1. What is an object in SQL?

SQL objects are schemas, journals, catalogs, tables, aliases, views, indexes, constraints, triggers, sequences, stored procedures, user-defined functions, user-defined types, global variables, and SQL packages.

1. What is Index? What are the advantages and disadvantages of using Indexes?

An index is an on-disk structure associated with a table or view that speeds retrieval of rows from the table or view.

Advantages

Speed up SELECT query

Helps to make a row unique or without duplicates(primary,unique)

Disadvantages

Indexes take additional disk space.

indexes slow down INSERT,UPDATE and DELETE, but will speed up UPDATE if the WHERE condition has an indexed field.

1. What are the types of Indexes?

Clustered and nonclustered

1. Does SQL Server automatically create indexes when a table is created? If yes, under which constraints?

Indexes are automatically created when PRIMARY KEY and UNIQUE constraints are defined on table columns

1. Can a table have multiple clustered index? Why?

There can be only one clustered index per table, because the data rows themselves can be stored in only one order.

1. Can an index be created on multiple columns? Is yes, is the order of columns matter?

Indexes can be composites composed of multiple columns and the order is important

1. Can indexes be created on views?

Yes

1. What is normalization? What are the steps (normal forms) to achieve normalization?

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.

1nf

Each table cell should contain a single value

Each record needs to be unique.

2nf

be in 1nf

Single Column Primary Key that does not functionally dependant on any subset of candidate key relation

3nf

be in 2nf

Has no transitive functional dependencies

1. What is denormalization and under which scenarios can it be preferable?

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.

1. How do you achieve Data Integrity in SQL Server?

We can use constrains, primary key, foreign key

What are the different kinds of constraint do SQL Server have?

Not Null Constraint.

Check Constraint.

Default Constraint.

Unique Constraint.

Primary Constraint.

Foreign Constraint.

1. What is the difference between Primary Key and Unique Key?

1. Unique constraint allows one null value but primary key does not

2. a table can have multiple unique constraints but only one primary

3. unique constraint does not sort the data but primary key sorts

4. unique constraint by default creates non clustere index but primary key creates clustered index

1. What is foreign key?

A foreign key constraint specifies that the values in a column (or a group of columns) must match the values appearing in some row of another table.

1. Can a table have multiple foreign keys?

Yes

1. Does a foreign key have to be unique? Can it be null?

It can be not unique. It can be null

1. Can we create indexes on Table Variables or Temporary Tables?

Yes

1. What is Transaction? What types of transaction levels are there in SQL Server?

Transactions by definition are a logical unit of work

Isolation level

Read Uncommitted (Lowest level)

Read Committed

Repeatable Read

Serializable (Highest Level)

Snapshot Isolation