CS 499 Enhancement One: Software Engineering and Design

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My artifact is a small text-based Battleship clone that I wrote in Java in High School. It is a very simple text-based game that generates a board with random ship placements and then asks the user for a cell to fire at. The game ends when all ships have been sunk or the player enters an invalid space.

I chose this artifact mostly due to passion. I wanted to see how much better I could make it with my improved knowledge. I also want to showcase some good coding techniques. By porting this Java application to Python, I will show that I can adapt when the original vision has to be changed due to technical limitations of the language (or find new ways to accomplish the goal). This artifact was improved with both code quality and by having a few bugs patched.

During this enhancement, I had to make several small changes due to differences with data types between Java and Python. For example, I used Java’s Point library for two dimensional coordinates but in Python I just used a tuple. Tuples in Python are immutable so that did come with some extra consideration with how these coordinates will be handled. I also had to setup a virtual environment (as I use Linux and don’t want to mess with my system Python). This env is with Python 3.10. Due to a forward reference in the BattleshipBoard module, I noted that a fix for forward references was added in Python 3.11 (PEP763), however as I am using 3.10, I had to make due with a certain import. (PEP563) Breaking up my code into multiple module also introduces a risk or circular dependencies as I reference other module’s classes in each module.