

METHOD AND SYSTEM OF MANAGING MODAL DIALOGS IN A MODELESS WAY

FIELD OF THE INVENTION

This invention relates to a method and system of managing modal dialogs, and more particularly in a modeless way, to enable a complete and easy view of all previously opened dialogs in the session to facilitate editing the information in the most recently opened modal dialog and closing it.

BACKGROUND OF THE INVENTION

In Graphical User Interface systems, a modal dialog is a child window, which requires the user to interact with it and close it before they can return to operating the parent application. The modal dialog pops up when (a) a warning message or an emergency condition needs to be displayed to the user or (b) collecting additional information during the processing of online forms or (c) performing actions related to the parent window in another window, so as to make the controls in the parent window well organized.

A modal dialog blocks all other workflow in the program until the modal dialog is closed. Accordingly, the user is not able to interact with the parent application until the modal dialog is closed. In some situations, a modal dialog pops up a second modal dialog and the second modal dialog pops up a third one. This phenomenon is referred to as cascaded modal dialogs. Moreover, cascaded dialogs are displayed to the user in an overlapping fashion, thereby the modal dialog at the front blocks most of the modal dialog window at the back, so that the user is unable to view the contents of the latter. Additionally, only the most recently opened dialog can be moved. The previously opened dialogs cannot be moved at all.

In the event of cascaded modal dialogs, the most recently opened modal dialog has to be first closed to transfer control to the immediately previous modal dialog. This condition exists until all the dialogs are closed, thereby eventually transferring control to the parent application. Moreover, to perform necessary actions in the most recently opened dialog, the user often has to refer to any one or more of the previously opened

dialogs in the cascade to obtain information relevant to the former. Referring to the previously opened dialogs is not possible because of the overlapping display of the same. Hence, the user has to keep memorizing information in the previously opened dialogs as and when they were opened, in the eventuality of more dialog boxes popping up and the most recent one requiring information from any one or more of the previously opened ones. This is very cumbersome for the user.

Accordingly, there is a need for a system and a method, which would enable viewing the previously opened dialogs completely and easily to enter relevant information in the most recently opened dialog and close the same.

SUMMARY OF THE INVENTION

One aspect of the invention is a system for managing modal dialogs in a modeless way by enabling the viewing of previously opened modal dialogs easily and completely, the system comprising, presentation module, the presentation module being the graphical user interface of the system; a data module, comprising information on at least one modal dialog currently present in the system; a control module, linked to the presentation module and the data module, wherein the control module enables managing modal dialogs in a modeless way, the modal dialogs comprising a most recently opened modal dialog and at least one previously opened modal dialog, by, display of the presentation module with an active area and a reference area; display of the most recently opened modal dialog in the active area and the at least one previously opened modal dialog in the reference area; enabling a user to access the reference area to view the at least one previously opened modal dialog easily.

In another aspect is provided a method of managing modal dialogs in a modeless way by enabling the viewing of previously opened modal dialogs easily and completely, the steps comprising; facilitating display of a presentation module with an active area and a reference area by a control module, the presentation module being a graphical user interface of the system; controlling transmission of information on a modal dialog from a data module to the presentation module by the control module; displaying a most recently opened modal dialog in the active area; displaying at least one previously

opened modal dialog in the reference area; and facilitating the viewing of the at least one previously opened modal dialog in the reference area easily and completely.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and form part of the specification, illustrate the present invention and together with the description, serve to explain the principles of the invention.

Fig 1 is a block diagram showing the components of an embodiment of the system

Fig 2 is a diagram showing the Reference and Active areas of the presentation module with a tab control

Fig 3 is a diagram showing the Reference and Active areas of the presentation module with a list control

Fig 4 is a diagram showing the Reference and Active areas of the presentation module with a drop down menu control

Fig 5 is a flow chart showing the working of the invention

DETAILED DESCRIPTION OF THE INVENTION

As illustrated in **Fig 1**, one embodiment of the system broadly comprises a presentation module **100**, a data module **105** and a control module **110**. Each of the modules are fully described hereinafter.

The data module **105** contains information on all the current modal dialogs opened as a result of working on the parent application. The information comprises the contents of the modal dialog and the graphical user interface parameters comprising control type, size, font, color, layout etc. The information is held by software objects called Dialog Info

Object. The Dialog Info Objects are constituents of the data module. There is one dedicated Dialog Info Object for each opened modal dialog at a particular point in time. In Fig 1, **105a**, **105b** and **105c** are Dialog Info Objects. The embodiment is not limited to three Dialog Info Objects alone. The number of Dialog Info Objects corresponds to the number of currently open modal dialogs.

The presentation module **100** is the graphical user interface of the system enabling the user to view the contents of the previously opened modal dialogs and enter information in the most recently opened modal dialog. The presentation module comprises an active area **115** and a reference area **120**. The active area in the presentation module is used to hold the most recently opened modal dialog, whereas the reference area **120** is used to hold the previously opened modal dialogs. The modal dialogs are displayed as pages in the active area and reference area. For instance, if in the course of processing the most recently opened modal dialog, another modal dialog is opened, then the latter becomes the most recently opened modal dialog and is held in the active area, whereas the former is pushed to the reference area. Unlike cascaded modal dialogs, this feature of the system enables viewing completely and easily any one or more of the previously opened modal dialogs in the reference area to enter information in the most recently opened modal dialog held in the Active area and close it accordingly. The operating principle will be described fully hereinafter.

As illustrated in Fig 2, since the reference area **120** can only display one modal dialog at a time, a tab control **130** is used in the reference area to refer to different modal dialogs and facilitate opening them, in the event of a plurality of modal dialogs being opened previously. The number of tabs in the tab control is equal to the number of modal dialogs held in the reference area. Tabs **130a**, **130b**, **130c** and **130d** refer to different modal dialogs held in the reference area and clicking on each tab displays the contents of the corresponding modal dialog.

Sometimes, the reference area has a multitude of tabs, causing a space constraint on the reference area display and resulting in a condition where not all the tabs can be displayed. As illustrated in Fig 2, a navigation feature **131** is provided to help with this condition. It is apparent that the navigation feature has two buttons, one having a left arrow **131a** and the other a right arrow **131b**. Clicking the right arrow shifts the tabs by

one unit to the left, so that the immediate tab on the right side of the previously visible tabs show up and the first one of the previously visible tabs disappear. Likewise, a click on the left arrow shifts the tabs by one unit to the right, so that the tab on the left side of the previously visible tabs show up and the last one of the previously visible tabs disappear. Accordingly, this feature helps the user to navigate through the whole array of tabs, even though all of them are not visible at any point in time. The embodiment is not limited to the display of only four tabs. The reference area can be configured to display any number of tabs.

In the presence of a multitude of modal dialogs held in the reference area, the user might have to access different modal dialogs to search for a specific value. To enable searching for the value quickly, a search feature **132** is provided in the reference area display, as illustrated in **Fig 2**. The user can enter the value to be searched in the text box **132a** and click on the process button **132b**. The search feature searches all the modal dialogs held in the reference area and displays the modal dialog where a match exists for the search criterion.

Preferably, the reference area **120** can also be configured in the form of a list **135** as illustrated in **Fig 3**. The list has different links **135a**, **135b**, **135c**, **135d**, **135e** and **135f** which refer to different modal dialogs held in the reference area. Clicking on each link individually results in displaying the contents of the respective modal dialog in the reference area. The reference area also comprises a search feature **132** as described above. The embodiment is not limited to the display of only six links. The reference area can be configured to display any number of links.

Still preferably, the Reference area **120** can also be configured in the form of a drop down menu **140** as illustrated in **Fig 4**. A menu item corresponding to the previously opened modal dialog is displayed in the field **140a** of the drop down menu by clicking on the button **140b**. The contents of the modal dialog are also simultaneously displayed in the reference area. The reference area also comprises a search feature **132** as described above.

Referring back to **Fig 5**, the control module **110** is a dialog processor, which comprises dialog manager **145**. The control module is linked to both the presentation module **100**

and data module **105**. The control module manages the overall operation of the system, which will be fully described hereinafter.

Preferably, the control module comprises a navigation function **150**, which is used to control the navigation feature **131** in the presentation module.

Preferably, the control module comprises a search function **155**, which is used to control the search feature **132** in the presentation module.

According to another aspect of the invention, the invention is a method of managing modal dialogs.

When there is a requirement for the parent application to pop a modal dialog, the system is invoked and the control module **110** runs through the method steps described hereinafter.

As illustrated in **Fig 5**, in step **201**, the control module **110** displays the presentation module with the reference and active area, the reference area invisible and active area visible.

The active area holds the most recently opened modal dialog, which is also referred to as the current modal dialog for the sake of simplicity. The reference area holds the previously opened modal dialogs. Only the modal dialog displayed in the active area can be edited. The modal dialogs displayed in the reference area can only be viewed.

After the display of the presentation module, the subsequent processes can be categorized into three types:

- (a) wherein a new modal dialog needs to be popped up, either for the first time after the presentation module is opened or upon processing an already popped up modal dialog
- (b) wherein the user performs actions to edit/modify data in the current modal dialog in the active area, while referring to previously opened modal dialogs held in the reference area

(c) wherein the user closes the current modal dialog

After the display of the presentation module, the control is transferred to step **202**, which determines whether a user's action is required or the system can proceed with the routines without the user's inputs.

Process (a) indicated above is illustrated by steps **203** to **207** in Fig 5, which is described hereinafter. Process (a) does not require the user's input.

Step **203** determines if the system is popping up a modal dialog for the first time. If the result is "yes", the control proceeds directly to step **206**, wherein a new page is created in the active area of the presentation module corresponding to the newly opened modal dialog.

Alternatively, if the result is "no", the control proceeds to step **204**, where the reference area is made visible. The control is subsequently transferred to step **205**, wherein the currently displayed page in the active area is moved to the reference area and a corresponding additional tab in the tab control or link in the list or a drop down item in the drop down menu is created in the presentation module to represent the new page. The control is now transferred to step **206**, wherein a new page is created in the active area of the presentation module to place the most recently opened modal dialog. The control is now transferred to step **207**, which enables the user to modify or enter new data in the current page in the active area and return to the parent application. Before the user can make any changes to the current page in the active area, control is subsequently transferred back to step **202** to determine whether the user's inputs are required or not.

If the user wants to refer to the previously opened modal dialogs in the reference area before editing the current modal dialog, process (b) is invoked by the system which is illustrated by steps **208** and **209**. In step **208**, the user selects the appropriate modal dialog in the reference area, either by using the tabs in the tab control or the links in the list or the drop down menu. Once the user selects the particular page, the control is transferred to step **209**, where the contents of the selected modal dialog are displayed in the reference area. Subsequently, control is transferred again to step **202** to determine whether the user's inputs are required or not.

The user enters or modifies information in the current modal dialog and then proceeds to close the current modal dialog in the active area. Closing the current modal dialog is indicated as process (c) above and illustrated by steps **210** to **215**. Clicking the close button indicated on the top right of the modal dialog in the active area closes the current modal dialog as illustrated in step **210**.

Similar to the cascaded pop up dialogs, all dialogs in the system are closed based on the rule of closing the most recently opened modal dialog first followed by closing the dialog which was opened immediately prior to the former. The other dialogs are closed in the same sequence. The other rule governing the closing of modal dialogs is that only dialogs displayed in the active area can be closed directly and that dialogs displayed in the reference area cannot be closed directly. Closing dialogs in the reference area is described hereinafter.

After closing, the control is transferred to step **211** where the system checks whether there are any other dialogs held in the reference area. If the result is "yes", control is transferred to step **212**, where the recently opened modal dialog among the dialogs held in the reference area is moved to the active area. The control is transferred back to step **210**, where the user closes it. Control now shifts to step **211** again to check if there are any other dialogs held in the reference area. If the result is "yes", control is transferred to step **212** again and the loop is repeated until the result of step **211** is "no". Subsequently, control is transferred to step **213**, which makes the Reference area invisible and finally closes the presentation module in step **214**.

The user can also search for the contents of the modal dialogs held in the reference area in the middle of closing the modal dialogs as is evident from the flow lines from step **212** to step **202** in Fig 5.

It is apparent from the above description that the user can switch between viewing the current page in the active area, searching for information in the previously opened dialogs and editing or entering data in the current page. The last step can also lead the system to open new modal dialogs.

Each action of the user invokes the control module to transfer information between the data module and the presentation module.

It is to be understood that the foregoing description of several preferred embodiments is intended to be purely illustrative of the principles of the invention, rather than exhaustive thereof, and that changes and variations will be apparent to those skilled in the art, and that the present invention is not intended to be limited other than as expressly set forth in the following claims.

CLAIMS

1. A system for managing modal dialogs in a modeless way by enabling the viewing of previously opened modal dialogs easily and completely, the system comprising:
 - (a) a presentation module, the presentation module being the graphical user interface of the system;
 - (b) a data module, comprising information on at least one modal dialog currently present in the system; and
 - (c) a control module, linked to the presentation module and the data module wherein the control module enables managing modal dialogs in a modeless way, the modal dialogs comprising a most recently opened modal dialog and at least one previously opened modal dialog by displaying:
 - (a) the presentation module with an active area and a reference area; and
 - (b) the most recently opened modal dialog in the active area, wherein when it is determined that there is the at least one previously opened modal dialog in the reference area, the most recently opened modal dialog is moved to the active area; thereby enabling a user to access the reference area to view the at least one previously opened modal dialog easily and completely.
2. A system as claimed in Claim 1, wherein information on the modal dialog comprises contents and graphical user interface parameters of the modal dialog.
3. A system as claimed in Claim 1, wherein the reference area includes a tab control with at least one tab, whereby the tab enables access to a corresponding modal dialog.
4. A system as claimed in Claim 3, wherein the tab control comprises a navigation feature to enable display of all the tabs in the tab control, the navigation feature comprising a left arrow button and a right arrow button, whereby:
 - (a) a click of the left arrow button shifts the tabs by one unit to the right and
 - (b) a click of the right arrow button shifts the tabs by one unit to the left.
5. A system as claimed in Claim 4, wherein the control module includes a navigation function, whereby the navigation function enables control of the navigation feature.

6. A system as claimed in Claim 1, wherein the reference area includes a list with at least one link, whereby the link enables access to a corresponding modal dialog.
7. A system as claimed in Claim 1, wherein the reference area includes a drop down menu with at least one menu item, wherein the menu item enables access to a corresponding modal dialog.
8. A system as claimed in Claim 1, wherein the reference area includes a search feature to search for a specific value in the previously opened modal dialogs in the reference area, the search feature comprising a text box and a process button, whereby:
 - (a) the text box enables entering the value to be searched; and
 - (b) a click of the process button enables searching and displaying the modal dialog where a match exists for the value in the text box.
9. A system as claimed in Claim 8, wherein the control module includes a search function, whereby the search function enables control of the search feature.
10. A method of managing modal dialogs in a modeless way by enabling the viewing of previously opened modal dialogs easily and completely, the steps comprising:
 - (a) facilitating a display of a presentation module with an active area and a reference area by a control module, the presentation module being a graphical user interface of the system;
 - (b) controlling the transmission of information on the modal dialog from a data module to the presentation module by the control module;
 - (c) displaying a most recently opened modal dialog in the active area;
 - (d) displaying at least one previously opened modal dialog in the reference area when it is determined that there is the at least one previously opened modal dialog in the reference area, the most recently opened modal dialog is moved to the active area; and thereby enabling the viewing of the at least one previously opened modal dialog in the reference area easily and completely.

11. A method as claimed in Claim 10, wherein the opening of a first modal dialog includes the steps of:
 - (a) displaying the presentation module with the active area and the invisible reference area, by the control module; and
 - (b) displaying the first modal dialog in the active area.
12. A method as claimed in Claim 11, wherein the opening of a new modal dialog subsequent to a previously opened modal dialog includes the steps of:
 - (a) displaying the presentation module with the active area and the reference area;
 - (b) shifting the display of the previously opened modal dialog to the reference area from the active area; and
 - (c) displaying the new modal dialog in the active area.
13. A method as claimed in Claim 10, wherein the closing of the modal dialog in the active area, the steps comprising:
 - (a) clicking the close button in the modal dialog;
 - (b) closing the modal dialog in the active area; and
 - (c) shifting the display of the recently opened modal dialog from the reference area to the active area.