being presented.

[0090] In some embodiments, presenting the editing trigger control further comprises: determining whether the editing trigger control was presented for a predetermined number of times previously, in response to detecting the second trigger operation on the first navigation tab; and presenting the editing trigger control in response to determining that the editing trigger control was not presented for a predetermined number of times previously.

[0091] In some embodiments, the second trigger operation is further configured to trigger a preset operation on a page corresponding to the first navigation tab, the process 300 further comprises: performing the preset operation for the page corresponding to the first navigation tab without presenting the editing trigger control, in response to determining that the editing trigger control was presented for the predetermined number of times previously and the selection of the editing trigger control is not detected in presentations of the predetermined number of times.

[0092] In some embodiments, the predetermined trigger on the first navigation tab and the selection of the second navigation tab are detected when a page corresponding to a third navigation tab is presented, and the process 300 further comprises: presenting a page corresponding to the second navigation tab in the first navigation region after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region.

[0093] In some embodiments, the process 300 further comprises: presenting first prompt information in a region associated with the second navigation tab after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region, the first prompt information comprises at least one of the following: a switching state of the second navigation tab, or a guide to an editing mode of the second navigation tab.

[0094] In some embodiments, the process 300 further comprises: presenting second prompt information in a region associated with the first navigation tab in response to detecting that a page corresponding to a navigation tab in the second navigation region is presented, after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region.

[0095] In some embodiments, the process 300 further comprises: presenting the editing panel in response to detecting the predetermined trigger on the second navigation tab in the first navigation region, the editing panel comprises at least the first navigation tab for replacing the second navigation tab; and switching the second navigation tab to the first navigation tab in the first navigation region and switching the first navigation tab to the second navigation tab in the second navigation region, in response to detecting a selection of the first navigation tab in the editing panel.

[0096] In some embodiments, the first navigation region and the second navigation region correspond to a target application, the process 300 further comprises: in response to the target application being restarted, after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region, presenting at least one of

the following: first prompt information in a region associated with the second navigation tab, or second prompt information in a region associated with the first navigation tab.

Example apparatus and device

[0097] Fig. 4 illustrates a schematic structural block diagram of an apparatus 400 for page interaction according to some embodiments of the present disclosure. The apparatus 400 may be implemented as or included in the terminal device 110. Each module/component in the apparatus 400 may be implemented by hardware, software, firmware, or any combination thereof.

[0098] As shown in the figure, the apparatus 400 comprises a tab presenting module 410 configured to present at least one navigation tab in a first navigation region and present at least one navigation tab in a second navigation region, each navigation tab being configured to navigate to a corresponding page. The apparatus 400 further comprises a panel presenting module 420 configured to present an editing panel in response to detecting a predetermined trigger on a first navigation tab in the first navigation region, the editing panel comprising at least one second navigation tab for replacing the first navigation tab, the second navigation tab currently being presented in the second navigation region. The apparatus 400 further comprises a tab switching module 430 configured to switch the first navigation tab to a second navigation tab in the first navigation region and switch the second navigation tab to the first navigation tab in the second navigation region, in response to detecting a selection of the second navigation tab in the editing panel.

[0099] In some embodiments, the panel presenting module 420 is further configured to present the editing panel in response to detecting a first trigger operation on the first navigation tab.

[00100] In some embodiments, the panel presenting module 420 is further configured to present an editing trigger control in response to detecting a second trigger operation on the first navigation tab; and present the editing panel in response to detecting a selection of the editing trigger control.

[00101] In some embodiments, the second trigger operation is further configured to trigger a preset operation on a page corresponding to the first navigation tab, and the panel presenting module 420 comprises a control presenting module configured to perform, in response to detecting the second trigger operation on the first navigation tab, the preset operation on the page corresponding to the first navigation tab with the editing trigger control being presented.

[00102] In some embodiments, the control presenting module is further configured to determine whether the editing trigger control was presented for a predetermined number of times previously, in response to detecting the second trigger operation on the first navigation tab; and presenting the editing trigger control in response to determining that the editing trigger control was not presented for the predetermined number of times previously.

[00103] In some embodiments, the second trigger operation is further configured to trigger a preset operation on a page corresponding to the first navigation tab, and the apparatus 400 further comprises an operation executing module configured to perform the preset operation for the page corresponding to the first navigation tab without presenting the editing trigger control, in response to determining that the editing trigger control

was presented for the predetermined number of times previously and the selection of the editing trigger control is not detected in presentations of the predetermined number of times.

[00104] In some embodiments, the predetermined trigger on the first navigation tab and the selection of the second navigation tab are detected when a page corresponding to a third navigation tab is presented, and the apparatus 400 further comprises a page presenting module configured to present a page corresponding to the second navigation tab in the first navigation region after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region.

[00105] In some embodiments, the apparatus 400 further comprises a first prompt information presenting module configured to present first prompt information in a region associated with the second navigation tab after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region, wherein the first prompt information comprises at least one of the following: a switching state of the second navigation tab, or a guide to an editing mode of the second navigation tab.

[00106] In some embodiments, the apparatus 400 further comprises a second prompt information presenting module configured to present second prompt information in a region associated with the first navigation tab in response to detecting that a page corresponding to a navigation tab in the second navigation region is presented, after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region.

[00107] In some embodiments, the tab switching module 430 is further configured to present the editing panel in response to detecting the predetermined trigger on the second navigation tab in the first navigation region, the editing panel comprises at least the first navigation tab for replacing the second navigation tab; and switch the second navigation tab to the first navigation tab in the first navigation region and switch the first navigation tab to the second navigation tab in the second navigation region, in response to detecting a selection of the first navigation tab in the editing panel.

[00108] In some embodiments, the first navigation region and the second navigation region correspond to a target application, and the apparatus 400 further comprises an information presenting module configured to present at least one of the following in response to the target application being restarted, after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region: first prompt information in a region associated with the second navigation tab, or second prompt information in a region associated with the first navigation tab.

[00109] Fig. 5 illustrates a block diagram of an electronic device 500 in which one or more embodiments of the present disclosure can be implemented. It should be understood that the electronic device 500 shown in Fig. 5 is only for the purpose of example, and should not constitute any limitation on the functionalities and scope of the embodiments described herein. The electronic device 500 shown in Fig. 5 may be used to implement the terminal device 110 in Fig. 1.

[00110] As shown in Fig. 5, the electronic device 500 is in form of a general electronic device. Components of the electronic device 500 may include, but are not limited to, one or more processors 510 or processing units, a memory 520, a storage device 530, one or more communication units 540, one or more input devices 550, and one or more output devices 560. The processor 510 may be a physical or virtual processor, and may execute various processes based on the programs stored in the memory 520. In a multi-processor system, a plurality of processors execute computer-executable instructions in parallel to improve the parallel processing capability of the electronic device 500.

[00111] The electronic device 500 typically includes a plurality of computer storage medium. Such medium may be any available medium that is accessible to the electronic device 500, including but not limited to volatile and non-volatile medium, removable and non-removable medium. The memory 520 may be a volatile memory (for example, a register, a 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 530 may be any removable or non-removable medium, and may include a machine-readable medium such as a flash drive, a disk, or any other medium, which may be used to store information and/or data (such as training data for training) and may be accessed within the electronic device 500.

[00112] The electronic device 500 may further include additional removable/non-removable, volatile/non-volatile memory medium. Although not shown in Fig. 5, a disk drive for reading from or writing to a removable, non-volatile disk (such as a "floppy disk"), and an optical disk driver for reading from or writing to a removable, non-volatile optical disk may be provided. In these cases, each driver may be connected to a bus (not shown) by one or more data medium interfaces. The memory 520 may include a computer program product 525, which has one or more program modules configured to perform various methods or acts of the various embodiments of the present disclosure.

[00113] The communication unit 540 implements communication with other electronic devices via a communication medium. Additionally, the functionality of components of the electronic device 500 may be implemented by a single computing cluster or a plurality of computing machines, which may communicate via communication connections. Therefore, the electronic device 500 may use logical connections with one or more other servers, network personal computers (PCs) or another network node to operate in a networked environment.

[00114] The input device 550 may be one or more input devices, such as a mouse, a keyboard, a tracking ball, and the like. The output device 560 may be one or more output devices, such as a display, a speaker, a printer, and the like. The electronic device 500 may also communicate with one or more external devices (not shown) via the communication unit 540 as needed, the external devices such as a storage device, a display device, and the like, communicate with one or more devices that enable a user to interact with the electronic device 500, or communicate with any device (for example, a network card, a modem, and the like) that enables the electronic device 500 to communicate with one or more other electronic devices. Such communication may be performed via input/output (I/O) interfaces (not shown).

[00115] According to example implementations of the present disclosure, a computer-readable storage medium is provided, having computer-executable instructions stored thereon, where the computer-executable instructions are executed by a processor to implement the method described above. According to example implementations of the present disclosure, there is further provided a computer program product being tangibly stored on a non-transitory computer-readable medium and including computer-executable instructions, the computer-executable instructions being executed by a processor to implement the method described above.

[00116] Various aspects of the present disclosure are described herein with reference to flowcharts and/or block diagrams of a method, apparatus, device, and computer program product implemented according to the present disclosure. It should be 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.

[00117] 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, so that these instructions, when executed by the processor of the computer or other programmable data processing apparatus, produce means to implement the functions/acts specified in one or more blocks of the flowcharts and/or block diagrams. These computer-readable program instructions may also be stored in a computer-readable storage medium, these instructions make the computer, the programmable data processing apparatus, and/or other devices work in a specific manner, and accordingly, the computer-readable medium storing the instructions includes a manufactured product, which includes instructions to implement various aspects of the functions/acts specified in one or more blocks of the flowcharts and/or block diagrams.

[00118] The computer-readable program instructions may be loaded onto a computer, other programmable data processing apparatus, or other devices, so that a series of operating steps are performed on the computer, the other programmable data processing apparatus, or the other devices, to generate a computer-implemented process, so that the instructions executed on the computer, the other programmable data processing apparatus, or the other devices implement the functions/acts specified in one or more blocks of the flowcharts and/or block diagrams.

[00119] The flowcharts and block diagrams in the drawings show the possibly implemented architectures, functions, and operations of the system, method, and computer program product according to multiple implementations of the present disclosure. In this regard, each block in the flowcharts or block diagrams may represent a module, program segment, or part of an instruction, that contains 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 order 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 order, depending on the functions involved. It should also be noted that each block in the block diagrams and/or the flowcharts, as well as combinations of the blocks in the block diagrams and/or the flowcharts, may be implemented by a dedicated hardware-based system that executes specified functions or acts, or may be implemented by a combination of dedicated hardware and computer instructions.

[00120] Various implementations of the present disclosure have been described above, and the above descriptions are for the purpose of example, 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 terms used herein are chosen to best explain the principles of the implementations, the practical applications, or improvements to the technologies 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 at least one navigation tab in a first navigation region and presenting at least one navigation tab in a second navigation region, each navigation tab being configured to navigate to a corresponding page;
 - presenting an editing panel in response to detecting a predetermined trigger on a first navigation tab in the first navigation region, the editing panel comprising at least one second navigation tab for replacing the first navigation tab, the second navigation tab currently being presented in the second navigation region; and
 - switching the first navigation tab to a second navigation tab in the first navigation region and switching the second navigation tab to the first navigation tab in the second navigation region, in response to detecting a selection of the second navigation tab in the editing panel.
2. The method of claim 1, wherein presenting the editing panel comprises:
 - presenting the editing panel in response to detecting a first trigger operation on the first navigation tab.
3. The method of claim 1, wherein presenting the editing panel comprises:
 - presenting an editing trigger control in response to detecting a second trigger operation on the first navigation tab; and
 - presenting the editing panel in response to detecting a selection of the editing trigger control.
4. The method of claim 3, wherein the second trigger operation is further configured to trigger a preset operation on a page corresponding to the first navigation tab, and wherein presenting the editing trigger control comprises:
 - performing, in response to detecting the second trigger operation on the first navigation tab, the preset operation on the page corresponding to the first navigation tab with the editing trigger control being presented.
5. The method of claim 3, wherein presenting the editing trigger control further comprises:
 - determining whether the editing trigger control was presented for a predetermined number of times previously, in response to detecting the second trigger operation on the first navigation tab; and
 - presenting the editing trigger control in response to determining that the editing trigger control was not presented for the predetermined number of times previously.
6. The method of claim 5, wherein the second trigger operation is further configured to trigger a preset operation on a page corresponding to the first navigation tab, the method further comprising:
 - performing the preset operation for the page corresponding to the first navigation tab without presenting the editing trigger control, in response to determining that the editing trigger control was presented for the predetermined number of times previously and the selection of the editing trigger control is not detected in presentations of the predetermined number of times.

7. The method of claim 1, wherein the predetermined trigger on the first navigation tab and the selection of the second navigation tab are detected when a page corresponding to a third navigation tab is presented, and the method further comprising:

presenting a page corresponding to the second navigation tab in the first navigation region after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region.

8. The method of claim 1, further comprising:

presenting first prompt information in a region associated with the second navigation tab after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region,

wherein the first prompt information comprises at least one of the following: a switching state of the second navigation tab, or a guide to an editing mode of the second navigation tab.

9. The method of claim 1, further comprising:

presenting second prompt information in a region associated with the first navigation tab in response to detecting that a page corresponding to a navigation tab in the second navigation region is presented, after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region.

10. The method of claim 1, further comprising:

presenting the editing panel in response to detecting the predetermined trigger on the second navigation tab in the first navigation region, the editing panel comprising at least the first navigation tab for replacing the second navigation tab; and

switching the second navigation tab to the first navigation tab in the first navigation region and switching the first navigation tab to the second navigation tab in the second navigation region, in response to detecting a selection of the first navigation tab in the editing panel.

11. The method of claim 1, wherein the first navigation region and the second navigation region correspond to a target application, the method further comprising:

in response to the target application being restarted, after the first navigation tab is switched to the second navigation tab in the first navigation region and the second navigation tab is switched to the first navigation tab in the second navigation region, presenting at least one of the following:

first prompt information in a region associated with the second navigation tab, or
second prompt information in a region associated with the first navigation tab.

12. An apparatus for page interaction, comprising:

a tab presenting module configured to present at least one navigation tab in a first navigation region and present at least one navigation tab in a second navigation region, each navigation tab being configured to navigate to a corresponding page;

a panel presenting module configured to present an editing panel in response to detecting a predetermined trigger on a first navigation tab in the first navigation region, the editing panel comprising at least one second navigation tab for replacing the first navigation tab, the second navigation tab currently being presented in the second navigation region; and

a tab switching module configured to switch the first navigation tab to a second navigation tab in the first navigation region and switch the second navigation tab to the first navigation tab in the second navigation region, in response to detecting a selection of the second navigation tab in the editing panel.

13. 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 11.

14. A computer-readable storage medium having a computer program stored thereon which is executable by a processor to implement the method of any of claims 1 to 11.

15. A computer program product being tangibly stored in a computer storage medium and comprising computer-executable instructions that, when executed by a device, cause the device to perform the method of any of claims 1 to 11.