DSA Project Proposal

Project Title: My Course Scheduler.

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Project Description: Before the start of every semester students are required to manually formulate their schedules according to the courses they are required to take and their personal preferences. However, given the poor UI design of the ERP, it takes a lot of time to manually check the timings and days for each course and its respective classes and come up with a schedule. Moreover, coming up with alternate schedules in case of unavailability of classes makes the process even more tiresome. Taking all of this into consideration I have decided to build a WEB API which will allow students to select the courses they would like to take and receive a valid list of schedules in the form of a JSON response.

Project Outcomes: I will be building a WEBAPI which will allow generation of schedules and listing of courses. The WEBAPI on being provided with desired courses, will return a JSON response with a list of schedules made.

Libraries/other resources to be used: As such a service will receive its data from the ERP and will parse it I plan on using JSOUP as it is well equipped for GET/POST requests and comes with a well-built parsing library.

Data Structures and Algorithms to be used:

To process all the data of courses and classes from PSCS I will be using an ADT. I will then be representing all combinations of classes using a graph and traversing through it using DFS. To reduce the overall runtime of the algorithm I will be making use of Backtracking Algorithm.