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Semester : 5th

Department : BS(CS)

Subject : OBJECT ORIENTED PROGRAMMING

ASSIGNMENT

Q1: Create a tic toc toe game in java and explain it in details including screen shots?

Answer: Program Code:


```java
import java.awt.Color;

public class TicToctoy extends JFrame {
    int Turn=0;
    JButton[] button= new JButton[11];
    public void TicTocToe() {
        for (int i=0;i<button.length;i++) {
            if(i==9) {
                button[i]=new JButton("RESET");
                button[i].setBackground(Color.RED);
                add(button[i]);
            }
            else if(i==10){
                button[i]=new JButton("EXIT");
                button[i].setBackground(Color.RED);
                add(button[i]);
            }
            else {
                button[i]=new JButton();
                button[i].setBackground(Color.YELLOW);
                add (button[i]);
            }
        }
        button[0].addActionListener(new ActionListener() {
            @Override
            public void actionPerformed(ActionEvent e) {
                // TODO Auto-generated method stub
                if(button[0].getText().equals("")) {
                    if(Turn==0) {
                        button[0].setText("x");
                        if (checkResult()== true)
                        {
                            JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
                        }
                        else if(isDraw()==true)
                        {
                            JOptionPane.showMessageDialog(null, "Draw");
                        }
                        Turn=1;
```

```
47                    }
48                    else {
49                        button[0].setText ("o");
50                        if (checkResult()== true)
51                        {
52                            JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
53                        }
54                        else if(isDraw()==true)
55                        {
56                            JOptionPane.showMessageDialog(null, "Draw");
57                        }
58 //                checkResult();
59                        Turn=0;
60                    }
61            }
62
63        }
64    });
65    button[1].addActionListener(new ActionListener() {
66        @Override
67        public void actionPerformed(ActionEvent e) {
68            // TODO Auto-generated method stub
69            if(button[1].getText().equals("")) {
70                if(Turn==0) {
71                button[1].setText("x");
72                if (checkResult()== true)
73                {
74                    JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
75                }
76                else if(isDraw()==true)
77                {
78                    JOptionPane.showMessageDialog(null, "Draw");
79                }
80                Turn=1;
81
82                }
83                else {
84                button[1].setText("o");
85                if (checkResult()== true)
```

```
86                    {
87                        JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
88                    }
89                    else if(isDraw()==true)
90                    {
91                        JOptionPane.showMessageDialog(null, "Draw");
92                    }
93                    Turn=0;
94                }}
95        }
96    });
97    button[2].addActionListener(new ActionListener () {
98        @Override
99        public void actionPerformed(ActionEvent e) {
100            if (button[2].getText().equals("")) {
101                if(Turn==0) {
102                button[2].setText("x");
103                if (checkResult()== true)
104                {
105                    JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
106                }
107                else if(isDraw()==true)
108                {
109                    JOptionPane.showMessageDialog(null, "Draw");
110                }
111                Turn=1;
112                }
113                else {
114
115                    button[2].setText("o");
116                    if (checkResult()== true)
117                    {
118                        JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
119                    }
120                    else if(isDraw()==true)
121                    {
122                        JOptionPane.showMessageDialog(null, "Draw");
123                    }
```

```java
124                     Turn=0;
125                 }
126             }
127         }
128     });
129     button[3].addActionListener(new ActionListener() {
130         @Override
131         public void actionPerformed(ActionEvent e) {
132             if(button[3].getText().equals("")) {
133                 if(Turn==0) {
134                     button[3].setText("x");
135                     if (checkResult()== true)
136                     {
137                         JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
138                     }
139                     else if(isDraw()==true)
140                     {
141                         JOptionPane.showMessageDialog(null, "Draw");
142                     }
143                     Turn=1;
144                 }
145                 else {
146                     button[3].setText("o");
147                     if (checkResult()== true)
148                     {
149                         JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
150                     }
151                     else if(isDraw()==true)
152                     {
153                         JOptionPane.showMessageDialog(null, "Draw");
154                     }
155                     Turn=0 ;
156                 }
157             }
158         }
159     });
160     button[4].addActionListener(new ActionListener(){
```

```java
161         @Override
162         public void actionPerformed(ActionEvent e) {
163             if(button[4].getText().equals("")) {
164                 if(Turn==0) {
165                     button[4].setText("x");
166                     if (checkResult()== true)
167                     {
168                         JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
169                     }
170                     else if(isDraw()==true)
171                     {
172                         JOptionPane.showMessageDialog(null, "Draw");
173                     }
174                     Turn=1;
175                 }
176                 else {
177                     button[4].setText("o");
178                     if (checkResult()== true)
179                     {
180                         JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
181                     }
182                     else if(isDraw()==true)
183                     {
184                         JOptionPane.showMessageDialog(null, "Draw");
185                     }
186                     Turn=0 ;
187                 }
188             }
189         }
190     });
191     button[5].addActionListener(new ActionListener(){
192         public void actionPerformed(ActionEvent e) {
193             if(button[5].getText().equals("")) {
194                 if(Turn==0) {
195                     button[5].setText("x");
196                     if (checkResult()== true)
197                     {
198                         JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
```

```java
                                }
                            else if(isDraw()==true)
                            {
                                    JOptionPane.showMessageDialog(null, "Draw");
                            }
                        Turn=1;
                        }
                    else {
                        button[5].setText("o");
                        if (checkResult()== true)
                        {
                            JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
                        }
                        else if(isDraw()==true)
                        {
                                JOptionPane.showMessageDialog(null, "Draw");
                        }
                        Turn=0 ;
                    }
                }
            }
        });
        button[6].addActionListener(new ActionListener(){
            public void actionPerformed(ActionEvent e) {
                if(button[6].getText().equals("")) {
                    if(Turn==0) {
                        button[6].setText("x");
                        if (checkResult()== true)
                        {
                            JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
                        }
                        else if(isDraw()==true)
                        {
                                JOptionPane.showMessageDialog(null, "Draw");
                        }
                        Turn=1;
                    }
                    else {
```

```java
                    else {
                        button[6].setText("o");
                        if (checkResult()== true)
                        {
                            JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
                        }
                        else if(isDraw()==true)
                        {
                                JOptionPane.showMessageDialog(null, "Draw");
                        }
                        Turn=0 ;
                    }
                }
            }
        });
        button[7].addActionListener(new ActionListener(){
            public void actionPerformed(ActionEvent e) {
                if(button[7].getText().equals("")) {
                    if(Turn==0) {

                        button[7].setText("x");
                        if (checkResult()== true)
                        {
                            JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
                        }
                        else if(isDraw()==true)
                        {
                                JOptionPane.showMessageDialog(null, "Draw");
                        }
                        Turn=1;
                    }
                    else {
                        button[7].setText("o");
                        if (checkResult()== true)
                        {
                            JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
                        }
                        else if(isDraw()==true)
                        {
```

```java
                    JOptionPane.showMessageDialog(null, "Draw");
                }
            Turn=0 ;
            }
        }
    });
    button[8].addActionListener(new ActionListener(){
        public void actionPerformed(ActionEvent e) {
            if(button[8].getText().equals("")) {
                if(Turn==0) {
                    button[8].setText("x");
                    if (checkResult()== true)
                    {
                        JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
                    }
                    else if(isDraw()==true)
                    {
                        JOptionPane.showMessageDialog(null, "Draw");
                    }
                Turn=1;
                }
                else {
                    button[8].setText("o");
                    if (checkResult()== true)
                    {
                        JOptionPane.showMessageDialog(null, "Player "+Turn+" Wins!");
                    }
                    else if(isDraw()==true)
                    {
                        JOptionPane.showMessageDialog(null, "Draw");
                    }
                Turn=0 ;
                }
            }
        }
    });
    button[9].addActionListener(new ActionListener(){
        public void actionPerformed(ActionEvent e) {
```

```java
            for (int i = 0; i < 9; i++) {
                button[i].setText("");
            }
        }
    });
    button[10].addActionListener(new ActionListener(){
        public void actionPerformed(ActionEvent e) {
            System.exit(0);
        }
    });
    setVisible(true);
    setSize(700,700);
    setLayout(new GridLayout(4,3));
}
public static void main(String[] args) {
    // TODO Auto-generated method stub

    TicToctoy obj= new TicToctoy();

    obj.TicTocToe();
}
public Boolean isDraw() {


    // Do that
    for (int i = 0; i < 9; i++) {
        if(button[i].getText().equals(""))
        {
            return false;
        }
    }
    return true;

}
```
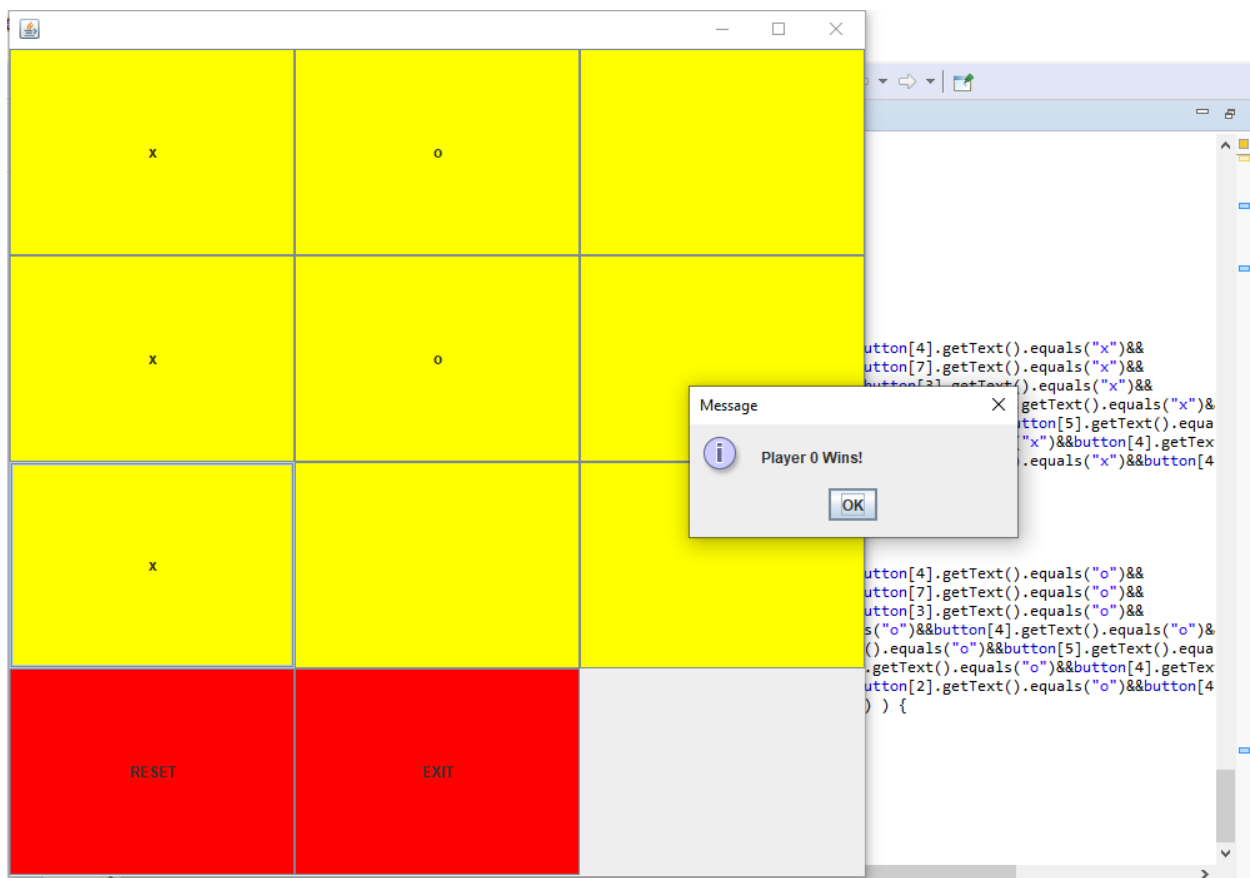
```
348⊖    public boolean checkResult()
349     {
350         if((button[0].getText().equals("x")&&button[1].getText().equals("x")&&
351             button[2].getText().equals("x")) || (button[3].getText().equals("x")&&button[4].getText().equals("x")&&
352             button[5].getText().equals("x")) || (button[6].getText().equals("x")&&button[7].getText().equals("x")&&
353             button[8].getText().equals("x")) ||  (button[0].getText().equals("x")&&button[3].getText().equals("x")&&
354                 button[6].getText().equals("x")) ||  (button[1].getText().equals("x")&&button[4].getText().equals("x")&
355                     button[7].getText().equals("x")) ||  (button[2].getText().equals("x")&&button[5].getText().equa
356                         button[8].getText().equals("x")) ||  (button[0].getText().equals("x")&&button[4].getTex
357                             button[8].getText().equals("x")) ||  (button[2].getText().equals("x")&&button[4
358                                 button[6].getText().equals("x"))) {
359             return true;
360  //          JOptionPane.showMessageDialog(null, "X Wins");
361         }
362         else if((button[0].getText().equals("o")&&button[1].getText().equals("o")&&
363             button[2].getText().equals("o")) || (button[3].getText().equals("o")&&button[4].getText().equals("o")&&
364             button[5].getText().equals("o")) || (button[6].getText().equals("o")&&button[7].getText().equals("o")&&
365             button[8].getText().equals("o")) || (button[0].getText().equals("o")&&button[3].getText().equals("o")&&
366                 button[6].getText().equals("o")) ||  (button[1].getText().equals("o")&&button[4].getText().equals("o")&
367                     button[7].getText().equals("o")) ||  (button[2].getText().equals("o")&&button[5].getText().equa
368                         button[8].getText().equals("o")) ||  (button[0].getText().equals("o")&&button[4].getTex
369                             button[8].getText().equals("o")) ||  (button[2].getText().equals("o")&&button[4
370                                 button[6].getText().equals("o")) ) {
371  //          JOptionPane.showMessageDialog(null, "O Wins");
372             return true;
373         }
374         else
375             return false;
376
377     }
378 }
```
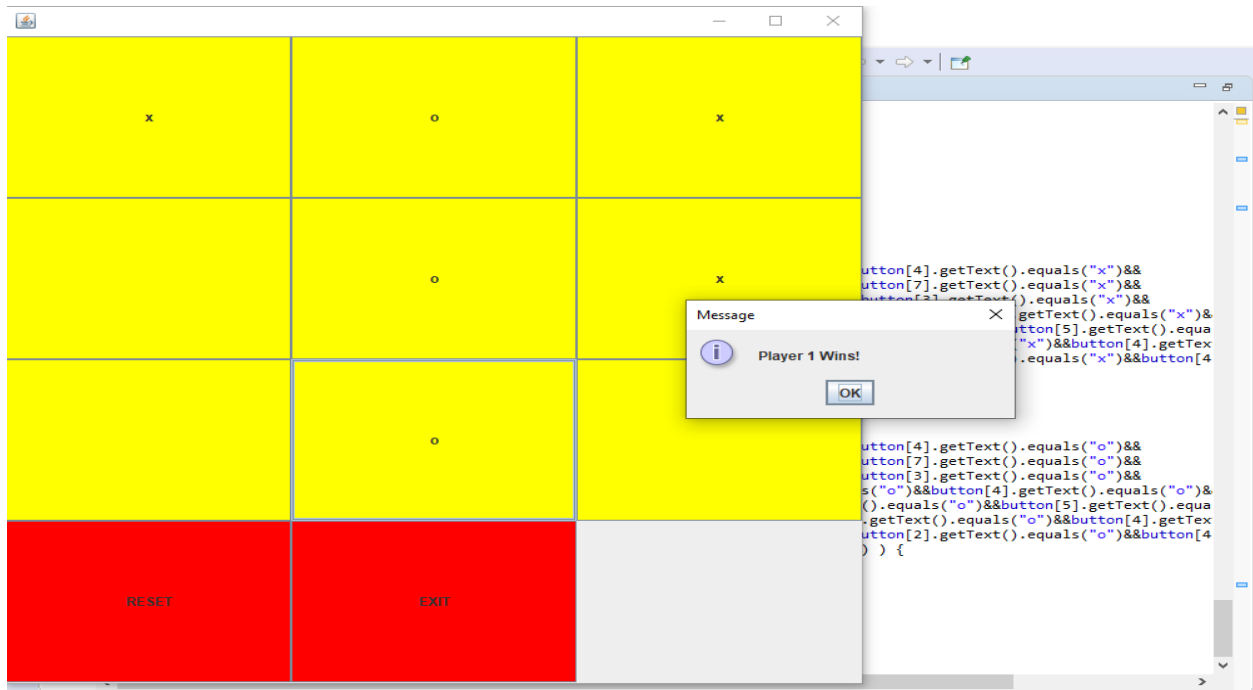
OUTPUT Results:

1)Player 0 wins:

2)player 1 wins:

3) Match Draw: