



# **IQRA National University, Peshawar**

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<b>Assignment</b>	<b>class assignment</b>
<b>Samster</b>	<b>2<sup>nd</sup></b>
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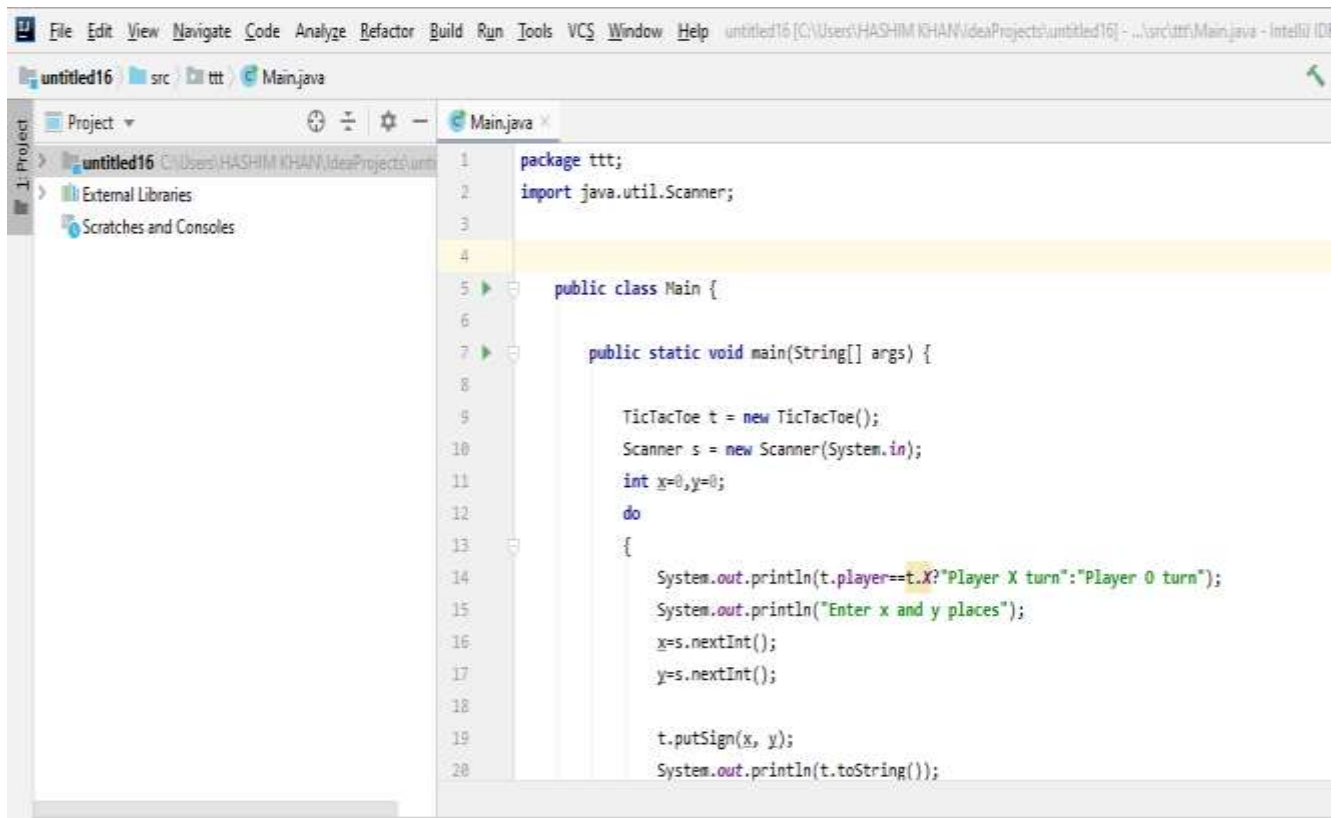
The basic idea is to use a two dimension array board to maintain the game board.

Board is a three by three matrix of the cell [1][0],board[1][1]and board[1][2].

In this case we chose to make the cell in the board array be integer,with a 0 indication an empty cell a 1 indicating an x and -1indicating an 0

Note this code maintaining the tic tac toe board and registering moves it does not permf any strategy or allow someone to play tic tac toe against the computer

In this time we use intilli j ide for java tic tac toe game coding

The image shows a screenshot of the IntelliJ IDEA IDE. The main editor window displays the code for a Java class named 'Main'. The code includes package and import statements, followed by the class definition and a main method. The main method initializes a TicTacToe object, creates a Scanner for user input, and enters a loop where it prompts the user for coordinates and updates the board state.

```
1 package ttt;
2 import java.util.Scanner;
3
4
5 public class Main {
6
7     public static void main(String[] args) {
8
9         TicTacToe t = new TicTacToe();
10        Scanner s = new Scanner(System.in);
11        int x=0,y=0;
12        do
13        {
14            System.out.println(t.player==t.X?"Player X turn":"Player 0 turn");
15            System.out.println("Enter x and y places");
16            x=s.nextInt();
17            y=s.nextInt();
18
19            t.putSign(x, y);
20            System.out.println(t.toString());
```

```

Main.java x
21      System.out.println("_____");
22      t.displayWinner();
23
24      }while(t.isEmpty);
25      }
26      }
27
28      class TicTacToe
29      {
30          public static final int X = 1, O = -1;
31          public static final int EMPTY = 0;
32
33          public int player = X;
34          private int[][] board = new int[3][3];
35          public boolean isEmpty = false;
36
37          public void putSign(int x, int y)
38          {
39              if(x<0 || x>2 || y<0 || y>2)
40              {

```

```

Main.java x
41          System.out.println("Invalid board position");
42          return;
43      }
44      if(board[x][y] != EMPTY)
45      {
46          System.out.println("Board position occupied");
47          return;
48      }
49      board[x][y] = player;
50      player = -player;
51      }
52
53      public boolean isWin(int player)
54      {
55          return ((board[0][0] + board[0][1] + board[0][2] == player*3) ||
56                 (board[1][0] + board[1][1] + board[1][2] == player*3) ||
57                 (board[2][0] + board[2][1] + board[2][2] == player*3) ||
58                 (board[0][0] + board[1][0] + board[2][0] == player*3) ||
59                 (board[0][1] + board[1][1] + board[2][1] == player*3) ||
60                 (board[0][2] + board[1][2] + board[2][2] == player*3) ||

```

```
Main.java x
61         (board[0][0] + board[1][1] + board[2][2] == player*3) ||
62         (board[2][0] + board[1][1] + board[0][2] == player*3));
63     }
64
65     public void displayWinner()
66     {
67         if(isWin(X))
68         {
69             System.out.println("\n X wins...!!");
70             isEmpty=false;
71         }
72         else if(isWin(O))
73         {
74             System.out.println("\n O wins...!!");
75             isEmpty=false;
76         }
77         else
78         {
79             if(!isEmpty)
80             {
```

```
Main.java x
81         System.out.println("its a tie");
82     }
83
84 }
85
86
87 public String toString()
88 {
89     StringBuilder s = new StringBuilder();
90     isEmpty = false;
91     for(int i=0;i<3;i++)
92     {
93         for(int j=0;j<3;j++)
94         {
95             switch(board[i][j])
96             {
97                 case X:
98                     s.append(" X ");
99                     break;
100                case O:
```

```
101         s.append(" 0 ");
102         break;
103         case EMPTY:
104             s.append(" ");
105             isEmpty=true;
106             break;
107     }
108     if(j<2)
109     {
110         s.append("|");
111     }
112     }
113     }
114     if(i<2)
115     {
116         s.append("\n-----\n");
117     }
118     }
119     return s.toString();
120 }
```

```

Main x
"C:\Program Files\Java\jdk-14\bin\java.exe" "-javaagent:C:\Program Files\
Player X turn
Enter x and y places
0
1
  | X |
-----
  |  |
-----
  |  |
-----

Player O turn
Enter x and y places
1
0
  | X |
-----
0 |  |
-----|
  |  |
-----

Player X turn
Enter x and y places
2
1
  | X |
-----
0 |  |
-----
  | X |
-----

```

```
Run: Main x
2
  | x | o
-----
o |  |
-----
  | x |
-----
Player X turn
Enter x and y places
0
2
Board position occupied
  | x | o
-----
o |  |
-----
  | x |
-----
Player X turn
Enter x and y places
1
1
  | x | o
-----
o | x |
-----
  | x |
-----
X wins...!!
```