

PROJECT – 4

NAME OF THE PROJECT : Tic Tac Toe Game

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DATE OF THE PROJECT : 07-08-2023

PROJECT SUMMARY :

Create Tic-Tac-Toe game, In this game, two players will be played and you have one print board on the screen where from 1 to 9 number will be displayed or you can say it box number. Now, you have to choose X or O for the specific box number. For example, if you have to select any number then for X or O will be shown on the print board, and turn for next will be there. The task is to create a java program to implement a 3x3 Tic-Tac-Toe game for two players.

INPUT :

```
package SourceCode;

import javax.swing.*.*;
import java.awt.*.*;
import java.awt.event.*;
import java.util.Random;
public class TicTacToeGame implements ActionListener {

    Random random=new Random();
    JFrame frame=new JFrame();
    JButton buttons[]=new JButton[9];
    JLabel textfield=new JLabel();
    JPanel Heading_Panel=new JPanel();
    JPanel Button_Panel=new JPanel();
    boolean player1_turn=true;

    TicTacToeGame(){

        //Frame
        frame.setVisible(true);
        frame.setSize(800,800);
        frame.getContentPane().setBackground(new Color(50,50,50));
        frame.setLayout(new BorderLayout());

        //Heading
        textfield.setFont(new Font("Ink Free",Font.BOLD,40));
        textfield.setBackground(new Color(25,25,25));
        textfield.setForeground(new Color(25,255,0));
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        textfield.setHorizontalAlignment(JLabel.CENTER);

textfield.setText("TIC-TAC GAME");
textfield.setOpaque(true);

//Heading panel
Heading_Panel.setLayout(new BorderLayout());
Heading_Panel.setBounds(0,0,800,100);
Heading_Panel.add(textfield);
frame.add(Heading_Panel,BorderLayout.NORTH);

//Button pannel
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();
    buttons[i].addActionListener(this);
    buttons[i].setFont(new Font("MV Boli",Font.BOLD,100));
    Button_Panel.add(buttons[i]);
}
frame.add(Button_Panel);
firstTurn();
}

public void actionPerformed(ActionEvent e){
    for (int i=0;i<9;i++){
        if (e.getSource()==buttons[i]){
            if(player1_turn){ //true X 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(); //calling check function
                }
            }
            else{ //O turn false
                if (buttons[i].getText()==""){
                    buttons[i].setForeground(new Color(0,0,255));
                    buttons[i].setText("O");
                    player1_turn=true;
                    textfield.setText("X TURN");
                    check(); //calling check function
                }
            }
        }
    }
}

public void check() {
    //X Win Conditions

    if(buttons[0].getText()=="X" && buttons[1].getText()=="X" && buttons[2].getText()=="X"){
        XWin(0,1,2); // calling XWin Function
    }

    if(buttons[3].getText()=="X" && buttons[4].getText()=="X" && buttons[5].getText()=="X"){
        XWin(3,4,5); // calling XWin Function
    }
}

```

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}

if(buttons[6].getText()=="X" && buttons[7].getText()=="X" && buttons[8].getText()=="X"){
    XWin(6,7,8); // calling XWin Function
}

if(buttons[0].getText()=="X" && buttons[3].getText()=="X" && buttons[6].getText()=="X"){
    XWin(0,3,6); // calling XWin Function
}

if(buttons[1].getText()=="X" && buttons[4].getText()=="X" && buttons[7].getText()=="X"){
    XWin(1,4,7); // calling XWin Function
}

if(buttons[2].getText()=="X" && buttons[5].getText()=="X" && buttons[8].getText()=="X"){
    XWin(2,5,8); // calling XWin Function
}

if(buttons[0].getText()=="X" && buttons[4].getText()=="X" && buttons[8].getText()=="X"){
    XWin(0,4,8); // calling XWin Function
}

if(buttons[2].getText()=="X" && buttons[4].getText()=="X" && buttons[6].getText()=="X"){
    XWin(2,4,6); // calling XWin Function
}

// O Win Conditions
if(buttons[0].getText()=="O" && buttons[1].getText()=="O" && buttons[2].getText()=="O"){
    OWin(0,1,2); // calling OWin Function
}

if(buttons[3].getText()=="O" && buttons[4].getText()=="O" && buttons[5].getText()=="O"){
    OWin(3,4,5); // calling OWin Function
}

if(buttons[6].getText()=="O" && buttons[7].getText()=="O" && buttons[8].getText()=="O"){
    OWin(6,7,8); // calling OWin Function
}

if(buttons[0].getText()=="O" && buttons[3].getText()=="O" && buttons[6].getText()=="O"){
    OWin(0,3,6); // calling OWin Function
}

if(buttons[1].getText()=="O" && buttons[4].getText()=="O" && buttons[7].getText()=="O"){
    OWin(1,4,7); // calling OWin Function
}

if(buttons[2].getText()=="O" && buttons[5].getText()=="O" && buttons[8].getText()=="O"){
    OWin(2,5,8); // calling OWin Function
}

if(buttons[0].getText()=="O" && buttons[4].getText()=="O" && buttons[8].getText()=="O"){
    OWin(0,4,8); // calling OWin Function
}

if(buttons[2].getText()=="O" && buttons[4].getText()=="O" && buttons[6].getText()=="O"){
    OWin(2,4,6); // calling OWin Function
}
}

```

```

private void XWin(int a, int b, int c) {
    buttons[a].setBackground(Color.GREEN);
    buttons[b].setBackground(Color.GREEN);
    buttons[c].setBackground(Color.GREEN);

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

        buttons[i].setEnabled(false); //Disable the buttons after win
    }

    textfield.setText("!! Congratulations, X Wins");
}

    public void OWin(int a, int b, int c){
        buttons[a].setBackground(Color.GREEN);
        buttons[b].setBackground(Color.GREEN);
        buttons[c].setBackground(Color.GREEN);

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

            buttons[i].setEnabled(false); //Disable the buttons after win
        }
        textfield.setText("!! Congratulations, O Wins");
    }
public void firstTurn(){
    try {
        Thread.sleep(2000);
    } catch (Exception e){
        e.printStackTrace();
    }
    if(random.nextInt(2)==0){
        player1_turn=true;
        textfield.setText("X TURN");
    }
    else{
        textfield.setText("O TURN");
    }
}
public static void main(String[] args){
    // TODO Auto-generated method stub
    new TicTacToeGame();
}
}

```

OUTPUT:

