50138 DATA TECHNOLOGY
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Database Project Report

To obtain a B.Sc. Of Webtechnologies and Programming, the completion of a database project is required, this report will retrace the steps taken during this project.

The choice was given for this project to either choose an already designed schema from databaseanswers.org or to come up with a self-designed one, the dataset used in this particular case is the product of the latest option. The result is a database schema of four tables (Students, Courses, Lecturers and Assessment) based on the business rules as understood by the student undertaking the project.

The Students table is composed of four columns: Student_ID (foreign key), Student_Name, Student_DOB and Course_Name (primary key). The Courses table is composed of two columns: Course_ID (primary key) and Course_Name (foreign key). The Lecturers table is composed of four columns: Lecturer_ID (primary key), Lecturer_Name, Course_ID (foreign key) and Dept_ID. The Assesment table is composed of five columns: Ass_ID, Student_ID (primary key), Lecture_ID (foreign key), Due_Date and Grade.

A schematic of database composed of the tables and their relationships was generated. The CREATE command was used to generate the database's tables, each of those commands were saved and commented in a SQL file (part1b-Create command.sql). The tables were populated with test data using the INSERT command, each of those commands were saved and commented in a SQL file (part2-Insert command.sql). As part of the project a series of queries were to be done using the commands Select, Insert, Update and Delete, each of the resulting queries were saved and commented in a SQL file (part3-Queries.sql). All the above will be used as part of the submission of the project.

Also as part of the submission, the students were asked to demonstrate Codd's rule using SQL including some explanations. From this demonstration, it appears that the database designed for this project fully complies with Codd's rules 1 (information rule), rule 2 (the guaranteed access rule), rule 4 (dynamic online catalog based on the relational model), rule 5 (comprehension data sub-language rule), rule 8 (physical data independence), rule 9 (logical data independence) and rule 10 (integrity independence). The rule 7 (high level insert, update and delete) only partially complies with the update part but does not with the insert and delete probably due to a problem of design of the database. The same design problem may explain why the database does not conform to rule 3 (systematic treatment of the null values) and rule 6 (the view updating rule) of Codd's rule.

In conclusion, the database designed for this project does not fully respect the Codd's rule and this is probably due to its limited size which means tight constraints as well as the lack of experience of the designer.