**Milestone: Unit Testing**

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CS 405 – Secure Coding

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**Screenshot**

A screenshot of a computer program

Description automatically generated

**Process Summary**

The approach I took to completing this milestone, was like other assignments, first understanding how the initial code is working, and then begin working on one TODO at a time until I have completed all portions of the required code. I have worked with Junit testing before, and writing Google tests was a similar process for me. I noticed that the starter code gave us two tests already written, which gave me a good foundation for how the tests needed to be written, but it also shows that for each new test, the collection starts out empty. The next TODO gave comments on how the test should be written. I followed the comments to add the appropriate tests for that test (CanAddToEmptyVector). For the remaining tests, I followed the same type of structure, making the appropriate changes to each test, to meet the requirements for each TODO. One issue I encountered while working on the milestone was that there were some functions of the vector data structure that I had not ever used before, such as reserve(), and capacity(). This simply required me to familiarize myself with them to gain an understanding of what their functionality was and how to use them appropriately. Also, having experienced this issue did help me when it came time to write my own tests. I was able to use another function that I had never used before, which was the shrink\_to\_fit() function, which when called shrinks the capacity of the vector to its size. The only other thing I had a hard time determining was if I should be using ASSERT or EXCEPT. I decided on using EXPECT on things like at the beginning of a test, we have already proven that a collection starts out empty and that the size is zero, therefore there is no reason to terminate processing. However, I used ASSERT when proving any portion of a test case.