



NEW YORK UNIVERSITY

CSC-101 INTRO TO PROGRAMMING LANGUAGE

TUTOR: RAIYAN REZA
STUDENT NAME: AMEEN

Quiz 2

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Instructions

This is a closed book quiz. You are to provide a solution either on paper or use simple text editors such MS Word. You have **1 hour** to complete all the questions. Before the start of the questions the instructor will spend **15 minutes** explaining the questions or addressing any confusion you may have. Good luck!

- (a) Define a function $\text{sort}(\text{unsortedList}:\text{list}[\text{int}]) \rightarrow \text{list}[\text{int}]$ that takes in as a input an unsorted list and returns the list sorted in **ascending** order.

Example:

Input: $[12, -2, 9, 0]$

Output: $[-2, 0, 9, 12]$

- (b) Show how your code iteration by iteration will sort the example input in part a) to the desired output. The format in which you have to present your solution will be explained in class.
- (c) Now modify your solution in part a) so that the function sorts a given list in **descending** order.

Example:

Input: $[12, -2, 9, 0]$

Output: $[12, 9, 0, -2]$

- (d) Write a function $\text{isSorted}(\text{inputList}:\text{list}[\text{int}]) \rightarrow \text{bool}$ that can verify if $\text{sort}(\text{unsortedList}:\text{list}[\text{int}]) \rightarrow \text{list}[\text{int}]$ returns a sorted list in **ascending** order.

Examples:

Input: $[-2, 0, 9, 12]$

Output: True

Input: $[12, -2, 9, 0]$

Output: False

- (e) If you call $\text{isSorted}(\text{inputList}:\text{list}[\text{int}]) \rightarrow \text{bool}$ on the **output** of your solution to part c) what would $\text{isSorted}(\text{inputList})$ return?
2. You are given a list of positive integers, inputList , such that $\text{len}(\text{inputList}) \geq 3$. Your task is to define a function $\text{Sum3}(\text{inputList}:\text{list}[\text{int}], \text{target}) \rightarrow \text{list}[\text{int}]$ such that the output will be a list $[i, j, k]$ such that the sum $\text{inputList}[i] + \text{inputList}[j] + \text{inputList}[k] = \text{target}$ where $i \neq j \neq k$. The input will be designed in such a way that there would be a unique solution. The order in which i, j, k are presented in the output list does not matter. You do not need to worry about time and space efficiency of your code either!

Example:

Input: $[1, 8, 9, 12, 20]$, $\text{target} = 30$

Output: $[0, 2, 4]$