Name: Session:
Programming II
Making a Tic-Tac-Toe Game
Lab Exercise 4/16/2021

1. Start by building the following interface. The interface should contain 11 buttons and a label.

The controls should have the following names:

Name	Purpose
btnLeftUpper	To place an X or an O in the left upper square
btnMiddleUpper	To place an X or an O in the middle upper square
btnRightUpper	To place an X or an O in the right upper square
btnLeftMiddle	To place an X or an O in the left middle square
btnMiddleMiddle	To place an X or an O in the middle middle square
btnRightMiddle	To place an X or an O in the right middle square
btnLeftLower	To place an X or an O in the left lower square
btnMiddleLower	To place an X or an O in the middle lower square
btnRightLower	To place an X or an O in the right lower square
btnReset	To reset the game
btnQuit	To exit the game
lblWin	Displays winner message
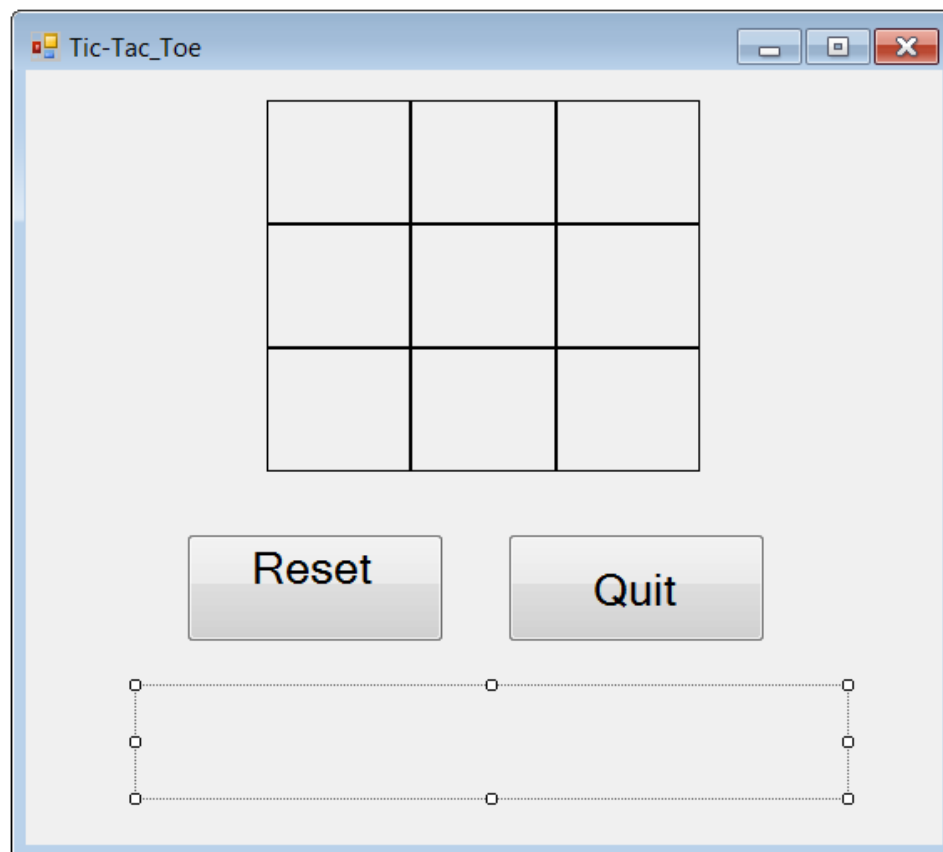
2. Add the following global variables

```
bool player;
bool disabled1;
bool disabled2;
bool disabled3;
bool disabled4;
bool disabled5;
bool disabled6;
bool disabled7;
bool disabled8;
bool disabled9;
```

3. Add the following code to the Form1_Load Sub

```
player = true;
disabled1 = false;
disabled2 = false;
disabled3 = false;
disabled4 = false;
disabled5 = false;
disabled6 = false;
disabled7 = false;
disabled8 = false;
disabled9 = false;
```

4. Add the following two functions to your program. The first function will check to see if a player has won and the second will lock the cells after they have been selected.

```
private void checkWin()
{
  playerX_Win();
  playerO_Win();
}

private void lockCells()
{
  btnLeftUpper.Enabled = false;
  btnMiddleUpper.Enabled = false;
  btnRightUpper.Enabled = false;
  btnLeftMiddle.Enabled = false;
  btnMiddleMiddle.Enabled = false;
  btnRightMiddle.Enabled = false;
  btnLeftLower.Enabled = false;
  btnMiddleLower.Enabled = false;
  btnRightLower.Enabled = false;
}
```

5. Now we will add two functions that will check if playerX or playerO has won.

```csharp
private void playerX_Win()
{
    if (btnLeftUpper.Text == "X" && btnMiddleUpper.Text == "X" && btnRightUpper.Text  == "X")
    {
        lblWin.Text = "Player X Wins";
        lockCells();
    }

    if (btnLeftLower.Text == "X" && btnMiddleLower.Text == "X" && btnRightLower.Text == "X")
    {
        lblWin.Text = "Player X Wins";
        lockCells();
    }

    if (btnLeftMiddle.Text == "X" && btnMiddleMiddle.Text == "X" && btnRightMiddle.Text == "X")
    {
        lblWin.Text = "Player X Wins";
        lockCells();
    }

    if (btnLeftUpper.Text == "X" && btnLeftMiddle.Text == "X" && btnLeftLower.Text == "X")
    {
        lblWin.Text = "Player X Wins";
        lockCells();
    }

    if (btnMiddleUpper.Text == "X" && btnMiddleMiddle.Text == "X" && btnMiddleLower.Text == "X")
    {
        lblWin.Text = "Player X Wins";
        lockCells();
    }

    if (btnRightUpper.Text == "X" && btnRightMiddle.Text == "X" && btnRightLower.Text == "X")
    {
        lblWin.Text = "Player X Wins";
        lockCells();
    }

    if (btnLeftUpper.Text == "X" && btnMiddleMiddle.Text == "X" && btnRightLower.Text == "X")
    {
        lblWin.Text = "Player X Wins";
        lockCells();
    }

    if (btnRightUpper.Text == "X" && btnMiddleMiddle.Text == "X" && btnLeftLower.Text == "X")
    {
        lblWin.Text = "Player X Wins";
        lockCells();
    }
}
```

Note: playerO_Win() is similiar

6. Now we will write code for the 9 cell button click events:

```
private void btnLeftUpper_Click(object sender, EventArgs e)
{
  if (player)
  {
    if (!disabled1)
    {
      btnLeftUpper.Text = "X";
      player = !player;
      disabled1 = true;
    }
  }
  else
  {
    if (!disabled1)
    {
      btnLeftUpper.Text = "O";
      player = !player;
      disabled1 = true;
    }
  }
  checkWin();
}
```

7. The Click event handlers for btnMiddleUpper, btnRightUpper, btnLeftMiddle, btnMiddleMiddle, btnRightMiddle, btnLeftLower, btnMiddleLower, and btnRightLower are similar.

8. Next we will add the code for the btnReset and btnQuit click events.

```
private void btnReset_Click(object sender, EventArgs e)
{
  player = true;
  disabled1 = false;
  disabled2 = false;
  disabled3 = false;
  disabled4 = false;
  disabled5 = false;
  disabled6 = false;
  disabled7 = false;
  disabled8 = false;
  disabled9 = false;
  btnLeftUpper.Enabled = true;
  btnMiddleUpper.Enabled = true;
  btnRightUpper.Enabled = true;
  btnLeftMiddle.Enabled = true;
  btnMiddleMiddle.Enabled = true;
  btnRightMiddle.Enabled = true;
```

```
            btnLeftLower.Enabled = true;
            btnMiddleLower.Enabled = true;
            btnRightLower.Enabled = true;
            btnLeftUpper.Text = "";
            btnMiddleUpper.Text = "";
            btnRightUpper.Text = "";
            btnLeftMiddle.Text = "";
            btnMiddleMiddle.Text = "";
            btnRightMiddle.Text = "";
            btnLeftLower.Text = "";
            btnMiddleLower.Text = "";
            btnRightLower.Text = "";
            lblWin.Text = "";
        }
```

9. Enjoy the game....

Submit a screen shot of a game you played.