**CSCI 2251  
Programming Assignment 1 – TicTacToe**

This assignment has three objectives:

1. to create objects
2. to implement/apply enum type
3. to write a game called TicTacToe
4. to compose text based user interface (not GUI)
5. to write object oriented design document, including UML diagram(s).

**Problem Description**

This problem is from the textbook exercise 8.18 (page 325): Tic-Tac-Toe

Create a class TicTacToe that will enable you to write a program to play Tic-Tac-Toe. The class contains a **private** 3-by-3 two-dimensional array (nine cells). Use an enum type to represent the status of the game after a move, WIN, DRAW, CONTINUE. The value in each cell of the array should be named X, O, and EMPTY (for a position that does not contain an X or an O). The constructor should initialize the board elements to EMPTY. Allow two human players. Whenever the first player moves, place an X in the specific square, and place an O wherever the second player moves. Each move must be to an empty square. After each move, determine whether the game has been won, is a draw, or the players should continue.

Create another class TicTacToeTest containing the main() method, instantiating the object TicTacToe, and invoking the methods of TicTacToe (printBoard(), play()) to play the game.

**In your class, you need to have the following**

* Constructor: construct the board for the game; initialize the instance variables
* Method play(): loop until the game is over
* Method printStatus(): prompt for the turn of the player, winner, or draw
* Method gameStatus(): return the status of the game after a move, WIN, DRAW, COUTINUE
* Method printBoard(): Output the 3-by-3 grid board on the screen
* Method validMove(): validate the intended move by the player.

**Specifications**

Your program must meet the following specifications:

* Work on your own
* The name of the source code file must be exactly

TicTacToe.java *(Name it exactly - capital/lower case letters are important! )*

TicTacToeTest.java *(Name it exactly - capital/lower case letters are important!)*

Note: the class name needs to be the same as your source file name

* Program header, comments at the top with short description of your program, your name, e-mail, date and course title.
* We expect programming assignments to be implemented using Java 1.8. Your code will be tested on the machines, Windows or Linux, installed the same Java 1.8 version (Java compiler and Java Virtual Machine). Make sure your code runs on at least one of those machines.
* Two part submissions (Brightspace):
  + First part: the file contains a brief description on how to solve this problem, and the UML class diagrams (Word document, Open Office, or others)
  + Second part: your java source code file(s) (.java file(s) only).
* Command line only, do not use graphic user interface (GUI). I will not accept any GUI program.
* No late submissions, refer to the syllabus for the late policy.

I will test your program as follows (assume both TicTacToe.java and TicTacToeTest.java are in the default folder)

javac TicTacToeTest.java

java TicTacToeTest

Example of executing the Java TicTacToeTest command on the shell (cmd, powershell, or any Linux/Unix shell), your java program should produce the output look like the following screen shots:





