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CS 405-14758-M01 Secure Coding 2024 C-6

Southern New Hampshire University

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1-3 Activity: Numeric Overflow Coding

In this activity termed Numeric Overflow coding, we were tasked with completing a provided c++ file, that contained partial code with the objective of detecting when an overflow or underflow has occurred. Both possibilities can happen when a programmer tries to insert a numeric value either by direct means or by means of user input, into a data type in such a way as to either exceed the data type’s capacity, in both directions, that is negative and positive manner. Exceeding its capacity negatively results in an underflow exception error, and exceeding it positively results in an overflow exception error. These errors usually causes the compiler to behave in unsual manner and might result in varying behaviors, like sometimes the compiler might display a different result other than the expected result, etc. In order to prevent such from happening, it was essential to put measures in place to prevent such unusual behavior by the compiler in response to an overflow or underflow. Such is the case in this project, where we were tasked with making changes to the supplied code to prevent such behaviors as needed.

To achieve the desired result, I supplied the add and subtract methods with adequate exception rules, with the function of catching an overflow and underflow before it occurred. I also supplied the test\_overflow() and test\_underflow() functions with the appropriate try() and catch() blocks to help catch overflow and underflow before they happens. Below is a screenshot of the program in action: A screenshot of a computer

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