

Instructions:

Mini Project : Assume that your group is hired to develop a DBMS based application for one of the following scenarios. As the first step you are required to do an initial requirements analysis and documentation.

Your proposed requirements document needs to be subsequently approved by the instructors. In some cases it may need to incorporate feedback to get it approved. Same project is assigned to multiple groups. Each group needs to independently work on the project though information/knowledge sharing within the boundaries of the honor code is permitted.

For a problem with unclear or missing information in this list, you can make appropriate assumptions and clearly state your assumptions. Also you can ask the lecturers/instructors in person or on the project requirements forum.

Assigned Projects

CSE Groups

Project 1 Groups 1-5

Project 2 Groups 6-10

Projects 3 Groups 11-15

Project 4 Groups 16-20

Project 5 Groups 21-25

ICE groups

Project 6: Groups 1-6

1) Managing common resources at UoM

University of Moratuwa wishes to maintain a database system to keep track of the available resources (lecture rooms, labs, vehicles etc).

The scheduling manager allocates the resources. When allocating the resources like lecture rooms and the labs he takes the number of students that can be accommodated in a lab into consideration. When there are more requests for vehicles than available, he should try to merge the tours in the same route and to facilitate all the requests.

The parties who are going to make the requests should be able of viewing the available resources so that they can ask for the preferred lecture room when there are more than one lecture room with same resources.

2) Environmental Monitoring System

Design a database system for the Colombo city mayor. Colombo city mayor wants to setup an environmental monitoring system which collects data from a set of sensors situated around the city. Different sensors will have different attributes. Multiple types of sensors can be located at the same location. Database should assist in providing information for reporting and analysis (temporal base, type based etc) of the environmental condition in the city, keep track of newly added sensors etc.

3) Grade one entry qualification evaluation system for government schools

The Ministry of Education requires a database system to manage and evaluate the details of the applicants for the grade one entry for the government schools.

The system requires to keep the records of old students, and when an application with a reference to an old student is received, by analyzing the records of that particular old student the system should be able to calculate the marks that are received due to that reason. In the same way marks due to the residential distance should be calculated.

The system should be able of calculating the final score relevant to each applicant.

4) Music School - Management Information System

A medium sized music school requires a database system to manage the information.

The system should keep track of student activities and the activities of the teachers. Lessons are given via group classes or individual classes. Same student may learn more than one instrument. Starting from student registration, allocation to classes, attendance, progress monitoring, fee payment etc should be maintained on the MIS. Also teacher information and allocation to classes' attendance and working hours should also be maintained. Student registration process should consider keeping information about parents and also information about siblings who are students. MIS should also be able to manage the end of year concert where most of the students will be taking part. There will be multiple performance items to which groups of students will be allocated for the concert. MIS should be able to provide reports to indicate the students involved in different concert items and help in the process of scheduling extra practice sessions etc. End of month payments for teachers should also be generated from the system. Two different access levels should also be provided to the admins and teachers to access the MIS.

5) A Database for resource management for MoraSpirit

Mora spirit requires a database system for managing their sports equipment. The system also needs to manage the student details who are involved in sports within the university. In addition it should be capable of managing the supplies of sports equipment to the students, managing the student resource allocation schedule and managing the practice schedule.

6) Taxi Service Coordination System

A third party service provider is planning to provide an online/mobile ride reservation system. Drivers should be able to register themselves on the system. Available drivers should be able to submit their service availability to the system. Clients should be able to request service on-line/mobile by submitting their request. The system should be able to prompt the next available driver to service the request. As a promotion to attract customers the system will allow clients to set a maximum price they are willing to pay and the drivers are allowed to set a minimum they are willing to agree to. The system should be able to keep track of the performance of taxi drivers and the keep track of the service fees due from Taxi drivers to the service company.