EBU5503 Database Systems Coursework Specification

Scenarios

1. Design and implement a relational database for an online shopping website. The basic requirements for the shopping website database are: it should record customers and products information, as well as purchase/order information and payment details.
2. Design and implement a relational database for an university's student and course management system. The basic requirements for this database are: it should record students and courses information, as well as enrolment information and course grades details.
3. Design and implement a relational database for library management system. The basic requirements for this database are: it should record the holdings in the library, i.e. books, journals, DVDs, e-books, audiobooks, etc, as well as library members and loan information.

Statement

Choose **one** scenario from the above 3 scenarios, design and implement a relational database for it.

The basic requirements are provided, but you need to be creative and come up with additional requirements beyond the basics. (A good starting point is to do research on requirements for the above systems, or look at functions of existing systems.)

The requirements you specify should be realistic, i,e. representing the real world situations.

Tasks

Tasks include designing, setting up a database schema and providing access to the database in the form of queries. The steps for doing this include:

- Define detailed requirements that you would like to design your database for.
- Create a conceptual schema in the form of an EER diagram. (Note: you should design your database according to your requirements.)
- Derive a relational schema from the EER diagram.
- *Validate* the relations using normalization technique.
- Implement this schema using SQL.
- Populating the database with a set of typical data. The data should be realistic, significant but manageable.
- Create a set of SQL queries and query results, based on your database. (Note: your queries should involve all of your relations.)

Deliverables

Submission on QMplus by the end of Monday, 20th May 2024

Each group should submit (**one submission by one group member per group** on QMPlus):

1. A report containing:
   - **Description** of *detailed requirements* and *assumptions* if you make any. **(2 marks)**
   - A conceptual schema of EER diagram (with **explanation** of how the database design supports your requirements). **(4 marks)**
   - The sample test data. This test data should be carefully designed in order to test that your queries will work under any conditions. **(1 marks)**
   - A set of SQL **queries** and **query results**, based on your database. (Note: your queries should make use of all the relations.) **(3 marks)**

   The report should be **no more than 10 pages**.

2. A video of **no more than 10 minutes**, explaining and showing:
   - Your database requirements/assumptions **(2 marks)**
   - Your EER diagram design **(3 marks)**
   - The queries and results that satisfy your requirements, demonstrating that the queries produce correct results. (you may need to show all the data in your relations) **(5 marks)**

Assessment

The coursework counts for 10% of the final mark of the module.