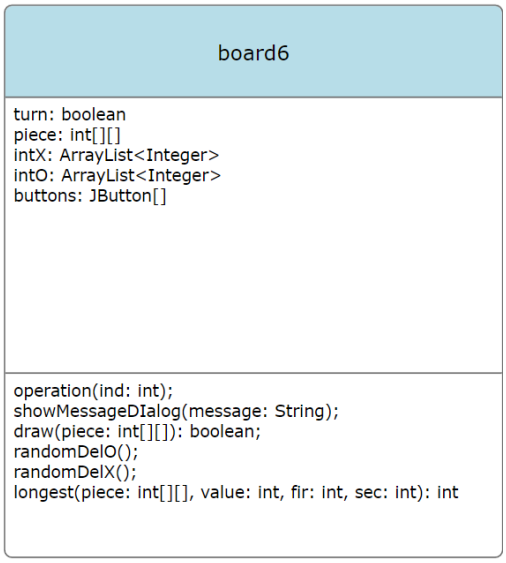
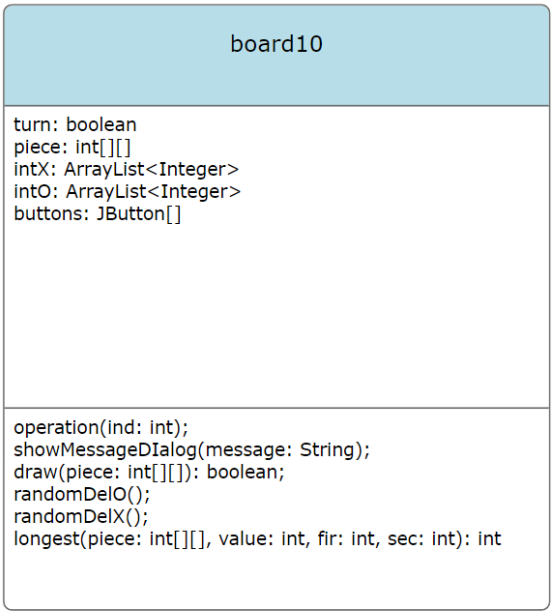
Assignment 2 - 4 - Tezuka Kei　hs6rey

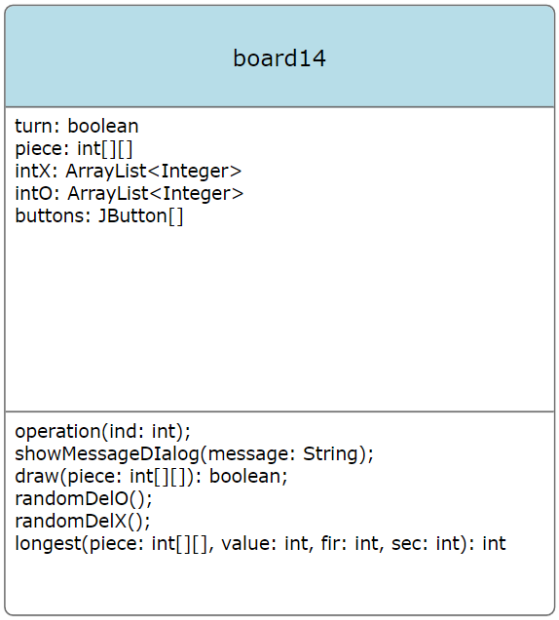
・The description of the exercise

4. Tricky five-in-a-row Create a game, which is a variant of the well-known five-in-a-row game. The two players can play on a board consists of n x n fields. Players put their signs alternately (X and O) on the board. A sign can be put only onto a free field. The game ends, when the board is full, or a player won by having five adjacent signs in a row, column or diagonal. The program should show during the game who turns. The trick in this variant is that if a player makes 3 adjacent signs (in a row, column or diagonal), then one of his signs is removed randomly (not necessary from this 3 signs). Similar happens, when the player makes 4 adjacent signs, but in this case two of his signs are removed. Implement this game, and let the board size be selectable (6x6, 10x10, 14x14). The game should recognize if it is ended, and it has to show in a message box which player won (if the game is not ended with draw), and automatically begin a new game.

・The class diagram







・The short description of each methods and the connections between the events and event handlers

operation function:

At first, the button number are converted to the matrix number. In the case, the matrix is still empty, no player still not fill the button, a player can fill it. Second, depending on the value of turn, which player can fill will be decided. In the case of true, player x will fill, in the case of false, player o will fill. The value of turn will be changed, button's text will be changed, label1's text will be changed, the value of matrix will be changed, and the number of button will be inserted to the arraylist. Next, using longest function, how many signs is in a low will be calculated, and according to the result, for example if the result is 3, one sign will be deleted, if the result is 4, two signs will be delted by randomDel functions, and if the result is 5, the massege deliver the winner's name will be shown. At the end, if all buttons are filled, the massage deliver the game is draw.

showMessageDialog function:
This function is used to deliver the massage.

draw function:
To check, all buttons are filled.

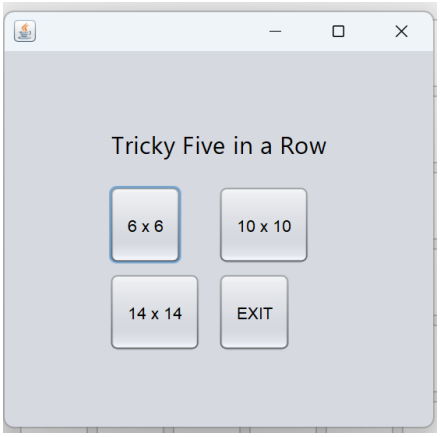
randomDelX function:
Delete one X sign from a button and from X arraylist.

randomDelO function:
Delete one O sign from a button and from O arraylist.

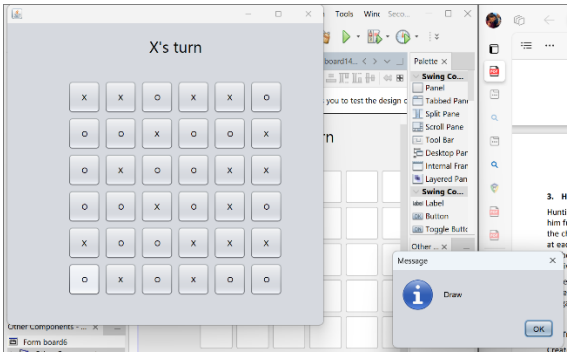
longest function:
To calculate how many length is in a raw, from the sign a player putted.

・The test cases

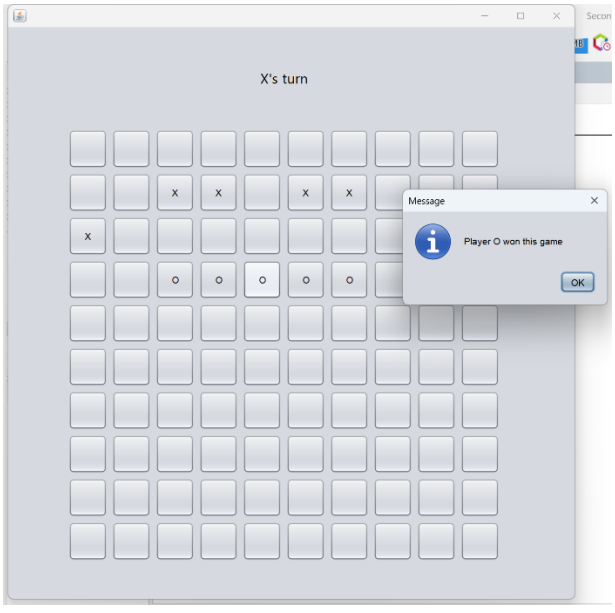
This is start window. If you push Exit button, the window will disappear.



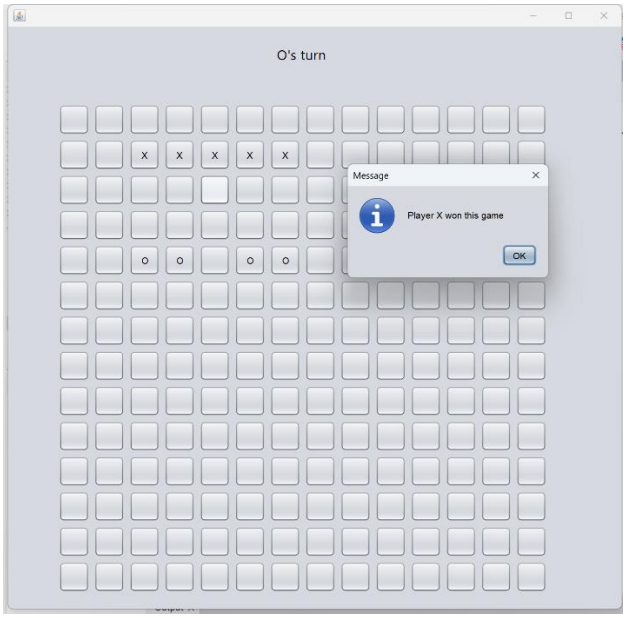
In the case, all buttons are filled, the draw message will appear.



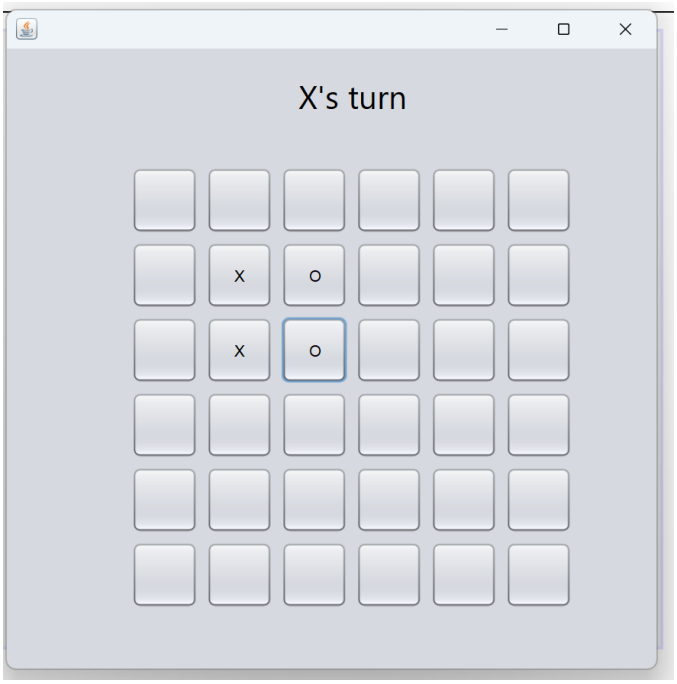
In the case, 5 o signs are in a row, player o won this game message will appear.



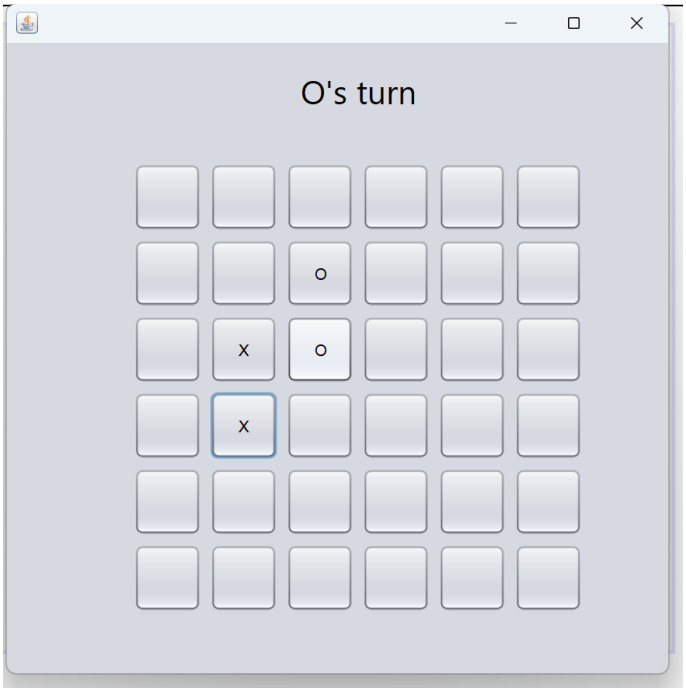
In the case 5 x signs are in a row, player x won this game message will appear.



I will check, when 3 signs in a row, a sing will be deleted or not.



I put x on [2, 4] and x on [2,2] is deleted so randomDelX function works well.



Other functions, like once a player put sign, no one can not put, if you put 4 signs in a row, two signs will be deleted, are checked.