Class Diagram (Meghana Muddireddy, Jacqueline Wen)

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| **Classname:** | PersonVsPerson | | |
| **Comments:** | This class will utilize an algorithm to play a player vs player game. | | |
| **Property** | **Public/Private** | **Type** | **Default** |
| person1 | private | int[][] | 0 |
| person2 | private | int[][] | 0 |
| person | private | Boolean | true |
| person1map | private | char[][] | . |
| person2map | private | char[][] | . |
| **Method** | **Public/Private** | **Return Type** | **Argument Types** |
| runningGame | public | void | none |
| guessMove | private | void | boolean |
| gameOver | public | int | none |
| positionWorks | private | boolean | int, int, int, int |
| drawMap | private | void | int, int, int, int |
| inputForMap | private | void | none |

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| **Classname:** | PersonVsComputer | | |
| **Comments:** | This class will utilize an algorithm to make a player vs computer game. | | |
| **Property** | **Public/Private** | **Type** | **Default** |
| person1 | private | int[][] | 0 |
| computer | private | int[][] | 0 |
| person | private | Boolean | false |
| computerMap | private | char[][] | . |
| **Method** | **Public/Private** | **Return Type** | **Argument Types** |
| runningGame | public | void | none |
| guessMove | private | void | boolean |
| guessMoveComputer | private | void | int, int |
| drawMap | private | void | int, int, int, int |
| gameOver | private | int | none |
| positionWorks | private | boolean | int, int, int, int |
| inputForMap | private | void | none |
| computerGeneratedMap | public | void | none |

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| **Classname:** | GameBoard | | |
| **Comments:** | Has the skeleton of a BattleShip game board  **\*not functional\*** | | |
| **Property** | **Public/Private** | **Type** | **Default** |
| frame | private | JFrame | - |
| title | private | String | - |
| **Method** | **Public/Private** | **Return Type** | **Argument Types** |
| run | public | void | none |
| setName | public | void | String |
| initialize | private | void | none |

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| **Classname:** | BattleShipGame | | |
| **Comments:** | Houses the main function and this is where the program begins. | | |
| **Property** | **Public/Private** | **Type** | **Default** |
| pcvGame | private | PersonVsComputer | - |
| pvpGame | private | PersonVsPerson | - |
| display | private | JTextArea | start game window |
| **Method** | **Public/Private** | **Return Type** | **Argument Types** |
| main | public | void | String[] |

The first class that we are using in this project is our PersonVsPerson class. In this class, we will take turns letting the players move. As planned, we used 2D arrays to represent our map as well as the condition of that coordinate. We used the boolean to help store which player’s turn it was to move. Our second class is our PersonVsComputer class. We also used the similar data structures as the previous class. However, we did not create an extra arraylist of the player’s map because the computer does not need to see an elegant version of the map. It is important to point out that an edited recursive flood fill method was used to optimize the computer’s guessing odds. Our third class is not functional and is not used, but it is the GameBoard class. It holds a GUI version of a Battleship game board, but it does not work with our algorithm. Our final class was the BattleShipGame class. This is the class that starts the program. When it is run, a GUI window will show up with the options of a person vs person or person vs computer game, which then connects to the console version of the game. For the console game, an object of either the PersonVsPerson or PersonVsComputer class is created to run the code in those respective classes.

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| Data | Interface => Class |
| Matrix of the status of each location on map (whether it was hit) | List => char[][] |
| Boolean stating whose turn it is to move | Comparable => Boolean |

Not actually integrated into design

PersonVsPerson

PersonVsComputer

GameBoard

BattleShipGame