Lab Activity – 4

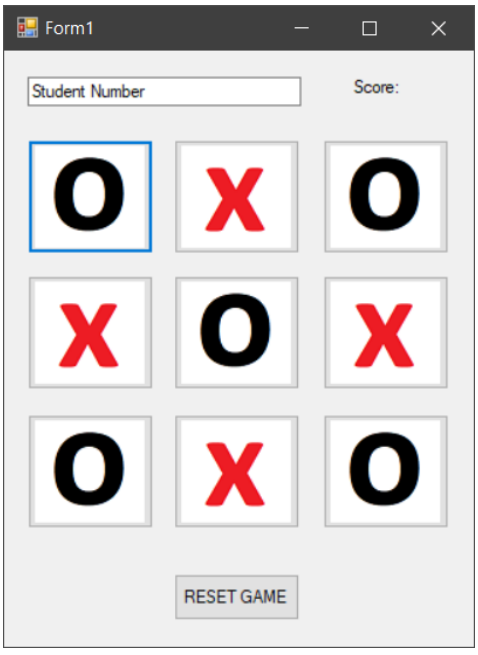
Objectives

• To learn Labels
• To learn Buttons
• To learn event mechanism

Exercise

X-O-X Game

The game is played on a grid that's 3 squares by 3 squares. You can use buttons with image on them. You are **X**, your friend (or the computer in this case) is **O**. Players take turns putting their marks in empty squares. The first player to get 3 of her marks in a row (up, down, or diagonally) is the winner. When all 9 squares are full, the game is over. If no player has 3 marks in a row, the game ends with draw.



The algorithm you create for the computer moves should try to win if that is possible, and if not, it should prevent the opponent from winning. You can use any data structure to hold game-related data. When the game is finished, you should check the game using testFuncXoX function that will return int score value for score label.

The parameters of testFuncXoX function is given below;

public **int** testFuncXoX(

string *studentNumber*, (**ex**. 20230000)

string *whoIsWinner*, (**ex**. "x", "o" or "draw")

string *box1value*, (**ex**. "o")

string *box2value*, (**ex**. "x")

string *box3value*, (**ex**. "o")

string *box4value*, (**ex**. "x")

string *box5value*, (**ex**. "o")

string *box6value*, (**ex**. "x")

string *box7value*, (**ex**. "o")

string *box8value*, (**ex**. "x")

string *box9value*) (**ex**. "o")

indexes of box:

1	2	3
4	5	6
7	8	9

What is Expected

- Create proper user interface
- Make sure the game provides what you want because the algorithm and gameplay you created for the computer moves will help you earn high scores in this application (for this application, the test function will return a maximum score of 30)
- Check student number (only integers, 8 digits, example: 20230001)
- Apply object-oriented programming principles
- Import.dll file and use test function for evaluation
- Report simply with step-by-step images and explanations of what has been completed
- Upload report (only .pdf) and complete project file (only .zip/.rar)
- The titles of the report and project files will be "<student number>_<student name>_lab<no>.<file format>"
  (for example, 152120230000_firstname_lastname_lab4.pdf)
  (for example, 152120230000_firstname_lastname_lab4.zip)
- Cheating is at your own initiative, but you also accept the consequences!

Problem Solving Tips

For computer moves, minimax algorithm might be a good start.