DBMS Lab Viva Questions

Database Management Systems (PES University)

DBMS LAB VIVA QUESTIONS

1. What is DBMS?
    - Software that manages data
    - Allows user to DEFINE datatypes and constraints, CONSTRUCT (store) data and MAINPULATE data through queries.
    - Hierarchical, Network, RDBMS, OODBMS NOSQL

2. Advantages of DBMS
    - Redundancy of data avoided.
    - Restricted and protected access to data.
    - Permanent/Persistent storage for program objects.
    - Back up recovery services.
    - Efficient query processing.
    - Storage structure and indices for efficient query processing and retrieval.

3. What is DML?
    - Data Manipulation Language.
    - High level non procedural language (SQL).
    - Can be embedded into programming languages.
    - CRUD operations to create, read, update, and delete data

4. Commands of DML
    - INSERT, SELECT, UPDATE and Delete commands.
    - SELECT, INSERT, UPDATE, DELETE, MERGE in SQL

5. What is primary key?
    - If a relation has many candidate keys, one is chosen arbitrarily to be the primary key.
    - Primary key attributes are underlined.
    - PK used to identify tuple uniquely.

6. What are the types of databases?

- Structured, Unstructured, semi-structured.

7. Types of abstraction
    - **Internal Level or Physical Level**- Physical storage structure of the database
    - **Conceptual or Logical Level**- Describes the Database structure of the whole database
    - **External or View level**- related to the data, which is viewed by specific end users, nearest to the user.

8. What is a candidate key?
    - A relational schema may have > 1 key. Each of these keys is called candidate key.

9. What is the use of DBMS?
    - optimize and manage the storage and retrieval of data from databases
    - Business, Social network, Science and research, Finance, Airline…

10. What are the types of relationships?
    - 1:1 One-to-one relationship.
    - 1:N One-to-many relationship.
    - M:N Many-to-many relationship.

11. What is a relation schema?
    - Description of a relation.
    - consists of the relation's name, set of attributes/field names/column names.
    - set of relational tables and associated items that are related to one another.

12. What is an entity?

- Basic concept of ER Model.
- Refers to each specific object in the mini world.
- Physical or conceptual.
- Entities have attributes.
- Weak or Strong entity.

13. Types of attributes.
    - Simple and composite.
    - Single values and multivalued.
    - Stored or derived – dotted line. (age derived from DOB)
    - Complex attributes.

14. What is entity set?
    - Collection of similar entities. (Same type: either strong or weak)

15. What is weak entity set?
    - An entity set that does not have a primary key.
    - does not contain sufficient attributes to uniquely identify its entities

16. Types of inner and outer join (explain too)?
    - **Inner Join**- Natural Join and EQUI Join
    - **Outer Join**- full outer join, left outer, right outer join

17. Difference between primary and unique key?
    - Unique key is same as that of PK except PK will not accept NULL values whereas Unique key can accept NULL values

18. What is normalization?
    - Reducing Null entries. Can't achieve through ER Diagram.

- OR
- Splitting a single table DB (flat file) into multiple tables (relational DB)

19. What is view?
    - A view is the result set of a stored query on the data.
    - hide the complexity that exists in a multiple table join.
    - User can select and perform join without knowing how it actually works.
    - Views can join and simplify multiple tables into a single virtual table.

20. What are commands in DCL?
    - GRANT
    - REVOKE

21. What is DCL?
    - Data control language (DCL)
    - Similar to a computer programming language used to control access to data stored in a database (Authorization). (SQL).

22. Why does a database use Inner join types?
    - Returns only those results from the tables that match the specified condition and hides other rows and columns.

23. what are entity types?
    - Strong entity type – has key attribute.
    - Weak entity type – no key attribute.
    - Intangible entity type- exists logically not physically.

24. Drop vs truncate
    - DROP - remove table definition and its contents
    - TRUNCATE- delete all the rows from the table

25. What relationship in database model?

- a situation that exists between two relational database tables when one table has a foreign key that references the primary key of the other table

26. What are foreign keys?
    - refers to the field in a table which is the primary key of another table.
    - provides a link between data in two tables.

27. What is DDL interpreter and DDL Compiler?
    - INTERPRETER- interprets the DDL statements and records the generated statements in the table.
    - COMPILER- processes schema definitions specified in the DDL

28. Disadvantages of query?
    - No indexes
    - Excessive compiling of stored procedures
    - Complicated joins
    - Cursors and temporary tables showcase a bad presentation.

29. Disadvantage of DBMS?
    - Too huge
    - Complexity
    - Costly
    - Database failure

30. Can views have constraints?
    - Check
    - Read only
    - Primary key
    - Unique key
    - Foreign key

31. Advantages of DBMS over file system
    - Flat file system has modification errors because single table.
    - Also, flat file has duplication causing these errors ^

- Relational DB stores data in >1 table => prevents duplication and hence less storage required as well.
- Relational DB: updates less prone to errors.

32. What is unique key?
    - Set of one or more than one fields/columns of a table that uniquely identify a record in a database table.
    - Allows null constraint.

33. What are different DBMS languages?
    - **DDL – Data definition Language**
        1. CREATE
        2. ALTER
        3. DROP
    - **DML – Data Manipulation Language**
        1. SELECT
        2. INSERT
        3. UPDATE
        4. DELETE
        5. MERGE
    - **DCL – Data Control Language**
        1. GRANT
        2. REVOKE
    - **TCL – Transaction Control Language**

34. What is database?
    - Collection of data
    - Logically coherent collection
    - Specific purpose

35. What is superkey?
    - Set of attributes with:
        1. No 2 tuples having same value for SK.

2. This condition must hold good in any state.

36. What is key?
    - A minimal SK such that removing any one attribute from its set, destroys the uniqueness property.

KEY IS SUPERKEY NOT VICE VERSA.

37. What is drop?
    - delete a whole database or just a table.
    - The DROP statement destroys the objects

38. What is SQL?
    - Sequential Query Language.
    - RDBMS

39. What are integrity constraints?
    - Set of rules that ensure data insertion, updating… maintain data integrity.
    - guard against accidental damage to the database.