



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        Ac

onListener{

Random random = new Random();

JFrame frame = new JFrame();

JPanel tile_panel = new JPanel();

JPanel button_panel = new JPanel();

JLabel textfield = new JLabel(); JButton

on[] buttons = new JButton[9];

boolean player1_turn;

TicTacToe(){

        frame.setDefaultCloseOperation(J
Frame.EXIT_ON_CLOSE);
frame.setSize(800,800);

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

        frame.setLayout(new
BorderLayout());

frame.setVisible(true);

```

```

        tex ield.setBackground(new
Color(25,25,25));

        tex ield.setForeground(new
Color(25,255,0));

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

        tex ield.setHorizontalAlignment(J
Label.CENTER);        tex
ield.setText("Tic-Tac-Toe");        tex
ield.setOpaque(true);


        tle_panel.setLayout(new
BorderLayout());

        tle_panel.setBounds(0,0,800,10
0);


        bu on_panel.setLayout(new
GridLayout(3,3));

        bu on_panel.setBackground(new
Color(150,150,150));


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

                bu ons[i]    =    new
JButton();

                bu on_panel.add(bu ons[i]);

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

                bu ons[i].setFocusable(false);

```

```

        buttons[i].addActionListener(this)
    }
}

```

```

        title_panel.add(textfield);
frame.add(title_panel, BorderLayout.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(bu ons[i].getText()=="") {
```

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

```
        bu ons[i].setText("O");
```

```
        player1_turn=true;
```

```
        tex ield.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;        tex

ield.setText("X turn");

    }

    else {

player1_turn=false;

        tex ield.setText("O
turn");

    }

}

```

```

public void check() {

    //check X win condi ons

    if(

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

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

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

        ) {

        xWins(0,1,2);

    }

    if(

```

```

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

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

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

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

    if(

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

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

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

        ) {
            xWins(6,7,8);

        }

    if(

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

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

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

        ) {
            xWins(0,3,6);

        }

    if(

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

```

```
(buons[4].getText()=="X")
    &&
```

```
(buons[7].getText()=="X")
```

```
    ) {
```

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

```
    }
```

```
if(
```

```
(buons[2].getText()=="X")
    &&
```

```
(buons[5].getText()=="X")
    &&
```

```
(buons[8].getText()=="X")
```

```
    ) {
```

```
        xWins(2,5,8);
```

```
    }
```

```
if(
```

```
(buons[0].getText()=="X")
    &&
```

```
(buons[4].getText()=="X")
    &&
```

```
(buons[8].getText()=="X")
```

```
    ) {
```

```
        xWins(0,4,8);
```

```
    }
```

```
if(
```

```
(buons[2].getText()=="X")
    &&
```



```

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

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

        ) {

            xWins(2,4,6);
        }

//check O win conditions

if(

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

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

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

        ) {

            oWins(0,1,2);

        }

if(

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

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

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

        ) {

            oWins(3,4,5);

        }

if(

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

```

```
(buons[7].getText()=="O")
    &&
```

```
(buons[8].getText()=="O")
```

```
    ) {
```

```
        oWins(6,7,8);
```

```
    }
```

```
if(
```

```
(buons[0].getText()=="O")
    &&
```

```
(buons[3].getText()=="O")
    &&
```

```
(buons[6].getText()=="O")
```

```
    ) {
```

```
        oWins(0,3,6);
```

```
    }
```

```
if(
```

```
(buons[1].getText()=="O")
    &&
```

```
(buons[4].getText()=="O")
    &&
```

```
(buons[7].getText()=="O")
```

```
    ) {
```

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

```
    }
```

```
if(
```

```
(buons[2].getText()=="O")
    &&
```

```

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

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

            ) {

                oWins(2,5,8);
            }

        if(

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

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

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

                ) {

                    oWins(0,4,8);

                }

            if(

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

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

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

                    ) {

                        oWins(2,4,6);
                    }

            }

```

```

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

```

```

    bu ons[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");
```

}

OUTPUT:

