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CS-405

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Numeric Overflow Activity

Overflows and Underflows are detected by checking that the value that is going to be added or subtracted from the current value will not exceed the maximum or minimum value of the given variable causing a wraparound situation and incorrect data. Some data types allow negative values, so a negative value does not exceed the minimum, so there is no underflow here, unless you were to specify that you wanted only positive values or something. This said, in some of the cases in this assignment where there was said to be an underflow coming there was not, because the minimum was not exceeded, and no wraparound occurred.

In this project maximum and minimum are used to test for under and overflows, and a flag in the opposite direction is used to signal when an over/underflow would have occurred. (That is that if an underflow would happen the result is set to max as a flag and vice-versa.)

Steps are use in the addition and subtraction methods here, so the over/underflow test is done at each step as well, and the step loop is broken it an over/underflow would occur and is prevented. The flag is then sent and the user is notified that the calculation resulted in an error. The increment and decrement values are checked to be greater than 0 to ensure that it is, in fact, an addition or subtraction of a positive number, if not it is not really and addition or a subtraction.

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