1. What are the different types of SCDs used in Data Warehousing?

SCDs (slowly changing dimensions) are the dimensions in which the data changes slowly, rather than changing regularly on a time basis.

Three types of SCDs are used in Data Warehousing:

SCD1: The current data will be replaced and the new data will take its place.

SCD2: It is the new record file that is added to the dimension table. This record exists in the database with the current data and the previous data that is stored in the history.

SCD3: This uses the original data that is modified to the new data. This consists of two records: one record that exists in the database and another record that will replace the old database record with the new information.

1. How do you load the time dimension?

Time dimensions are usually loaded by a program that loops through all possible dates appearing in the data. It is not unusual for 100 years to be represented in a time dimension, with one row per day.

1. What is a fact table?  
   A fact table typically has two types of columns, foreign keys to dimension tables and measures those that contain numeric facts. A fact table can contain fact’s data on detail or aggregated level.
2. How many types of facts are there?   
   Non-Additive: Non-additive facts are facts that cannot be summed up for any of the dimensions present in the fact table.

Eg: Facts which have percentages, Ratios calculated.

Semi-Additive: Semi-additive facts are facts that can be summed up for some of the dimensions in the fact table, but not the others. Eg: Daily balances fact can be summed up through the customers dimension but not through the time dimension.

Additive: Additive facts are facts that can be summed up through all of the dimensions in the fact table. Eg: Sales fact

1. How many types of fact tables are there?

Fact-less Fact Tables: This table will only contain keys from different dimension tables. This is often used to resolve a many-to-many cardinality issue.

For example, a fact table which has only productID and date key is a fact-less fact table.

Centipede Fact Table: Centipede fact table is a normalized fact table. Modeller may decide to normalize the fact instead of snow flaking dimensions tables.

Conformed Fact Tables: They are measures re-used across multiple dimension models. For example, KPI such as profit, revenue etc

Incident or Snapshot Fact Tables: A fact table stores some kind of measurements and are captured against a specific time. Now it might so happen that the business might not able to capture all of its measures always for every point in time. Then those unavailable measurements can be kept empty (Null) or can be filled up with the last available measurements. The first case is the example of incident fact and the second one is the example of snapshot fact.

Cumulative Fact: This type of fact table describes what has happened over a period of time. For example, this fact table may describe the total sales by product by store by day.

1. What is a dimension table?

A dimension table typically has two types of columns, primary keys to fact tables and textual\descriptive data.

1. How many types of dimension tables are there?

Slowly Changing Dimensions: Attributes of a dimension that would undergo changes over time. It depends on the business requirement whether particular attribute history of changes should be preserved in the data warehouse. This is called a slowly changing attribute and a dimension containing such an attribute is called a slowly changing dimension.

Rapidly Changing Dimensions: If an attribute value keeps on changing and the history of the attribute is to be managed, it is moved to its own dimension with a separate foreign key in the fact table, this is known as Rapidly Changing Dimension.

Junk Dimensions: A junk dimension is a single table with a combination of different and unrelated attributes to avoid having a large number of foreign keys in the fact table. Junk dimensions are often created to manage the foreign keys created by rapidly changing dimensions.

Inferred Dimensions: When loading a fact table if the attribute value is not present, a foreign key is created with null values of those attributes, these are called inferred dimensions.

Conformed Dimensions: A dimension that is used in multiple locations is called a conformed dimension. A conformed dimension may be used with multiple fact tables in a single database, or across multiple data marts or data warehouses.

Degenerate Dimensions: A degenerate dimension is when the dimension attribute is stored as part of fact table, and not in a separate dimension table.

Role Playing Dimensions: A role-playing dimension is one where the same dimension key — along with its associated attributes — can be joined to more than one foreign key in the fact table. Eg. Date dim.

Shrunken Dimensions: A shrunken dimension is a subset of another dimension

Static Dimensions: Static dimensions are not extracted from the original data source, but are created within the context of the data warehouse. A static dimension can be loaded manually