Work Integrated Learning Programmes

BITS Pilani
Pilani | Dubai | Goa | Hyderabad

Computer Science & Information Systems

Assignment- Database Design and Applications MM: 10

Describe a problem statement of your own choice. The problem statement should

a) Match to a real life system.
b) Include at least 5 entities and 5 relationships including one weak entity.
c) Indicate cardinality of relationship.
d) Indicate total participation rules and partial participation rules.

Perform the following tasks based on problem statement.

1. Draw a detailed entity relationship/enhanced entity relationship (ER/EER) diagram.
2. Convert the ER/EER diagram to tables.
3. Create tables using some relational DBMS and populate tables with relevant data.
4. Identify at least 30 (**5 for each student**) significant retrieval queries and implement those queries in SQL. Choose those queries which make use of joins, group by, order by and aggregate functions.

Instructions

1. Clearly write the problem statement and write as much detail as you can. It should match with real life scenario.
2. Identify the entities, relationships and draw ER/EER diagram detailing cardinality of relationships and total/partial participation rules.
3. Convert the ER/EER diagram to relations. The schema derived from ER/EER diagram should clearly indicate primary keys and foreign keys.
4. Create the schema using RDBMS. Write SQL query for each table creation and output after successful creation of each table.
5. Insert some dummy data into tables at least 10 rows in each table. Write insert statements and snapshot of table after insert statements.
6. Write statements about select queries, then execute queries in SQL and record the output. For each statement record SQL query and its output.

Note

- This is group assignment. Each group should choose unique problem statement.
- Do not choose any problem statement that has been discussed in text book(s), reference book(s), or lectures.
- The solutions for the chosen application should not be readily available on the Internet. The same would be rejected.
- You may use BITS virtual lab platform for performing steps 4 to 6 mentioned in instructions.

Deliverables

1. Problem statement.
2. ER diagrams.
3. ER to Relational Mapping
4. SQL queries on creating relations along with screenshot of their output.
5. SQL Insert queries. Display tables after all insert queries. Include a screenshot for each table in your submission.
6. SQL retrieval queries along with output screenshot. One screenshot per query.

How to Submit

1. Create one document of all deliverables.
2. The first page should have all names of group members along with their BITS_IDS
3. Convert it into Pdf format.
4. Zip the pdf file and upload zipped file on e-learn portal. Name your file as **"Group-[number]"**

Evaluation Criteria

1. Scope of problem statement. [2]
2. Appropriateness and completeness of ER/EER diagram and mapping it to relations. [2]
3. Creation of database schema and inserting data into the database. [1]
4. Significance, complexity and execution of select queries. [5]

Note: There may be viva post submission of assignment.

Timelines for Submission

The deliverables should be submitted latest by **Oct 20, 2020.**

Plagiarism cases will be penalized strictly.

Following is the list of topics that should **NOT** be preferred for this assignment.

- Library Management System
- Railway Reservation System
- Airline Reservation System
- Movie Ticket Booking System
- Bus Ticket Booking System
- Hospital Management System
- Banking System
- Order Processing System
- Inventory Management System