BKDKM College of Professional Studies

Subject: -: Relational Database Management Systems (619404)

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Assignment-1

1. Define Database and DBMS. Explain the characteristicolmu the database approach.
2. Discuss advantages and disadvantages of DBMS over file processing system.
3. Explain different types of database users: actors on the scene and workers behind the scene.
4. Explain schemas, instances and data independence with suitable examples.
5. Explain the three-schema architecture of DBMS with neat diagram.
6. What are database languages? Explain DDL, DML, DCL with suitable examples.
7. Differentiate between centralized DBMS and client-server DBMS.
8. Discuss DBMS architecture and components (Query Processor, Storage Manager, etc.).
9. Classification of DBMS: Hierarchical, Network, Relational, Object-oriented.
10. Write short notes on database system environment.

Assignment-2

1. Define entity, entity set, attributes and keys with suitable examples.
2. Explain types of attributes (simple, composite, multivalued, derived, key attributes).
3. Explain relationship types, relationship sets, roles and constraints with examples.
4. What is weak entity? Explain with an example.
5. Explain specialization, generalization and inheritance in ER modeling.
6. Draw and explain ER diagram for any one: Company / University / Bank database.
7. Explain mapping from ER/EER diagram to relational schema with example.
8. Explain aggregation and design issues in ER modeling.
9. Explain UML class diagram notations for database design.

Assignment-3

1. Define functional dependency with suitable example.
2. Explain the process of normalization in database design.
3. Explain 1NF, 2NF, 3NF with examples.
4. What is BCNF? Explain with example.
5. Explain multivalued dependency and 4NF with example.
6. Discuss informal design guidelines for relational schema.
7. Explain lossless join decomposition and dependency preservation.
8. Discuss insertion, deletion and update anomalies in relational design.

Assignment-4

1. Define transaction. Explain ACID properties with example.

2. Explain different transaction states with neat diagram.
3. Explain serializability of schedules with example.
4. What is recoverability? Explain different types of schedules.
5. Explain concurrency problems: dirty read, lost update, temporary update, unrepeatable read.
6. Explain concurrency control techniques: two-phase locking, timestamp ordering protocol.
7. Discuss deadlock prevention, detection and recovery in DBMS.
8. Explain log-based recovery and checkpoint recovery techniques.
9. Explain shadow paging recovery technique.

Assignment-5

1. Differentiate between DDL, DML and DCL with examples.
2. Explain constraints: primary key, foreign key, unique, not null and check constraint with example.
3. Write SQL queries using aggregate functions (SUM, AVG, COUNT, MIN, MAX).
4. Explain join and its types (inner join, outer join, natural join, cross join) with examples.
5. Write SQL queries using subqueries and correlated subqueries.
6. Explain set operations (UNION, INTERSECT, MINUS) with examples.
7. Explain views, their types and operations on views.
8. Explain transaction control commands: COMMIT, ROLLBACK and SAVEPOINT with examples.
9. Write SQL queries for: GROUP BY, HAVING and ORDER BY clauses.
10. Explain security and authorization in SQL.