

MID TERM EXAM

HAMMAD PIR

ID # 6961

DATAWARE HOUSING

Q:1 Describe the Architecture of Data Warehouse?

Ans:Definition:

A Data warehouse is an information system that contains historical and independent data from single or number of sources. Data Warehouse concept, modify reporting and investigating process of the organization.

Characteristics:

There are different types of characteristics which are;

- Subject Oriented
- Integrated
- Time variant
- Non Volatile

Architecture of Data Warehouse

There are different components base on architecture of data Warehouse

Which are

- Single -Tier Architecture
- Two -Tier Architecture
- Three -Tier Architecture

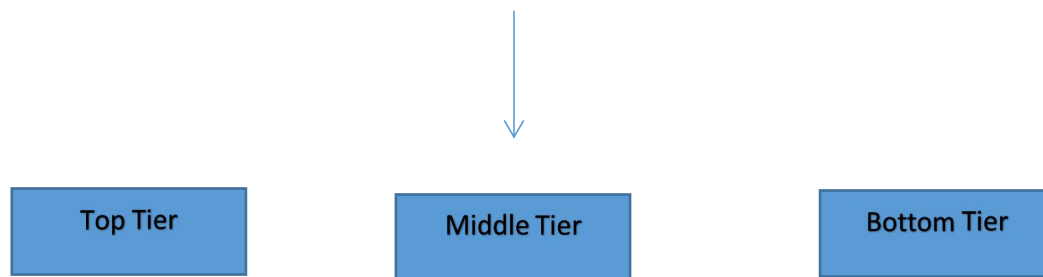
Single Tier Architecture:

Single Tier Architecture is minimize amount of data stored. This layer is withdraw data repetition. This architecture is not mostly used in large data organization.

Two -Tier Architecture:

Two-layer architecture removed physically getable sources and data warehouse. This architecture is not elastic and also not supporting a bigger number of end-users. It also has property problems because of network boundary.

Three -Tier Architecture:



Three -Tier Architecture:

Three tier architecture, the most commonly used type of data warehouse architecture, creates a more structured flow for data from raw sets to actionable insights. It is based on further three types which are;

Top Tier Architecture:

The top tier is the front-end of an organization's overall business intelligence suite. It could be Query tools, reporting tools, managed query tools, Investigating tools and Data mining tools.

Middle Tier Architecture:

The middle tier in Data warehouse is an OLAP server which is enforced using either ROLAP or MOLAP model. This layer also acts as a negotiator between the end-user and the database.

Bottom Tier Architecture:

Datawarehouse servers as the bottom tier. It is usually a relational database system. Data is cleansed, transformed, and loaded into this layer.

Q:2 Describe Star schema with example of any relevant database structure and its representation?

Ans:Introduction:

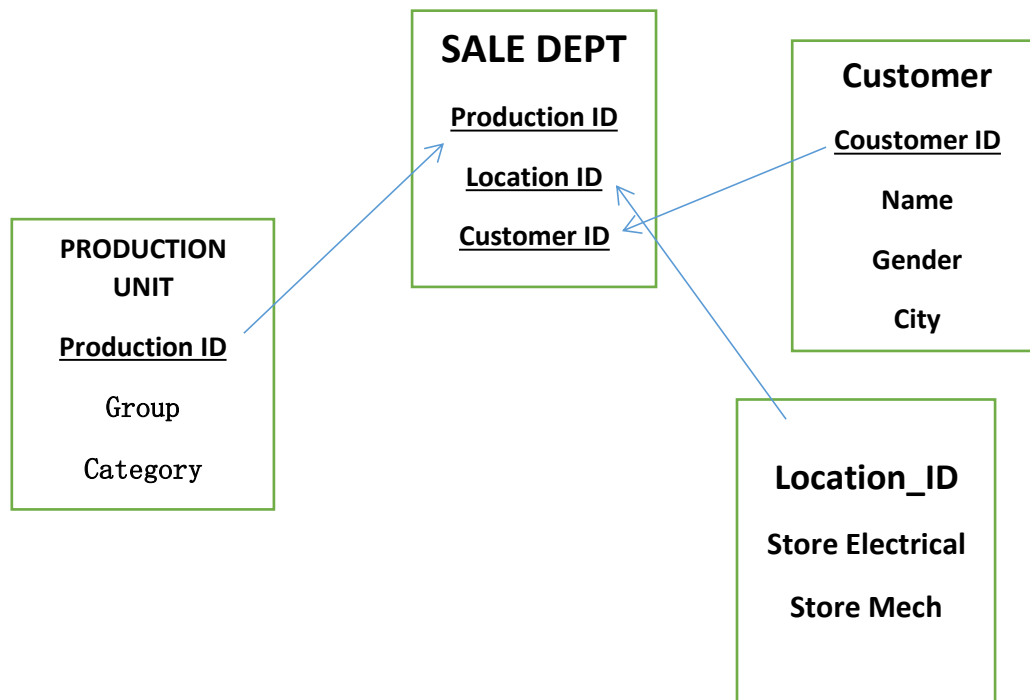
Star schema is the easy form of a dimensional model, in which data is arranged into facts and proportion. Within the data warehouse or data marketplace, a dimension table is related with a fact table by using a foreign key relationship. It is also efficient for handling basic queries.

Explanation:

Star schema is mostly prominent use in different organization like we take an example of Cement Industry Database.

Example of Schema Database Structure and its representation

are given below with use different organization like Most Commonly use Cement etc.



Explanation:

Here in this schema we define different relationship of star

Schema Which base on Table and relationship. Here

we explain brief database there are three different units Product Unit,

Location and Customer. Every table has its own attributes like

Customer have (Name, Gender, City) and here Customer ID is

Primary key. When this Customer ID is related to SALE DEPT it

Becomes a Foreign Key.

- Now Production Unit has its own attributes which become foreign key in SALE DEPT.

Advantage of Star Schema:

- ❖ Star schema database has a small number of tables and clear join paths, queries run faster than they do against an OLTP system.
- ❖ Every dimension in a star schema is represented with the only one-dimension table

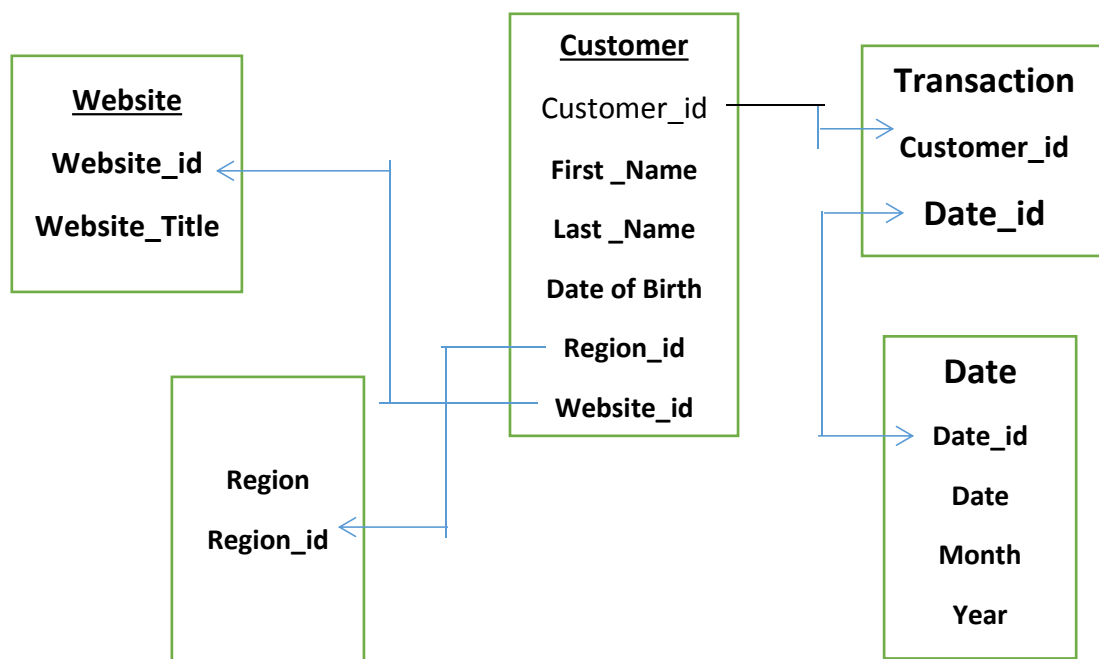
Q.3 Describe snowflake schema with example of any relevant database structure and its representation.?

Ans: Whenever Snowflake schema is multiple dimensional database with different logical tables. However it mean it add additional dimensions, and where the entity-relationship is organized to shape of snowflake.

The dimensions tables are divided into various dimensions table which are generally normalized to clear redundancy. Star Schema there's a centralized Fact table connected to Dimensional tables except the dimensional tables have further connections to other dimensional tables.

There is difference between star schema and snowflake it can easy to maintain due to zero redundancy and it have better flexibility and interrelationships but it have requires more execution time. however it used advance query tools and it requires minimum disk storage.

Example and its representation:



Mechanism:

Now there is above representation of Snowflake schema is that Customer is Parent table and it has different table and multiple dimensions. It use Vertical or Column format to store data and its benefit is reduce redundancy and minimum storage and compressed.