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Section * A

Subject * Object ORIENTED
Programming

Program : BS (SE)

SEMESTER : 2nd

Tic Tac Toe (also known as Nought and Crosses or Xs and Os) is a paper-and-pencil game for two players, X and O, who take turns marking the spaces in a 3x3 grid. The player who succeeds in placing three of their marks in a horizontal, vertical, or diagonal row wins the game.

2.create a tic tac toe game.py

```
1 // NAME JUNAID KHAN
2 //SUBJECT OOP
3 //SESSIONAL ASSIGNMENT
4 //QUESTION: Create a tic tac toe game in java (use any java tool for coding)
5 // and explain it in detail including screen shot?
6
7 | | | | //ANSWER//
8
9 //This is the entry point of the project. This involves the starting and ending of the game.//
10
11 import java.util.Arrays;
12 import java.util.InputMismatchException;
13 import java.util.Scanner;
14
15
16 public class TicTacToe {
17     static Scanner in;
18     static String[] board;
19     static String turn;
20
21     public static void main(String[] args) {
22         in = new Scanner(System.in);
23         board = new String[9];
24         turn = "X";
25         String winner = null;
26         populateEmptyBoard();
27
28         System.out.println("Welcome to 2 Player Tic Tac Toe.");
29         System.out.println("-----");
30         printBoard();
31         System.out.println("X's will play first. Enter a slot number to place X in:");
32
33 //This is the heart of this project. We will look at the construction //
```

```

32
33 //This is constructoe this project. We will look at the construction //
34 // of game class by inspecting its public behavior methods.//
35
36
37 while (winner == null) {
38     int numInput;
39     try {
40         numInput = in.nextInt();
41         if (!(numInput > 0 && numInput <= 9)) {
42             System.out.println("Invalid input; re-enter slot number:");
43             continue;
44         }
45     } catch (InputMismatchException e) {
46         System.out.println("Invalid input; re-enter slot number:");
47         continue;
48     }
49     if (board[numInput-1].equals(String.valueOf(numInput))) {
50         board[numInput-1] = turn;
51         if (turn.equals("X")) {
52             turn = "O";
53         } else {
54             turn = "X";
55         }
56         printBoard();
57         winner = checkWinner();
58     } else {
59         System.out.println("Slot already taken; re-enter slot number:");
60         continue;
61     }
62 }
63 if (winner.equalsIgnoreCase("draw")) {
64     System.out.println("It's a draw! Thanks for playing.");

```

2.create a tic tac toe gamepy

```
67     }
68
69
70     //initialize two players with symbols X and O respectively.
71     Initialize the board with specified Grid size or default to 9.
72     Fill the entire board with empty space instead of the default null.
73     Player class will be discussed in the next subsection//
74
75     static String checkWinner() {
76         for (int a = 0; a < 8; a++) {
77             String line = null;
78             switch (a) {
79                 case 0:
80                     line = board[0] + board[1] + board[2];
81                     break;
82                 case 1:
83                     line = board[3] + board[4] + board[5];
84                     break;
85                 case 2:
86                     line = board[6] + board[7] + board[8];
87                     break;
88                 case 3:
89                     line = board[0] + board[3] + board[6];
90                     break;
91                 case 4:
92                     line = board[1] + board[4] + board[7];
93                     break;
94                 case 5:
95                     line = board[2] + board[5] + board[8];
96                     break;
97                 case 6:
98                     line = board[0] + board[4] + board[8];
99                     break;
100                
```

Ln 34, Col 63 Space

```

109     }
110
111 //This loops involves creating a Human Player who is capable of playing the game. Player class
112 It has functions for identifying if two players are same.//
113
114     for (int a = 0; a < 9; a++) {
115         if (Arrays.asList(board).contains(String.valueOf(a+1))) {
116             break;
117         }
118         else if (a == 8) return "draw";
119     }
120
121     System.out.println(turn + "use command line to play " + turn + " in:");
122     return null;
123 }
124
125 //a game between two human players. We will extend our Player to
126 be a Computer Player. A modified version of minimax algorithm from Game Theory is
127 used to implement it. We will look at the pseudo code and the implementation.//
128
129 static void printBoard() {
130     System.out.println("/---|---|---\\");
131     System.out.println("| " + board[0] + " | " + board[1] + " | " + board[2] + " |");
132     System.out.println("-----");
133     System.out.println("| " + board[3] + " | " + board[4] + " | " + board[5] + " |");
134     System.out.println("-----");
135     System.out.println("| " + board[6] + " | " + board[7] + " | " + board[8] + " |");
136     System.out.println("/---|---|---\\");
137 }
138
139 static void populateEmptyBoard() {
140     for (int a = 0; a < 9; a++) {
141

```

OUTPUT:

Tic-Tac-Toe game:

Choose a cell numbered from 1 to 9 as below and play

1	2	3
4	5	6
7	8	9

//select command line keyboard to play//

- LETS PLAY empty - junaid - put - 0 - IN - 6 -

		0

-- zeeshan has put a X in cell 7 --

		0
X		

junaid has put a 0 in cell 5

	0	0
X		

eeshan has put a X in cell 1

X		
	0	0
X		

unaid has put a 0 in cell 9

X		
	0	0
X		0

eeshan has put a X in cell 8

X		
	0	0


```
  |   |   | x |   |
```

junaid has put a 0 in cell 9

```
  |   |   | x |   |
  -----
  |   | 0 | 0 |   |
  -----
  | x |   | 0 |   |
```

zeeshan has put a X in cell 8

```
  |   |   | x |   |
  -----
  |   | 0 | 0 |   |
  -----
  | x | x | 0 |   |
```

junaid has put a 0 in cell 4

```
  |   |   | x |   |
  -----
  | 0 | 0 | 0 |   |
  -----
  | x | x | 0 |   |
```

--junaid has won--

```

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    public static void main(String[] args) {
        in = new Scanner(System.in);
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        turn = "X";
        String winner = null;
        populateEmptyBoard();

        System.out.println("Welcome to 2 Player Tic Tac Toe.");
        System.out.println("-----");
        printBoard();
        System.out.println("X's will play first. Enter a slot number to place

        while (winner == null) {
            int numInput;

```



```

127 OUTPUT:
128
129 Tic-Tac-Toe game:
130
131 Choose a cell numbered from 1 to 9
132
133 | | | 1 | 2 | 3
134 -----
135 | 4 | 5 | 6
136 -----
137 | 7 | 8 | 9
138 //select command line keyboard
139
140 - LETS PLAY empty - junaid -
141
142
143 | | | | |
144 -----
145 | | | 0
146 -----
147 | | | |
148
149 -- zeeshan has put a X in cell 7 -
150
151
152 | | | | |
153 -----
154 | | | 0
155 -----
156 | X | | |
157
158 junaid has put a 0 in cell 5
159

```

Ln 128, Col 1 Spaces 4 UTF-8 CRLF Python