# Design Documentation

This is a detailed design of all the classes using a program. Here the pseudocode is used for the representation of all our code. It was constructed state diagrams and the overall class diagram.

## Finite State Machine Diagrams

Gameboard 

* Initiates the Game Board.
* The game has the player choose which mode to play: Player vs Player, Player vs AI, Guest vs Player, and Guest vs AI.
* Creates an X or O.
* The player is prompted to select who goes first.
* Initiate the players turn.
* Once the tile is selected, it is disabled from being selected again.
* The game paints an X or O on the game board.
* Subtracts the counter.
* Update the players score.

Guest 

* From the main menu, the player clicks the Guest option
  + They are prompted to choose which play mode: Guest vs Player or Guest vs AI
    - If the player needs help, they can click the help button and it will display instructions on how to continue. They will press OK and it will return them back to the play mode option.
  + Once the play mode is chosen, it will start the game
    - However, they can choose the change the game mode and it will exit to the previous menu.
  + Once the game has started, the player can choose to:
    - Quit the game by clicking the Quit Game button
      * They will be prompted with a confirmation window
        + If the player clicks no, it will return to where they left off in the game
        + If the player clicks yes, it will return to the main menu
    - Continue and finish the game
* From the main menu, the player clicks the quit button
  + They will be prompted with a confirmation window
    - If the player clicks no, it will return to the main menu
    - If the player clicks yes, it will exit out of the game

Login

* From the main menu, the player clicks login
  + It asks for the username and password
    - The player can click the Help button
      * It will display instructions to further aid the player
    - They click OK and will be returned to the username and password window
  + The player clicks submit
    - Login successful
      * They click OK and it returns them to the main menu
* From the main menu, the player clicks quit
  + They will be prompted with a confirmation window
    - If the player clicks no, it will return to the main menu
    - If the player clicks yes, it will exit out of the game

Player vs Ai

* Player vs AI mode
  + The player selects the difficulty they want
    - The user is prompted to choose between X or O
      * They can click Help button
        + It will display instructions to further aid the player

They click OK and are returned to the selection of X or O

* + - Once the user selects the stone they like, they are prompted again to choose who goes first
      * Once the player is selected, the game starts and the player can choose to:
        + Quit the game by clicking the Quit Game button

They will be prompted with a confirmation window

If the player clicks no, it will return to where they left off in the game

If the player clicks yes, it will return to the main menu

* + - * + Continue and finish the game
  + The player can logout
    - It will end the session
      * Return to the main menu
  + The player can click on the exit button
    - * They will be prompted with a confirmation window
        + If the player clicks no, it will return to where they left
        + If the player clicks yes, it will return to the main menu

Player vs

* Player vs Player mode
  + They can click the Help button
    - It will display instructions to further aid the player
      * They will click OK and are returned to the Player vs Player mode
  + Once the player makes the Player vs Player selection, they are prompted to choose which player goes first
    - They can click the Help button
      * It will display instructions to further aid the player
        + They will click OK and are returned to select which player goes first
  + When they select which player goes first, the game starts
    - They can click Help button
      * It will display instructions to further aid the player
        + They will click OK and are returned to the game
  + Once the player is selected, the game starts and the player can choose to:
    - Quit the game by clicking the Quit Game button
      * They will be prompted with a confirmation window
        + If the player clicks no, it will return to where they left off in the game
        + If the player clicks yes, it will return to the main menu
      * Continue and finish the game
  + The player can click on the exit button
    - * They will be prompted with a confirmation window
        + If the player clicks no, it will return to where they left off
        + If the player clicks yes, it will return to the main menu

Register

* Main menu
  + The user clicks the Sign-Up button
    - If the user clicks exit, they are returned to the main menu
      * It asks for the user’s information, such as
        + Username
        + Password
        + First name
        + Last name
        + Security question
        + Security answer
      * They can click the Help button
        + It will display instructions to further aid the player

They will click OK and are returned to the sign-up window

* + - * The player submits their information
        + If there is an error in the user’s information, it will display Unsuccessful Registration
        + If the information is correct, it will display Successful Registration
      * The user clicks OK and is returned to the main menu
  + The user clicks Quit
    - They will be prompted with a confirmation window
      * If the player clicks no, it will return to the main menu
      * If the player clicks yes, it will exit the game

Reset password

* Main menu
  + The player selects reset password
    - The player can click quit and they will be returned to the main menu
      * They click on forgot username
        + The user will enter their security answer

When they click quit, they will be returned to enter the username information

They can click the Help button

It will display instructions to further aid the player

They will click OK and are returned to the username information window

* + - * They enter their username information
        + They can click the Help button

It will display instructions to further aid the player

They will click OK and are returned to the username information window

* + - * + Click the Submit button
        + It resets their password successfully
        + Returns the user to the main menu
  + The user clicks Quit

Start game

* The player starts a game
  + The first player makes a move
    - It creates a stone and disables the tile so the player can’t create another stone in its place.
      * They can click the Help button
        + It will display instructions to further aid the player

They will click OK and are returned to the game

* + - It updates and displays the current score after every move
    - It waits for the second player to make a move
      * They player can click exit
        + If they click yes, it will abort the game
        + If they click no, it will return to waiting for the next move
        + They can click the Help button

It will display instructions to further aid the player

They will click OK and are returned to the game

* + - Player two makes a move
  + The player clicks Exit game
    - They will be prompted with a confirmation window
      * If the player clicks no, it will return to the main menu
      * If the player clicks yes, it will return to waiting for the next move