

DSA ASSIGNMENT -1

22BCE275 – VEDANT PATEL

22BCE284 – PRIT SHAH

Design a system for the continuous evaluation (CE) mark-sheet as mentioned below:

Component	Class Test	Sessional	Innovative Assignment	Total	Constraints to clear the CE component
Roll no./Max Marks	35	35	30	100	Minimum 40% of marks is mandatory to clear the CE component
22BCE001	20	29	25	74	

- Input for the system
 - RollNo, CourseCode, ClassTestMark, SessionalMark, Innovative_Assignment_Mark, Semester
 - i.e. 22BCE001, 2CS501, 20, 29, 25, 3
- The system should perform following functionalities:
 - Add mark for each component
 - Delete and update mark for each component
 - Enter course name & semester and generate the marksheet.
 - Scan semester from user and generate report for course-wise failure student list.

Overview:

The system is designed to manage student information and academic performance. It collects student data including name, roll number, course code, and marks from class tests, sessional exams, and end-semester exams. The system efficiently organizes and processes student academic data, presenting both individual and aggregated performance information. It's structured to handle data effectively and provides valuable insights into student performance.

Data Structures used:

Vectors - Store student data efficiently.

Maps - Use to organize and retrieve student details and marks.

Priority Queue - Utilized for sorting and ranking students based on their scores (GPA).

Outputs Generated:

Generate Reports:

- Full student database including all information of student academics
- Roll number-wise display of student marks.
- Identification and report of students who have failed.
- Top 5 students' ranking along with their details.
- Course Wise detailed information
- Student failure report according to course and semester respectively.
- Course statistics report

CSV File Creation: The system converts every students' course and rankwise information into a CSV file for easy storage and access.

Purpose:

- Efficiently manages and organizes student academic data.
- Provides quick access to individual student marks and failure reports.
- Offers a clear representation of the top-performing students.
- Facilitates easy storage and access of top student details through a CSV file.