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Subject : Data warehousing

Q1) Describe the architecture of data warehousing?

Ans) A Data Warehousing is process for collecting and managing data from different sources to give meaningful business insights. It is a mixture of different technology and components which helps us in planing the use of data.

Data Warehouse Architecture

Data warehousing is complex as it is an information system that contains historical and commutative data from multiple sources. There are 3 approaches for constructing datawarehouse

single tier

two tier

three tier

1: In single tier the objective of a single layer is to minimize the amount of data stored. This means is to remove data redundancy. This architecture is not frequently used.

2: This architecture is not expandable and also not supporting a large number of end users. It also has connectivity problems because of network limitations.

3: three tier consists of the Top, Middle and Bottom Tier.

 Bottom Tier: the database of the Datawarehouse servers as the bottom tier. It is usually a relational database system.

Middle Tier is the middle tier in Data warehouse is an OLAP server which is implemented using either ROLAP or MOLAP model.

Top-Tier: The top tier is a front-end client layer

Q2) Describe star schema with example of any relevant databse structure and its representation?

Ans) In data warehousing a star schema is the simplest form of a dimensional model in which data is organized into facts and dimensions.Within the data warehouse or data mart.In computing, the star schema is the simplest style of data mart schema and is the approach mostly widely used to develop data warehouses and dimensional data marts. The star schema consists of one or more fact tables.In Star Schema Business process data that holds the data which is in number about a business is distributed in fact tables and dimensions which are descriptive characteristics related to fact data. Sales price sale quantity distant speed weight and weight measurements are few examples of fact data in star schema.In the Star Schema, the center of the star can have one fact table and a number of associated dimension tables. It is known as star schema as its structure resembles a star. The star schema is the simplest type of Data Warehouse schema. It is also known as Star Join Schema and is optimized for querying large data sets.

Q3) Describe snowflake schema with example of any relevant database structure and its representation?

Ans) Snowflake schema is a logical arrangement of tables in a multidimensional database such that the entity relationship diagram resembles a snowflake shape. The snowflake schema is represented by centralized fact tables which are connected to multiple dimensions. A Snowflake Schema is an extension of a Star Schema and it adds more dimensions. It is called snowflake because its diagram resembles a Snowflake.The dimension tables are normalized which splits data into additional tables. The main benefit of the snowflake schema it uses smaller disk space. Easier to implement a new dimension is added to the Schema

Due to multiple tables query performance is reduced. The first difficulty that you will face while using the snowflake Schema is that you need to perform more maintenance efforts because of the more lookup tables.