

Documentation for Project #5 (TicTacToe)

Team Members (Team #20) -

Tarush Gupta (tgupta22@uic.edu) - Worked on Class UML Diagram (Both Client and Gui), Client (backend part) and test cases.

Akhil Snehal Modi (amodi20@uic.edu) - Worked on Server backend.

Mateo Juresic (mjures3@uic.edu) - Worked on client/server backend as well, fixing some of the bugs and making it work. He also did client the GUI and worked on the minmax algorithm for all 3 modes.

Valentino Juresic (vjures2@uic.edu) - Worked on did the server GUI and worked on the minmax algorithm for all 3 modes. He also made both Wireframe and activity diagram.

1) Implementation of Min-Max code in our Program.

1. The min-max algorithm helped to decide for the optimal move for the computer opponent.
2. We didn't change the original code at all, we just instantiated from minmax for each client, and populate an arrayList for totalmoves, winmoves, and drawmoves. We used these to decide the next move...if minmax=10 it went into winmove, if minmax=0 it went into drawmoves. Having these arrayLists as options now, we just picked from them accordingly.

2) Give a general description of the server and client logic. This description should highlight and discuss algorithms and design choices made.

For server and client logic, after connection the client sends a string "easy, medium or hard" and the server handles is accordingly. At this point, the client goes first and sends a number that specifies where the 'O' was placed, and then the server uses correct algorithm based on mode of game, and it sends a number back that gets converted to an 'X' at that specific location on the board.

3) A discussion of changes in the diagrams and wireframes from the ones submitted in part 1.

We used the same **activity diagram**.

For the **Wireframe**, the change was that we tell the client what number they are in the mode scene and we have your turn or computer turn on the bottom of the game scene. We are also displaying the personal score on the leader board.

For the UML Class Diagram (Client and Server), we have made certain changes in the functions and methods that we were using earlier in order to accomodate for the min-max algorithm (And adjusted accordingly for different levels in the game). To cater this we populate an arrayList for totalmoves, winmoves, and drawmoves etc.