

CS69011: Computing Lab-1
Assignment 1: Sorting of structures
August 09, 2023

=====Instructions=====

1. Part C contains 50 marks.

2. In the case of user input, assume only valid values will be passed as input.

3. Regarding submission: Create a separate C file -> *PartC.c*

Create a separate text file having the output from the test file -> *PartC_output.txt*

Create a zip file of all these C files in the name <RollNo>_A1_PartC.zip and submit it to Moodle.

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Consider the problem of organizing a conference with “n” presentations. Each presentation has a starting time, an ending time, a popularity score, and a presentation title. The goal is to maximize the total popularity score of the presentations an attendee can watch without any time conflicts.

Your input will be (i) the total number of presentations, (ii) starting time, ending time (separated by a space), popularity score, and presentation title of each presentation on a separate line. Note that the starting and ending time may not be in sorted order. Implement the following strategy for solving this problem.

(C) The strategy is to first sort the presentations by their ending times and then use dynamic programming to find the maximum popularity schedule. Implement this algorithm. What is the complexity of this algorithm? You should also report the maximum total popularity score of the selected presentations.

Input format:

You can take input from a file with the following format:

<Number of presentations>

<Start time in HHMM format> <End time in HHMM format> <Popularity score> <String containing presentation title>

...

...

You can take the version of the algorithm to use (a/b/c), and the path of the file as command-line inputs.

Output format:

Print the list of selected presentations in one presentation per line, along with their starting times, ending times, popularity scores and presentation titles.