

IIIT Vadodara

CS263: Assignment #7

November 22, 2021

1 Problem 1

Let us assume you got the assignments on different courses 1 to C. For each assignment, let d_i denote the number of days required to complete the assignments. For each day of delay before starting your i^{th} assignment, a penalty of p_i is imposed. We are required to find a sequence to complete the assignments so that the overall penalty is minimized. We can only work on one assignment at a time and if you start any assignment finish it then start another. Write an efficient algorithm for the given problem.

2 Problem 2

Event Organiser team has decided to take few classroom on permission from the Government Engineering college to schedule the 1-day Tech event of IIIT Vadodara. They got the start and end timing of all the events, the task is to find the minimum number of classroom required for the events so that no event will wait or get cancelled. We are given two arrays that represent the start and end times of events that need to be conducted.

3 Problem 3

There are N stations on the route of a train Gandhinagar to Jaipur. If there exists any direct train between any two stations i and j , then the ticket cost for all pairs of stations (i, j) is given where j is greater than i. For example: There are Five stations A, B, C, D. A is the source and D is the destination.

Cost of route A-B - Rs100 by Train X,

Cost of route A-C- 200 by Train Y,

Cost of route A-D- 300 by Train Z

Cost of route B-C-No train

Cost of route B-D- 100 by train W

Cost of route C-D- 250 by train V

Find the minimum cost route that will help you to reach the destination at minimum cost.

Important Points:-

- Write the optimal algorithms for all the three problems and analyze the complexities.
- Save your file as CourseName_Roll_no.pdf.
- Save your source file as CourseName_roll_no(.c, .java, .cpp, .python)
- Submit a pdf file which will consist of the problem statement, algorithm, Time complexity (with explanation), your code, results, and analysis (Run at least 5 times for different inputs.)
 - Screen sort of you code
 - screenshot of all your output

- If it is a single file then submit only one file otherwise make a zip file and submit as *courseName_Roll_No.zip* for the code.