(ASSIGNMENT)

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SECTION **B**

ID **16378**

DEPART **(SE)**

SUBJECT **Oops**

SUBMITTED TO **M Ayub sir**

Q1. Create a Tic Tac Toe game in java (use any java tool for coding) and explain it in detail including screen shots.

Tic Toc Toe:-

```
public class TicTacToe {
        static Scanner in;
        static String[] board;
        static String turn;

        public static void main(String[] args)
 {
```

```
                in = new Scanner(System.in);
                board = new String[9];
                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 X in:");

                while (winner == null) {
                        int numInput;
                        try {
                                numInput = in.nextInt();
                                if (!(numInput > 0 && numInput <= 9)) {
                                        System.out.println("Invalid input; re-
enter slot number:");
                                        continue;
                                }
                        } catch (InputMismatchException e) {
                                System.out.println("Invalid input; re-enter slot
number:");
                                continue;
                        }
                        if (board[numInput-1].equals(String.valueOf(numInput))) {
                                board[numInput-1] = turn;
                                if (turn.equals("X")) {
                                        turn = "O";
                                } else {
                                        turn = "X";
                                }
                                printBoard();
                                winner = checkWinner();
                        } else {
                                System.out.println("Slot already taken; re-enter
slot number:");
                                continue;
                        }
                }
                if (winner.equalsIgnoreCase("draw")) {
                        System.out.println("It's a draw! Thanks for playing.");
                } else {
                        System.out.println("Congratulations! " + winner + "'s
have won! Thanks for playing.");
                }
        }

        static String checkWinner() {
                for (int a = 0; a < 8; a++) {
                        String line = null;
```

```
                        switch (a) {
                        case 0:
                                line = board[0] + board[1] + board[2];
                                break;
                        case 1:
                                line = board[3] + board[4] + board[5];
                                break;
                        case 2:
                                line = board[6] + board[7] + board[8];
                                break;
                        case 3:
                                line = board[0] + board[3] + board[6];
                                break;
                        case 4:
                                line = board[1] + board[4] + board[7];
                                break;
                        case 5:
                                line = board[2] + board[5] + board[8];
                                break;
                        case 6:
                                line = board[0] + board[4] + board[8];
                                break;
                        case 7:
                                line = board[2] + board[4] + board[6];
                                break;
                        }
                        if (line.equals("XXX")) {
                                return "X";
                        } else if (line.equals("OOO")) {
                                return "O";
                        }
                }

                for (int a = 0; a < 9; a++) {
                        if (Arrays.asList(board).contains(String.valueOf(a+1))) {
                                break;
                        }
                        else if (a == 8) return "draw";
                }

                System.out.println(turn + "'s turn; enter a slot number to place
" + turn + " in:");
                return null;
        }

        static void printBoard() {
                System.out.println("/---|---|---\\");
                System.out.println("| " + board[0] + " | " + board[1] + " | " +
board[2] + " |");
                System.out.println("|-----------|");
                System.out.println("| " + board[3] + " | " + board[4] + " | " +
board[5] + " |");
```

```
                System.out.println("|-----------|");
                System.out.println("| " + board[6] + " | " + board[7] + " | " +
board[8] + " |");
                System.out.println("/---|---|---\\");
        }

        static void populateEmptyBoard() {
                for (int a = 0; a < 9; a++) {
                        board[a] = String.valueOf(a+1);
                }
        }
}
```

Output:

```
                Tic-Tac-Toe

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

              1 | 2  | 3
             --------------
              4 | 5  | 6
             --------------
              7 | 8  | 9

-    -    -    -    -    -    -    -    -    -

COMPUTER has put a O in cell 6


                  |    |
             --------------
                  |    | O
             --------------
                  |    |

HUMAN has put a X in cell 7


                  |    |
             --------------
                  |    | O
             --------------
                X |    |

COMPUTER has put a O in cell 5


                  |    |
             --------------
                  | O  | O
             --------------
                X |    |
```

```
HUMAN has put a X in cell 1


             X |    |
            --------------
               | O  | O
            --------------
             X |    |

COMPUTER has put a O in cell 9


             X |    |
            --------------
               | O  | O
            --------------
             X |    | O

HUMAN has put a X in cell 8


             X |    |
            --------------
               | O  | O
            --------------
             X | X  | O

COMPUTER has put a O in cell 4


             X |    |
            --------------
             O | O  | O
            --------------
             X | X  | O

COMPUTER has won
```