GUI Specification for `Connect X`

Éric Poirier

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Chapter 1

Introduction

Chapter 2

GUI overview

The `Connect X` grahical user interface will consist of four main dialogs, which will be briefly described here, and of other second order dialogs like information or warning dialogs, where appropriate. The dialog where the players will spend most of their time will be the Game dialog:
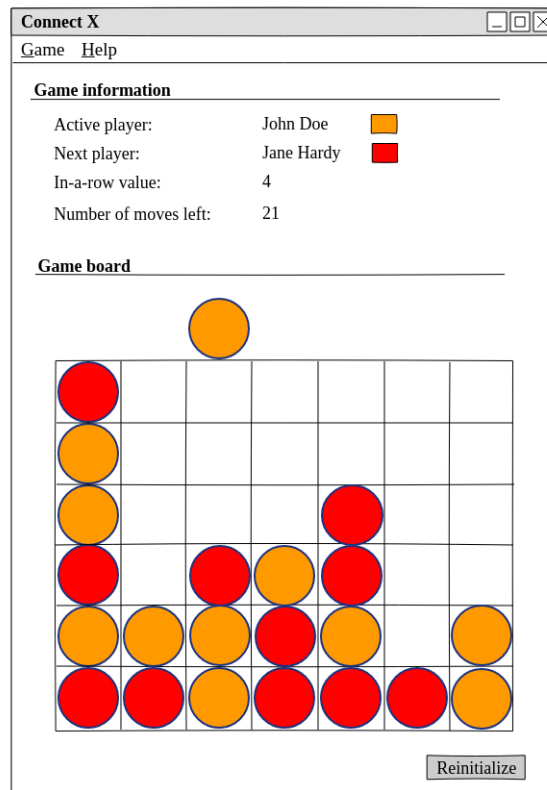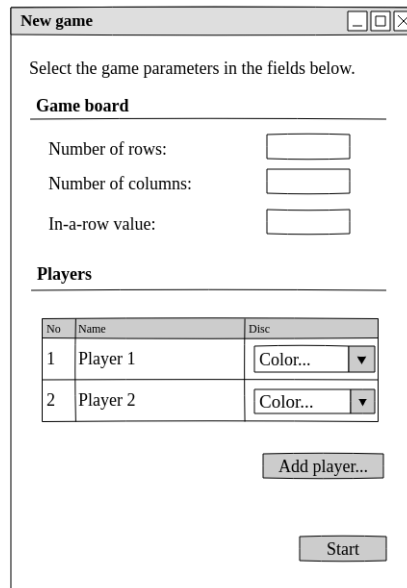

Figure 2.1 – A game dialog prototype

This dialog contains most of the game features: the game board and the discs, information on

the players and the game, player actions, such as placing a disc and creating a new game. It is also from this dialog that all the other dialogs can be invoked.

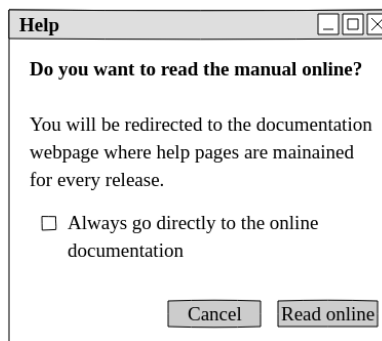The second most important dialog is the new game dialog:

Figure 2.2 – A new game dialog prototype

This dialog is needed to create a new game. A new game must be created upon starting up Connect X and if some game parameters must be changed (i.e if a new player wants to join or the in-a-row value must be changed). Another helpful dialog is the help dialog (!):

Figure 2.3 – A help dialog prototype

All this dialog does is redirect the user to the online help for `Connect X`. You can also take a look at the about dialog, which gives some more technical information on the software, such as the
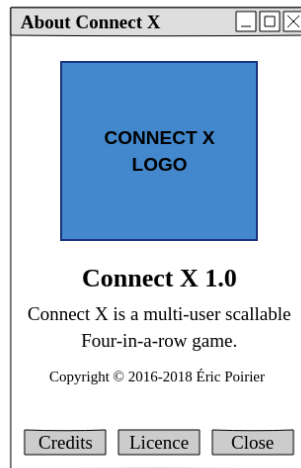
developper credits and the licencing:

Figure 2.4 – An about dialog prototype

Chapter 3

Detailed behaviour

3.1 The `Connect X` Game dialog

It is in this dialog that most of the interesting action happens. The following explain how a user can interract with the `Connect X` main window:

3.1.1 Menu bar

The menu bar consists of two menus: `Game` and `Help`. Both these menus are accessible both by clicking on them using the mouse or by using the mnemonics `Alt` + g and `Alt` + h respectively (i.e. pressing both the `Alt` and the g or h keys simultaneously). Each menu contains the following elements. First, the `Game` menu:

New game Brings up the New game dialog (see section 3.2).

Reinitialize game Reinitializes the current game.

Quit Quits `Connect X`.

Then, the `Help` menu:

Show help Brings up the Help dialog (see section 3.3)

About Connect X Brings up the About `Connect X` dialog (see section 3.4).

3.1.2 Game information area

The game information area consists of the part of the dialog (above the game board) where information on the game and the current turn is displayed. in this section, the following items are displayed[1]:

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[1]note that numbers refer to the line at which the mentionned item is displayed. Also, items are listed in the horizontal order at which they appear on the screen

1. **Section**, readonly : displays the constant string 'Game information'.

2. **Label**, readonly : displays the constant string 'Active player:'.

2. **Label**, readonly : displays the name of the active player. This string will change from turn to turn to adapt to the new active player.

2. **Label**, readonly : displays the disc color for the active player.

3. **Label**, readonly : displays the constant string 'Next player:'.

3. **Label**, readonly : displays the name of the next player. This string will change from turn to turn to adapt to the new next player.

3. **Label**, readonly : displays the disc color for the next player.

4. **Label**, readonly : displays the constant string 'In-a-row value:'.

4. **Label**, readonly : displays the game's in-a-row value in arabic numerals.

5. **Label**, readonly : displays the constant string 'Number of moves left:'.

5. **Label**, readonly : displays the number of moves left for the current game in arabic numerals.

See fig. 2.1 to see how these elements should be located in the dialog.

3.1.3 Game board area

The game board area contains the neccessary tools to play a `Connect X` game. This area can be further divided into subsections (listed in order from top to bottom):

1. the section title;

2. the next disc dropping area;

3. the game board (sometimes referred as the grid);

4. the reinitialize button.

The section title

The section title is a readonly `label` that displays the constant string 'Game board'.

The next disc dropping area

This section is an horizontal readonly array which is invisible to the players and holds either no disc (i.e. before a game is started) or one disc: the activeplayer's disc. The array has as many cells as there are columns in the game board and sits directly on top (vertically) of the game board.

The game board

The game board is a readonly array for which cells are visible to the players and in which discs are stored.

The reinitialize button

The reinitialize button is a clickable button displaying the constant string 'reinitialize' before game start, the button is disactivated and unclickable. As soon as a game is initialized, it is activated and clickable.

3.1.4 Behaviour

The required behaviours for the different elements in this dialog [2] are the following:

Move next disc Using the left and right arrow keys ($\boxed{\leftarrow}$ and $\boxed{\rightarrow}$), the active player can move the next disc to be dropped (located in the next disc dropping area) to the desired column. This action can also be accomplished using the mouse, by dragging the disc to the disered column, either on the disc dropping area or directly on the gameboard. Note that when a disc is moved, the column it is aligned with is highighted.

Drop next disc Using the down arrow key ($\boxed{\downarrow}$), the active player can drop a disc from the next disc dropping area to the gameboard. The disc then leaves from the next disc dropping area (it is replaced by the next player's disc) and moves in the gameboard, in column below, just like when a disc is dropped in a Connect 4 game. The players can also use the mouse to drop a disc by releasing the draggued disc in the wanted column. Once the disc has been dropped, the chosen column is no longer highlighted.

Reinitialize To reinitialize the dialog, the user can use the Reinitialize button, or the `Game->Reinitialize` menu item. Reinitializing a dialog puts the dialog back to the exact same state at which it was set at the game creation (i.e. after a New game dialog was populated with valid parameters and the start button was pressed. See section 3.2 for more information).

Close dialog To close the dialog, the user can use the standard close dialog button, or use the `Game->Close` menu item.

Minimize dialog To minimize this dialog, the user uses the standard dialog minimize button.

Maximize dialog To maximize this dialog, the user uses the standard dialog mmaximize button.

3.2 The new game dialog

This is the dialog where players can initialize a game. This dialog is of critical importance to ensure game parameters are set properly. In other words, it is here that we make sure that class

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[2] The behaviour for the menu items has already been described in the section 3.1.1 section and have not been repeated here, unless another element triggers the same action.

preconditions for the various objects needed in the backend are respected and that valid objects are created. If those are not met, the backend behaviour is undefined and all sorts of problems can occur. Refer to the 'cxbase' library documentation for more information.

3.2.1   The game board area

The first dialog area is the game board area, where players define the game board parameters for the game they are about to create.

3.2.2   The game area

The next dialog area lets players define game parameters.

3.2.3   The player registration area

The third dialog area is meant for players to register themselves.

3.2.4   The start game area

The last dialog area is the start game area. From here, players can start the game they have just defined, *but only if all parameters in the dialog fields are valid.* This is of crucial importance.

3.3   The help dialog

3.4   The about `Connect X` dialog

3.5   The message dialogs

Chapter 4

Conclusion