Database Management System (DBMS) Project Guidelines and Schedule (Course Code: CSE2004)

In the project component, the students are expected to design and implement a database, and develop a front-end Graphical User Interface (GUI) to interact with the database. This is can be a group project. The students can form a team of maximum 4 members.

PART I OF THE PROJECT (20 MARKS)

Students have to choose a real-world scenario (some suggested topics are given at the end of this document) and by considering varying requirements of the application, students are expected to design a database model using the Entity Relationship Diagram (ERD). Please note that your ERD must have at least 10 entity sets out of which 2 must be the weak entity sets. The ERD should consist of appropriate relationship sets and must have all types of attributes (along with properly defined cardinality constraints).

In the next sub-phase, students need to translate the ERD to the (conceptual) relational schemas, which as a whole represents the database schema. Then, the students have to create tables on an RDBMS platform (such as Oracle Database, MySQL, PostgresQL, SQLite etc.) based on the conceptual database schema by using the Data Definition Language (DDL) of the Structured Query Language (SQL).

Last Report Submission Date (Flexible): 15/09/2020

PART II OF THE PROJECT (30 MARKS)

In this phase, the students have to perform normalization on the relations/tables to minimize the data redundancy. All the relations should be normalized to the greatest extent possible (you must ensure that all the relations at least are in the third normal form) and the whole process needs to be documented clearly. Next, the students have to implement the whole database (the normalized relations) on the RDBMS platform using SQL. At the end of this phase, the students are expected to decide the software details regarding the application to be

developed.

Last Report Submission Date (Flexible): 30/09/2020

PART III OF THE PROJECT (50 MARKS)

Databases are generally accessed using a front-end GUI application. Using the Open Database Connectivity (ODBC) or Java Database Connectivity (JDBC), the application program can access the database. The students are expected to build a front-end GUI application by using which the database can be accessed and the basic data manipulation operations like insertion, deletion, update etc. can be performed on the database. The front-end GUI application can be implemented using any programming language including, but not limited to, JAVA, C#, Visual Basic, PHP, ASP etc. Each student has to give a 10 minutes presentation about her/his project at the end of the semester.

Last Report Submission Date (Fixed): 20/10/2020

Suggested Project Topics:

[1] Training & Placement Cell Management System

[2] Hospital Management System

[3] Real-Estate Management System

[4] Pharmacy Management System

[5] Online Laboratory Management System

[6] Inventory Management System

[7] Library Management System

[8] Railway Management System

[9] Food Ordering & Delivery Management System

[10] Online Advertisement Management System

Your Project Report must include the following:

- Project Title, Details of the Students Involved in the Project, Introduction, Objectives etc.
- The ERD and the corresponding Relational Schema Diagram (that you found after the reduction step) with a brief explanation of your choices
- Diagrams of the Normalized Schemas found after the Normalization (with detailed step-by-step explanation)
- A brief description of your front-end GUI application along with the screenshots
- Conclusions and Appendix (in Appendix section, you have to put the SQL statements and the program source codes)