Final Project

Database

1. Using which language can a user request information from a database?

   a) Query

   b) Relational

   c) Structural

   d) Compiler

A1 - a) Query

2. Which one of the following is a procedural language?

   a) Domain relational calculus

   b) Tuple relational calculus

   c) Relational algebra

   d) Query language

A2 - d) Query language

3. The_____ operation allows the combining of two relations by merging pairs of tuples, one from each relation, into a single tuple.

   a) Select

   b) Join

   c) Union

   d) Intersection

A3 - b) Join

4. The _____operation performs a set union of two “similarly structured” tables

   a) Union

   b) Join

   c) Product

   d) Intersect

A4 - a) Union

5. The most commonly used operation in relational algebra for projecting a set of tuple from a relation is

a) Join

b) Projection

c) Select

d) Union

A5 - c) Select

6. The most commonly used operation in relational algebra for projecting a set of tuple from a relation is

a) Join

b) Projection

c) Select

d) Union

A6 - c) Select

7. A _____ is a pictorial depiction of the schema of a database that shows the relations in the database, their attributes, and primary keys and foreign keys.

a) Schema diagram

b) Relational algebra

c) Database diagram

d) Schema flow

A7 - a) Schema diagram

8. The _____ provides a set of operations that take one or more relations as input and return a relation as an output.

a) Schematic representation

b) Relational algebra

c) Scheme diagram

d) Relation flow

A8 - b) Relational algebra

9. Define database model

A9 - A database model shows the logical structure of a database, including the relationships and constraints that determine how data can be stored and accessed. Individual database models are designed based on the rules and concepts of whichever broader data model the designers adopt.

10. Define Normalization.

A10 - NORMALIZATION is a database design technique that reduces data redundancy and eliminates undesirable characteristics like Insertion, Update and Deletion Anomalies. Normalization rules divides larger tables into smaller tables and links them using relationships. The purpose of Normalization in SQL is to eliminate redundant (repetitive) data and ensure data is stored logically.

11. Enlist the advantages of normalizing database.

A11 - Normalization provides numerous benefits to a database. Some of the major benefits include the following :

- Greater overall database organization
- Reduction of redundant data
- Data consistency within the database
- A much more flexible database design
- A better handle on database security

12. Define Denormalization.

A12 - Denormalization is a database optimization technique in which we add redundant data to one or more tables. This can help us avoid costly joins in a relational database. Note that denormalization does not mean not doing normalization.

13. Define Data Warehousing.

A13 - A Data Warehousing (DW) is process for collecting and managing data from varied sources to provide meaningful business insights. A Data warehouse is typically used to connect and analyze business data from heterogeneous sources. The data warehouse is the core of the BI system which is built for data analysis and reporting.

14. What do you mean by Index hunting?

A14. Indexing is a way to optimize the performance of a database by minimizing the number of disk accesses required when a query is processed. It is a data structure technique which is used to quickly locate and access the data in a database.

15. Enlist the disadvantages of query.

A15 - The disadvantages of query are:

- No indexes
- Stored procedures are excessively compiled.

- Triggers and procedures are without SET NOCOUNT ON.
- Complicated joins making up inadequately written query.
- Cursors and temporary tables showcase a bad presentation.

Q16. Enlist ways to efficiently code transactions.

A16 - Ways to efficiently code transactions:

- User input should not be allowed while transactions.
- While browsing, transactions must not be opened of data.
- Transactions must be kept as small as possible.
- Lower transaction segregation levels.
- Least information of data must be accessed while transacting.

A17. Differentiate Table Scan from Index Scan.

Q18. Define Fragmentation.

A18. Fragmentation can be defined as a database feature of server that promotes control on data which is stored at table level by the user.

20. What is Database partitioning?

A20- Division of logical database into independent complete units for improving its management, availability and performance is called Database partitioning.