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CS-405-R4888 Secure Coding

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4-2 Milestone: Unit Testing

In the process of completing the unit tests for the **std::vector** class using the Google Test framework, I followed a systematic approach. Initially, I carefully reviewed the provided code and instructions to understand the task requirements. This included defining appropriate test names reflecting the conditions to be tested, compiling and running the tests, and ensuring adherence to industry-standard best practices such as naming conventions and inline comments for code clarity.

I began by implementing the provided unit tests and ensuring they ran successfully. This involved verifying that the collection was properly initialized, empty upon creation, and capable of adding elements as expected. I also created additional tests to check for behaviors such as resizing, clearing the collection, and handling out-of-range exceptions.

During the testing process, I encountered an issue with the **AlwaysFail** test, which was failing as expected. To address this, I commented out the failing test to prevent it from impacting the overall test results.

In addition to positive tests, I incorporated negative tests to validate error handling and exception throwing. This included verifying that the collection correctly threw an out-of-range exception when accessing elements beyond its bounds.

After completing all tests and ensuring they passed successfully, I ran the entire suite of tests to confirm that the **std::vector** class functionality behaved as expected under various scenarios. Finally, I documented the process and any issues encountered in this summary to provide a comprehensive overview of the testing process.

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