Module 404 – Battleships Documentation

# 1 – Concept

While we were coming up for ideas for programs to make and document, we also wanted to make a game. Although Tic-Tac-Toe was something we had experience in and could be quite easy to implement, we decided to go with battleships. At first I wasn’t sure how easy it would be to program, but once I started it didn’t take very long, only a few hours. The main Issue was figuring out how the Battleships should be displayed.

# 2 – Plan

First of all, I needed to decide how I wanted the Battleships grid to be displayed. This proved surprisingly difficult, because characters in the terminal look twice as tall as they are wide. This meant, that a simple 5x5 grid like this:

looked far too tall.

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The next thing I tried was just a single box, without any inner grid, but doubling all the characters to make it roughly square. This was my favourite of the options I tried and the one I ended up using.

Here’s the final grid:

A B C D E

+----------+

1| |

2| |

3| |

4| |

5| |

+----------+

Once I had the displaying of the grid planned, the rest was quite simple to plan with just some basic programming logic.

# 3 – Programming

First, I made a seperate Class for everything to do with the game board called ‘Board’. One of the first methods I wrote, was to display a char array in the way described above. After that, I made some input verification, wrote the main menu, and completed a method to fill both player’s grids with the preset ships but in a random configuration.

Now to actually make the attacking. I wrote a method that would attack from one board to another. This method would prompt the user for coordinates in the grid. The input verification for this was rather tedious, and would have to be adjusted later on, but in the end it was still quite satisfying to complete the method.

Finally all I had to do was create the main loop that switches users every turn and displays their respective game boards. Every loop the game checks if either of the users has won by checking if their total number of ships has dropped to zero.

For the source code for the project and an executable version, see my repository on github: <https://github.com/Sam36502/Battleships>

# 4 – Activity diagram

