

## Introduction to Data Modelling & Databases (BSHDS/ HCDS)

**Breakdown:** This is worth 40% of your overall mark for the module.

**Due Date:** Week 10 - Friday 11<sup>th</sup> December 2020 before 11.55pm

**This is a Group project (Maximum members in a group: 3) based on the following learning outcomes**

**LO5** Design, implement and administer a database system with an appropriate database package

**LO6** Formulate advanced SQL commands to manipulate the structure of a database and its contents and produce value-added reporting

**Development Environment:** The project should be developed using the MySQL Workbench / Microsoft access or any relevant development environment.

**Submission Instructions:** The final submission should include a ZIP file with an Entity-Relation diagram (ERD) and SQL code submitted through Moodle.

### **Project Description:**

The objective of this project is to design, implement and administer a database system with an appropriate database package as a solution for the organization to address the data management issues using advanced SQL programming skills by providing a value-added reporting. A real-life scenario can be considered with assumptions that provided an understanding of the issues and requirements of an organization and work your way through the High Level modelling and physical design and queries of a DBMS solution. The skills required in this project will be valuable in the role of a DBMS professional. You can use Microsoft Access or a comparable tool to illustrate the design models (ERD diagram) and will also have access to MySQL Workbench for implementation of the DBMS design or solution.

### **Your task is to:**

Choose an area of interest (Pharmacy, Library, Holiday Booking System, Medical Practice, Real-estate agent, Concert hall, Motor mechanic, Primary School, Role-playing game, etc.,) to design and implement SQL programming solution of your choice.

- Construct a High Level Model that include the necessary entities, relationships, attributes, and business rules for solving database management issues (30%).
- Implement a physical design and queries using MySQL programming language that addresses all issues of your problem statement. Four queries using where clause, group by clause and joins between relations must be provided by each team member. The queries should provide an important information to the organization for the current and future needs (60%).

The finished design and code should be accompanied by a short report (10%) that indicate clearly the work distribution of all team members. This project has **three** deliverables:

1. The first deliverable is the High Level Modelling of chosen problem. The ERD diagram should clearly indicate the Entities, Attributes, relationships (participation and cardinality) and keys.
2. The second deliverable is the Physical Implementation and Queries and the comments must be used in the code to provide an understanding to the reader.
3. The last deliverable is a brief report (three pages max) outlining each of the technologies used, where they were used.

The cover sheet for the report should include full student numbers, student names, project title.

A grading rubric for each of the grade items is outlined below. Please use this as a guide for the design and development of the project.

**Please note:**

- The student(s) that don't reference someone else's code properly (lecturer's code, friend's code, GitHub code, any code from the Internet, etc.) within their final/submitted application, will receive a mark of 0 overall and reported to the school for possible plagiarism.

Skills/ Score	+ 70	60 - 69	50 - 59	40 - 49	< 40
<b>High Level Modelling: Entity Relation Diagram for the Database (30%)</b>	Excellent understanding of the entity and relationship diagram with an identification of candidate keys	High level Understanding of the entity and relationship diagram with an identification of candidate keys	Decent Understanding of the entity and relationship diagram with an identification of candidate keys	Partial understanding of the entity and relationship diagram with an identification of candidate keys	Not fully understand ER Modelling
<b>Physical Implementation and Queries: Table Creation along with PK and FK constraints and Queries (60%)</b>	Created all the tables along with constraints defined in project requirements. Named tables appropriately regarding their data elements and populate with data	Created all the tables along with constraints defined in project requirements. Table names was satisfactorily regarding its data elements and populate with data	Created most of the tables along with constraints defined in project requirements. Table name was a little unclear regarding its data elements and populate with data	created some of the tables along with constraints defined in project requirements. Table name did not correlate to its data elements and partially populate data	Not created tables properly and no population of data
<b>Report (10%)</b>	Excellently formatted and referenced report addressing all elements required for the data models and database project	Well formatted and referenced report addressing all elements required for the data models and database project	Well formatted and referenced report addressing most elements required for the data models and database project	Poorly formatted and referenced report addressing few elements required for the data models and database project	Badly formatted and referenced report addressing few elements required for the data models and database project