

CMPE 1700 – Data Structures and Algorithms

Winter 2020

Assignment 9

Due Date: Friday 27 March 11:59pm

Question 1

Create a struct type that can store the first name, ID number and Marks (in a course) for a student. The struct should also contain a link (pointer) member so that it can be used to build a linked list.

Write a program that performs the following:

- It creates an array of strings (2-D array of char) to store 10 names.
- It creates an array of 10 int values, representing the ID of the persons in the first array (The ID's should not be in ascending order).
- It Creates an array of size 10 of Marks, representing the Marks of the persons in the first array (The marks should not be in ascending order).
- It builds a linked list of structs, where each struct contains the name, ID and marks of a person. The list should be ordered in increasing order of ID.
- It builds a second list in which the structs are in descending order of marks.
- It then continuously displays a menu that has the following options:
 1. Display list in order of Id's
 2. Display list in descending order of Marks
 3. Display the names, marks and rank of a person given the ID (ID should be input)
 4. Display the names and marks of all person above a threshold marks value (the threshold value should be input).
 5. Exit

The user will input a choice and the program should perform the required display (or exit).

Note: VS does not support well the use of **scanf()**, so use **scanf_s()** for input. It's similar to **scanf()**, but requires a 3rd parameter specifying the size of the variable,

Eg. **scanf_s("%d",&x,sizeof(int));**

or **scanf_s("%s",s,20);**