**Software Design**

***Homework#2***

**PRATHIBHA KANNEGANTI    | PSID: 1367542 |**[**pkanneganti@uh.edu**](mailto:pkanneganti@uh.edu)

**MOUNIKA CHINTHAPARTHI | PSID: 1356404 |** [**mchinthaparthi@uh.edu**](mailto:mchinthaparthi@uh.edu)

***Aim:*** To design a console application for Tic-Tac-Toe game.

***Description:***This is a two-player game. One player being the computer and the other player is user. Most common board size is 3X3. It can have variable sizes as well. This game has three difficulty levels namely:

* Easy
* Medium
* Hard.

We would like to use C# to code this application. I would like to follow Test Driven Development approach. This involves unit test, code and refactor. TDD involves writing the test cases, even before starting to code. Hence, this enables the developer to avoid junk code.

The algorithm for the game goes as below:

Algorithm:

1. Input board size
2. Input game level

Input move

1. Choose next move
2. Check for winner
3. Display winner

The following classes are identified for the game:

* + Controller
  + Level
  + Board
* Controller: This class contains all the logic required to create the board, organize moves and displays the winner.
* Level: This class contains the various game levels and the computer operations for each of these levels.
* Board: This defines the board size.

**CLASS DIAGRAM:**

Please find the attachment for the class diagram.