1. Using which language can a user request information from a database? a) Query b) Relational c) Structural d) Compiler

Ans a)Query

1. Which one of the following is a procedural language? a) Domain relational calculus b) Tuple relational calculus c) Relational algebra d) Query language

Ans b) Relational algebra

1. 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

Ans b)Join

1. The \_\_\_\_\_\_\_operation performs a set union of two “similarly structured” tables a) Union b) Join c) Product d) Intersect

Ans a)Union

1. 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

Ans c)Select

1. 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

Ans c)Select

1. 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

Ans a)Schema diagram

1. 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

Ans b) Relational algebra

1. Define database model

Ans A database model is a type of data model that determines the logical structure of a database and fundamentally determines in which manner that  we can store, organize and manipulate the data. The most popular example of a database model is the relational model.

1. Define Normalization.

Ans Normalization is the process of organizing data in a database. This includes creating tables and establishing relationships between those tables according to rules designed both to protect the data and to make the database more flexible by eliminating redundancy and inconsistent dependency.

1. Enlist the advantages of normalizing database.

Ans The advantages of normalizing database are following:

* More rows per page
* More rows per I/O
* More rows fit in cache
* Searching, sorting, and creating indexes is faster, since tables are narrower, and more rows fit on a data page.
* More tables allow better use of segments to control physical placement of data.
* Data modification anomalies are reduced.

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1. Define Denormalization.

Ans Denormalization is a key step in the task of building a physical relational database design. It is the intentional duplication of columns in multiple tables, and the consequence is increased data redundancy.

1. Define Data Warehousing.

Ans Data warehousing is the electronic storage of a large amount of information by a business or organization. Data warehousing is a vital component of business intelligence that employs analytical techniques on business data.

1. What do you mean by Index hunting?

Ans Index hunting is the process of boosting the collection of indexes which help in improving the query performance as well as the speed of the database.

1. Enlist the disadvantages of query.

Ans The disadvantages of query are

* 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.

1. Enlist ways to efficiently code transactions.

Ans A transaction is a logical, atomic unit of work that contains one or more SQL statements.The following are the 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.

1. Differentiate Table Scan from Index Scan.

Ans Iterating over all the table rows is called Table Scan while iterating over all the index items is defined as Index Scan.

1. Define Fragmentation.

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

1. Differentiate Nested Loop, Hash Join and Merge Join.

Ans Nested loop (loop over loop)

An outer loop within an inner loop is formed consisting of fewer entries and then for individual entry, inner loop is individually processed.

E.g.

* Select col1.\*, col2.\* from coll, col2 where coll.col1=col2.col2;

It's processing takes place in this way:

For i in (select \* from col1) loop  
For j in (select \* from col2 where col2=i.col1) loop  
Results are displayed;  
End of the loop;  
End of the loop;

The Steps of nested loop are:

* Identify outer (driving) table
* Assign inner (driven) table to outer table.
* For every row of outer table, access the rows of inner table.

Nested Loops is executed from the inner to the outer as:

* outer\_loop
* inner\_loop
* Hash join

While joining large tables, the use of Hash Join is preferred.

Algorithm of Hash Join is divided into:

* Build: It is a hash table having in-memory which is present on the smaller table.
* Probe: this hash value of the hash table is applicable for each second row element.
* Sort merge join

Two independent sources of data are joined in sort merge join. They performance is better as compared to nested loop when the data volume is big enough but it is not good as hash joins generally.The full operation can be divided into parts of two:

Sort join operation :

Get first row R1 from input1

Get first row R2 from input2.

Merge join operation:

'while' is not present at either loop's end.  
if R1 joins with R2  
next row is got R2 from the input 2  
return (R1, R2)  
else if R1 < style=""> next row is got from R1 from input 1  
else  
next row is got from R2 from input 2  
end of the loop.

1. What is Database partitioning?

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