



Vidyavardhini's College of Engineering and Technology

Department of Artificial Intelligence & Data Science

Experiment No. 12
Course Project based on the content of the syllabus.
Date of Performance:
Date of Submission:

Code

```
//Main Class
```

```
public class Main {  
    public static void main(String[] args) {  
        TicTacToe tictactoe = new TicTacToe();  
    }  
}
```

```
//Tic Tac Toe Class
```

```
import java.awt.*;  
import java.awt.event.*;  
import java.util.*;  
import javax.swing.*;
```

```

    public class TicTacToe implements
    ActionListener{

        Random random = new Random();

        JFrame frame = new JFrame();

        JPanel title_panel = new JPanel();

        JPanel button_panel = new JPanel();

        JLabel textfield = new JLabel();

        JButton[] buttons = new JButton[9];

        boolean player1_turn;

        TicTacToe(){

            frame.setDefaultCloseOperation(J
            Frame.EXIT_ON_CLOSE);

            frame.setSize(800,800);

            frame.getContentPane().setBackg
            round(new Color(50,50,50));

            frame.setLayout(new
            BorderLayout());

            frame.setVisible(true);

            textfield.setBackground(new
            Color(25,25,25));

            textfield.setForeground(new
            Color(25,255,0));

            textfield.setFont(new Font("Ink
            Free",Font.BOLD,75));

```

```
        textfield.setHorizontalAlignment(J  
Label.CENTER);
```

```
        textfield.setText("Tic-Tac-Toe");
```

```
        textfield.setOpaque(true);
```

```
        title_panel.setLayout(new  
BorderLayout());
```

```
        title_panel.setBounds(0,0,800,10  
0);
```

```
        button_panel.setLayout(new  
GridLayout(3,3));
```

```
        button_panel.setBackground(new  
Color(150,150,150));
```

```
        for(int i=0;i<9;i++) {  
            buttons[i] = new  
JButton();
```

```
        button_panel.add(buttons[i]);
```

```
            buttons[i].setFont(new  
Font("MV Boli",Font.BOLD,120));
```

```
        buttons[i].setFocusable(false);
```

```
        buttons[i].addActionListener(this  
;  
    }
```

```
        title_panel.add(textfield);
```

```
        frame.add(title_panel, BorderLayout.  
ut.NORTH);
```

```
        frame.add(button_panel);
```

```
        firstTurn();
```

```
    }
```

```
@Override
```

```
public void actionPerformed(ActionEvent  
e) {
```

```
    for(int i=0;i<9;i++) {
```

```
        if(e.getSource()==buttons[i]) {
```

```
            if(player1_turn) {
```

```
                if(buttons[i].getText()=="") {
```

```
                    buttons[i].setForeground(new  
Color(255,0,0));
```

```
                    buttons[i].setText("X");
```

```
                    player1_turn=false;
```

```
                    textfield.setText("O turn");
```

```
                    check();
```

```
                }
```

```
            }
```

```
        else {
```

```
        if(buttons[i].getText()=="") {

            buttons[i].setForeground(new
Color(0,0,255));

            buttons[i].setText("O");

            player1_turn=true;

            textfield.setText("X turn");

            check();

        }

    }

}

}
```

```
public void firstTurn() {

    try {

        Thread.sleep(2000);

    } catch (InterruptedException e) {

        // TODO Auto-generated
catch block

        e.printStackTrace();

    }

    if(random.nextInt(2)==0) {
```

```
        player1_turn=true;

        textfield.setText("X turn");

    }

    else {

        player1_turn=false;

        textfield.setText("O
turn");

    }

}
```

```
public void check() {

    //check X win conditions

    if(

        (buttons[0].getText()=="X") &&

        (buttons[1].getText()=="X") &&

        (buttons[2].getText()=="X")

            ) {

        xWins(0,1,2);

    }

    if(

        (buttons[3].getText()=="X") &&

        (buttons[4].getText()=="X") &&

        (buttons[5].getText()=="X")

            ) {
```

```
        xWins(3,4,5);
    }

    if(

        (buttons[6].getText()=="X") &&

        (buttons[7].getText()=="X") &&

        (buttons[8].getText()=="X")

            ) {

                xWins(6,7,8);
            }

    if(

        (buttons[0].getText()=="X") &&

        (buttons[3].getText()=="X") &&

        (buttons[6].getText()=="X")

            ) {

                xWins(0,3,6);
            }

    if(

        (buttons[1].getText()=="X") &&

        (buttons[4].getText()=="X") &&

        (buttons[7].getText()=="X")

            ) {

                xWins(1,4,7);
```

```
}  
  
if(  
  
    (buttons[2].getText()=="X") &&  
  
    (buttons[5].getText()=="X") &&  
  
    (buttons[8].getText()=="X")  
  
        ) {  
            xWins(2,5,8);  
        }  
  
if(  
  
    (buttons[0].getText()=="X") &&  
  
    (buttons[4].getText()=="X") &&  
  
    (buttons[8].getText()=="X")  
  
        ) {  
            xWins(0,4,8);  
        }  
  
if(  
  
    (buttons[2].getText()=="X") &&  
  
    (buttons[4].getText()=="X") &&  
  
    (buttons[6].getText()=="X")  
  
        ) {  
            xWins(2,4,6);  
        }  
  
}
```



```
//check O win conditions

if(

(buttons[0].getText()=="O") &&

(buttons[1].getText()=="O") &&

(buttons[2].getText()=="O")

) {

oWins(0,1,2);

}

if(

(buttons[3].getText()=="O") &&

(buttons[4].getText()=="O") &&

(buttons[5].getText()=="O")

) {

oWins(3,4,5);

}

if(

(buttons[6].getText()=="O") &&

(buttons[7].getText()=="O") &&

(buttons[8].getText()=="O")

) {

oWins(6,7,8);

}
```

```
if(

(buttons[0].getText()=="O") &&

(buttons[3].getText()=="O") &&

(buttons[6].getText()=="O")

        ) {

        oWins(0,3,6);

}

if(

(buttons[1].getText()=="O") &&

(buttons[4].getText()=="O") &&

(buttons[7].getText()=="O")

        ) {

        oWins(1,4,7);

}

if(

(buttons[2].getText()=="O") &&

(buttons[5].getText()=="O") &&

(buttons[8].getText()=="O")

        ) {

        oWins(2,5,8);

}

if(
```

```

        (buttons[0].getText()=="O") &&

        (buttons[4].getText()=="O") &&

        (buttons[8].getText()=="O")

            ) {

                oWins(0,4,8);

            }

        if(

            (buttons[2].getText()=="O") &&

            (buttons[4].getText()=="O") &&

            (buttons[6].getText()=="O")

                ) {

                    oWins(2,4,6);

                }

    }

    public void xWins(int a,int b,int c) {

        buttons[a].setBackground(Color.G
REEN);

        buttons[b].setBackground(Color.G
REEN);

        buttons[c].setBackground(Color.G
REEN);

```

```

        for(int i=0;i<9;i++) {

            buttons[i].setEnabled(false);

        }

        textfield.setText("X wins");

    }

    public void oWins(int a,int b,int c) {

        buttons[a].setBackground(Color.G
REEN);

        buttons[b].setBackground(Color.G
REEN);

        buttons[c].setBackground(Color.G
REEN);

        for(int i=0;i<9;i++) {

            buttons[i].setEnabled(false);

        }

        textfield.setText("O wins");

    }

```