

This is a purely individual assignment. Prepare your answers to the following questions in a plain ASCII text file. Submissions in any other format will not be graded. Submit your file to the Curator system by the posted deadline for this assignment. No late submissions will be accepted. No other formats will be graded.

You will submit your answers to the Curator System (www.cs.vt.edu/curator) under the heading OOC05.

For each question, design an algorithm that satisfies the stated requirements. Express your answer using the pseudo-code notation covered in the course notes on Algorithms. Use descriptive names for your variables, and include comments as necessary. Note: if you do not use the pseudo-code notation from the course notes, we will not grade your submission.

1. [30 points] Design an algorithm that will successively subtract one number from another, zero or more times, until the result becomes negative, and report the number of subtractions that were performed. If it is impossible to achieve the specified result, the algorithm should detect that and halt.
2. [30 points] Design an algorithm that will compare three different numbers and return the middle value. You may assume that the given values are, in fact, all different from each other.
3. [40 points] Design an algorithm that takes a list of numbers and the number of values in the list, and sums up successive elements from the list, starting at the beginning, until the value -99 is encountered or the end of the list is reached. The algorithm should then report the average of the values that were summed up (not including the -99 if it was found). The average of a collection of 0 numbers is 0.