# Design Document
For CS372 Software Construction, Project 1
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## User Stories:

Based on a scale from 1 (Easy)  to 10 (Difficult), we created some user stories and evaluated the difficulty of features we wanted to implement:

- ○ "The user types a coordinate into the console and input is saved as a string."
  **Score:** 1

- ○ "The user types in a coordinate and board displays 10x10 grid marking coordinate selected."
  **Score:** 3

- ○ "The user types a coordinate into the console and the coordinate is checked for validity (e.g. string length, first character a letter, second character a number, …)"
  **Score:** 4

- ○ "After input is given, a 10x10 grid of ASCII characters is displayed where certain characters represent ships, hits, misses, and unmarked coordinates."
  **Score**: 5

- ○ "The user is able to place ships on the map by typing in a starting coordinate and orientation."
  **Score**: 6

- ○ "The user competes against a computer opponent that randomly selects coordinates to attack and keeps tracks of past coordinates it's selected."
  **Score:** 7

- ○ " Every time a user attacks a ship, the board keeps track of how many hits are remaining based on the coordinates it occupies."
  **Score:** 7

- ○ "The user can select a coordinate to place a ship and the board will keep track of the ship's coordinates, how many hits are left in the ship, and mark the coordinates as occupied."
  **Score:** 8

- ○ "The user competes against a computer opponent that understands how to continue attacking a ship once coordinate is found based on patterns recognition."
  **Score:** 10

## Program Design:

For our program, we wanted to keep the structure of the files simple so we decided to run the base of our program from a single source file named *battleship.cpp*. The main file would then include a separate header file for all functions it uses as well as header files for all class objects. The header files for the class objects would include all the functions needed to modify any of their private members as well as retrieve private member data for use in the main file functions.