Questions and Answers

1.Physical Entity Relationship diagram of database.

Ans: A Physical Entity Relationship Diagram (ERD) is a detailed blueprint of the database.

It is the most granular level of entity-relationship diagrams and shows all table structures,

including column name, column data type, column constraints, primary key, foreign key,

and relationships between tables. Physical ERD is also known as the data model and

serves as the actual design of the database with lots of technical details.

2. Explain about searching performance. How will you handle replication in SQL for searching & Reporting?

Ans: Searching in database is the process of finding a match with the search terms among the collection documents. Searching can be very inefficient and resource-intensive if it goes through all the documents. To speed up searching, databases use indexes, which are data structures that store a subset of the document fields and allow faster lookup. Indexes can shorten the query time and improve the performance of the database.

To handle replication in SQL for searching and reporting, you should:

1. Develop and test a backup and restore strategy.
2. Script the replication topology.
3. Create thresholds and alerts.
4. Monitor the replication topology.
5. Establish performance baselines and tune replication if necessary.

3. Explain what major factors are taken into consideration for performance.

Ans: a) Enthusiasm, open communication, and a head for business and a heart for people.

b) Agile, local, and meaningful goal-setting and regular check-in.

c) Employee recognition, coaching, and development.

d) Compensation processes and performance ratings.

e) Workplace environment, such as seating arrangements, coffee availability, and commute time.

4. Mention about Indexing, Normalization and Denormalization.

Ans: Indexing is a way to optimize the performance of a database by minimizing the number of disk accesses required when a query is processed.

Database normalization is a technique for creating database tables with suitable columns and keys by decomposing a large table into smaller logical units. The process also considers the demands of the environment in which the database resides.

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. It is an optimization technique that is applied after normalization.

5. How will you handle scaling, if required at any point of time.

Ans: Scaling is defined as a process to expand the existing configuration (servers/computers) to handle many user requests or to manage the amount of load on the server.

There are two types of scaling:

1. Vertical Scaling: It is defined as the process of increasing the capacity of a single machine by adding more resources such as memory, storage, etc. to increase the throughput of the system.
2. Horizontal Scaling: It is defined as the process of adding more instances of the same type to the existing pool of resources and not increasing the capacity of existing resources like in vertical scaling.

**Database Design Assignment**

A screenshot of a computer

Description automatically generated