DBMS Assignment -1
Last date of submission 19-Jun-2021

Instructions

- Students are informed to upload scanned copy(pdf) of the answers against this assignment in google class room.
- Write Roll no, Name and signature at top right corner of every page.

1. Draw and Explain Database Architecture. Explain the functionality of each subsystem.
2. Differentiate between File processing and DBMS.
3. What are the five main functions of DBA?
4. Explain the terms primary key, candidate key and super key and difference between them with an example.
5. What is Data abstraction? Explain three levels of data abstraction.
6. Explain the concept of generalization, specialization and aggregation with example (Extended ER features).
7. Discuss the Entity-Relationship design issues in brief.
8. a. Explain how to reduce E-R diagrams to tables.

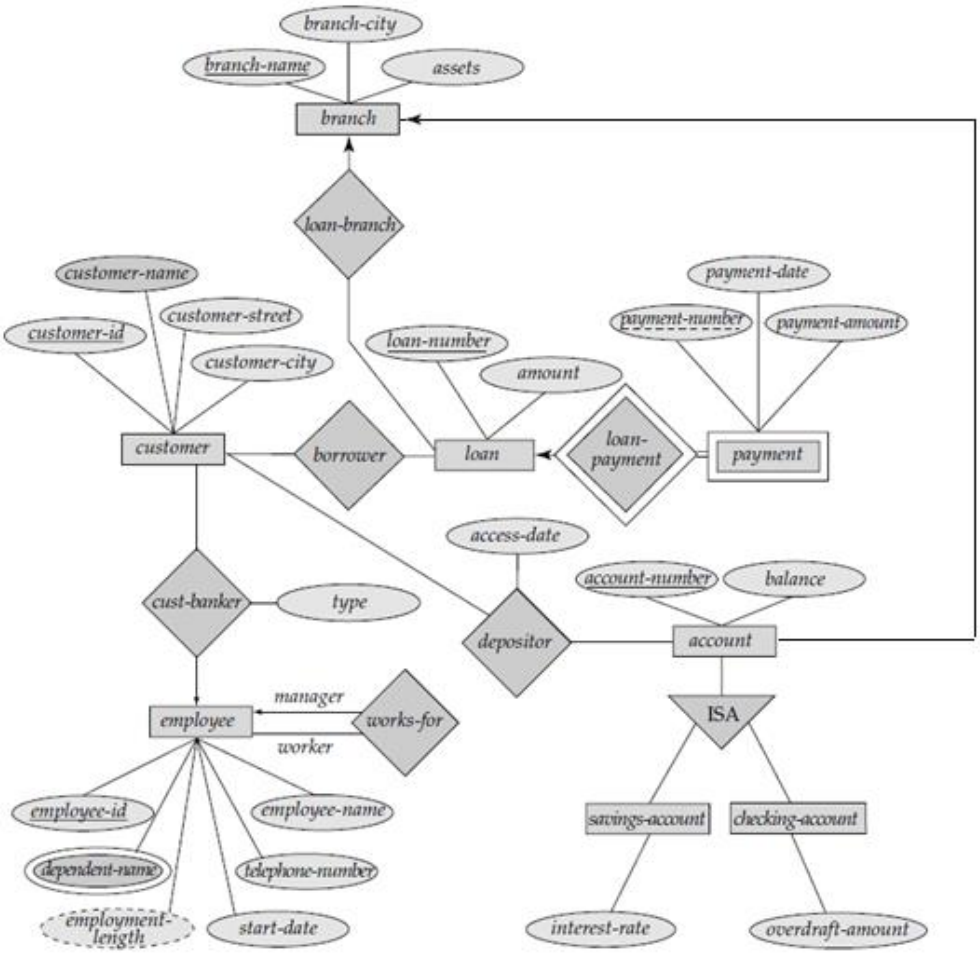

Figure 2.22 E-R diagram for a banking enterprise.

b. Design a relational model for the given ER diagram.

c. Write SQL DDL commands for creation of Employee, Department, Works_for, Supervision.
d. Write SQL commands to add suitable constraints (primary key and foreign key) to the tables created above.
e. Write SQL commands to insert at least 2 tuples in the tables created above following all the constraints.

9. Explain Fundamental and Additional relational algebra operations with suitable examples.
10. Explain String operations and Aggregate functions in SQL.
11. Consider the following relational schema:

    Sailors(sid, sname, rating, age)

    Reserves (sid , bid ,day)

    Boats (bid, bname, color)

    Write the following queries in SQL.

    a) Find the names of sailors who have reserved boat 103.
    b) Find the names and ages of sailors with a rating above 7.
    c) Find the names of sailors who have reserved a red boat.
    d) Find the sname, bid and day for each reservation.
    e) Find the name of sailors who have reserved at least one boat.