**SQL WORKSHEET 1**

Solution:1 A and D

Solution:2 A,B and C

Solution:3 B

Solution:4 B

Solution:5 A

Solution:6 C

Solution:7 B

Solution:8 B

Solution:9 B

Solution:10 C

**Solution:11**

A data warehouse is a type of data management system that is designed to enable and support business intelligence (BI) activities, especially analytics. Data warehouses are solely intended to perform queries and analysis and often contain large amounts of historical data. The data within a data warehouse is usually derived from a wide range of sources such as application log files and transaction applications.

A data warehouse centralizes and consolidates large amounts of data from multiple sources. Its analytical capabilities allow organizations to derive valuable business insights from their data to improve decision-making. Over time, it builds a historical record that can be invaluable to data scientists and business analysts. Because of these capabilities, a data warehouse can be considered an organization’s “single source of truth.

**Solution:12**

Difference Between OLTP and OLAP

1. The point that distinguishes OLTP and OLAP is that OLTP is an online transaction system whereas, OLAP is an online data retrieval and analysis system.
2. Online transactional data becomes the source of data for OLTP. However, the different OLTPs database becomes the source of data for OLAP.
3. OLTP’s main operations are insert, update and delete whereas, OLAP’s main operation is to extract multidimensional data for analysis.
4. OLTP has short but frequent transactions whereas, OLAP has long and less frequent transaction.
5. Processing time for the OLAP’s transaction is more as compared to OLTP.
6. OLAPs queries are more complex with respect OLTPs.
7. The tables in OLTP database must be normalized (3NF) whereas, the tables in OLAP database may not be normalized.
8. As OLTPs frequently executes transactions in database, in case any transaction fails in middle it may harm data’s integrity and hence it must take care of data integrity. While in OLAP the transaction is less frequent hence, it does not bother much about data integrity.

**Solution:13**

Following are the characteristics of the Data Warehouse:

Subject Oriented

Integrated

Non-volatile

Time Variant

**Subject Oriented**

A data warehouse is subject oriented because it provides information around a subject rather than the organization's ongoing operations.

These subjects can be product, customers, suppliers, sales, revenue, etc. A data warehouse does not focus on the ongoing operations, rather it focuses on modelling and analysis of data for decision making.

**Integrated**

A data warehouse is constructed by integrating data from heterogeneous sources such as relational databases, flat files, etc.

This integration enhances the effective analysis of data.

**Time Variant**

The data collected in a data warehouse is identified with a particular time period.

The data in a data warehouse provides information from the historical point of view.

**Non-volatile**

Non-volatile means the previous data is not erased when new data is added to it.

**Solution:14**

A Star Schema is a schema Architectural structure used for creation and implementation of the Data Warehouse systems, where there is only one fact table and multiple dimension tables connected to it. It is structured like a star in shape of appearance. This is one of the efficient data warehouse schema types, which can use simple querying for accessing the data from the system, in order to derive logical contents for analytical and report generation purposes.