

SQL WORKSHEET-1

Q1 and Q2 have one or more correct answer. Choose all the correct option to answer your question.

1. Which of the following is/are DDL commands in SQL?
- | | |
|-----------|-----------|
| A) Create | B) Update |
| C) Delete | D) ALTER |

Ans: A) Create and D) ALTER

2. Which of the following is/are DML commands in SQL?
- | | |
|-----------|-----------|
| A) Update | B) Delete |
| C) Select | D) Drop |

Ans: A) Update and B) Delete

Q3 to Q10 have only one correct answer. Choose the correct option to answer your question.

3. Full form of SQL is:
- | | |
|----------------------------|------------------------------|
| A) Strut querying language | B) Structured Query Language |
| C) Simple Query Language | D) None of them |

Ans: B) Structured Query Language

4. Full form of DDL is:
- | | |
|----------------------------------|-----------------------------|
| A) Descriptive Designed Language | B) Data Definition Language |
| C) Data Descriptive Language | D) None of the above. |

Ans: B) Data Definition Language

5. DML is:
- | | |
|-------------------------------|-----------------------------|
| A) Data Manipulation Language | B) Data Management Language |
| C) Data Modeling Language | D) None of these |

Ans: A) Data Manipulation Language

6. Which of the following statements can be used to create a table with column B int type and C float type?
- | | |
|------------------------------------|------------------------------|
| A) Table A (B int, C float) | B) Create A (b int, C float) |
| C) Create Table A (B int, C float) | D) All of them |

Ans: C) Create Table A (B int, C float)

7. Which of the following statements can be used to add a column D (float type) to the table A created above?
- | | |
|--------------------------------------|-------------------------------------|
| A) Table A (D float) | B) Alter Table A ADD COLUMN D float |
| C) Table A (B int, C float, D float) | D) None of them |

Ans: B) Alter Table A ADD COLUMN D float

- A) Table A Drop D
B) Alter Table A Drop Column D
C) Delete D from A
D) None of them

Ans: B) Alter Table A Drop Column D

- column D of table A created in above questions?
- A) Table A (D float int)
B) Alter Table A Alter Column D int
C) Alter Table A D float int
D) Alter table A Column D float to int

Ans: B) Alter Table A Alter Column D int

- following statements we can do it?
- A) Alter Table A Add Constraint Primary Key B B) Alter table (B primary key)
C) Alter Table A Add Primary Key B D) None of them

Ans: C) Alter Table A Add Primary Key B

Q11 to Q15 are subjective answer type questions, Answer them briefly.

- ## 11. What is data-warehouse?

Ans: 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."

A typical data warehouse often includes the following elements:

- A relational database to store and manage data
- An extraction, loading, and transformation (ELT) solution for preparing the data for analysis
- Statistical analysis, reporting, and data mining capabilities
- Client analysis tools for visualizing and presenting data to business users
- Other, more sophisticated analytical applications that generate actionable information by applying data science and artificial intelligence (AI) algorithms

12. What is the difference between OLTP VS OLAP?

Ans:

	OLTP System Online Transaction Processing (Operational System)	OLAP System Online Analytical Processing (Data Warehouse)
Source of data	Operational data; OLTPs are the original source of the data.	Consolidation data; OLAP data comes from the various OLTP Databases
Purpose of data	To control and run fundamental business tasks	To help with planning, problem solving, and decision support
What the data	Reveals a snapshot of ongoing business processes	Multi-dimensional views of various kinds of business activities
Inserts and Updates	Short and fast inserts and updates initiated by end users	Periodic long-running batch jobs refresh the data
Queries	Relatively standardized and simple queries Returning relatively few records	Often complex queries involving aggregations
Processing Speed	Typically, very fast	Depends on the amount of data involved; batch data refreshes and complex queries may take many hours; query speed can be improved by creating indexes
Space Requirements	Can be relatively small if historical data is archived	Larger due to the existence of aggregation structures and history data; requires more indexes than OLTP
Database Design	Highly normalized with many tables	Typically de-normalized with fewer tables; use of star and/or snowflake schemas
Backup and Recovery	Backup religiously; operational data is critical to run the business, data loss is likely to entail significant monetary loss and legal liability	Instead of regular backups, some environments may consider simply reloading the OLTP data as a recovery method

13. What are the various characteristics of data-warehouse?

Ans: The characteristics of data-warehouse are as follows:

1. **Subject-oriented:**

A data warehouse is always a subject oriented as it delivers information about a theme instead of organization's current operations. It can be achieved on specific theme. That means the data warehousing process is proposed to handle with a specific theme which is more defined. These themes can be sales, distributions, marketing etc.

A data warehouse never put emphasis only current operations. Instead, it focuses on demonstrating and analysis of data to make various decision. It also delivers an easy and precise demonstration around particular theme by eliminating data which is not required to make the decisions.

2. **Integrated:**

It is somewhere same as subject orientation which is made in a reliable format. Integration means founding a shared entity to scale the all-similar data from the different databases. The data also required to be resided into various data warehouse in shared and generally granted manner.

A data warehouse is built by integrating data from various sources of data such that a mainframe and a relational database. In addition, it must have reliable naming conventions, format and codes. Integration of data warehouse benefits in effective analysis of data. Reliability in naming conventions, column scaling, encoding structure etc. should be confirmed. Integration of data warehouse handles various subject related warehouse.

3. **Time-Variant:**

In this data is maintained via different intervals of time such as weekly, monthly, or annually etc. It finds various time limit which are structured between the large datasets and are held in online



transaction process (OLTP). The time limits for data warehouse are wide-ranged than that of operational systems. The data resided in data warehouse is predictable with a specific interval of time and delivers information from the historical perspective. It comprises elements of time explicitly or implicitly. Another feature of time-variance is that once data is stored in the data warehouse then it cannot be modified, alter, or updated.

4. **Non-Volatile:**

As the name defines the data resided in data warehouse is permanent. It also means that data is not erased or deleted when new data is inserted. It includes the mammoth quantity of data that is inserted into modification between the selected quantity on logical business. It evaluates the analysis within the technologies of warehouse.

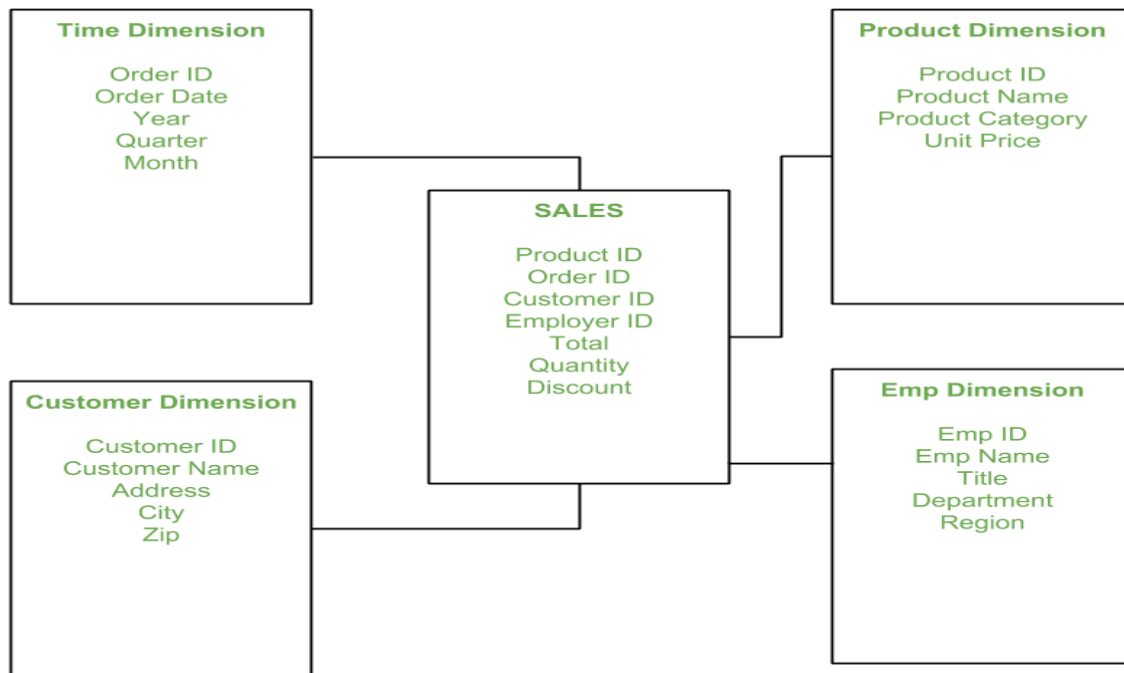
In this, data is read-only and refreshed at particular intervals. This is beneficial in analysing historical data and in comprehension the functionality. It does not need transaction process, recapture and concurrency control mechanism. Functionalities such as delete, update, and insert that are done in an operational application are lost in data warehouse environment. Two types of data operations done in the data warehouse are:

- Data Loading
- Data Access

14. What is Star-Schema??

Ans: Star schema is the fundamental schema among the data mart schema and it is simplest. This schema is widely used to develop or build a data warehouse and dimensional data marts. It includes one or more fact tables indexing any number of dimensional tables. The star schema is a necessary case of the snowflake schema. It is also efficient for handling basic queries.

It is said to be star as its physical model resembles to the star shape having a fact table at its center and the dimension tables at its peripheral representing the star's points. Below is an example to demonstrate the Star Schema:



In the above demonstration, SALES is a fact table having attributes i.e. (Product ID, Order ID, Customer ID, Employer ID, Total, Quantity, Discount) which references to the dimension tables.

Employee dimension table contains the attributes: Emp ID, Emp Name, Title, Department and Region.

Product dimension table contains the attributes: Product ID, Product Name, Product Category, Unit Price.

Customer dimension table contains the attributes: Customer ID, Customer Name, Address, City, Zip.

Time dimension table contains the attributes: Order ID, Order Date, Year, Quarter, Month.

15. What do you mean by SETL?

Ans: SET Language is a very high-level programming language developed by Jacob T. Schwartz in the late 1960s. It is based on set theory and used for mathematical and telecommunications applications. It is a type of data integration that refers to the three steps, i.e., extract, transform, load and used to blend data from multiple sources. It is often used to build a data warehouse.

During this process, data is extracted from a source system, converted and transformed into a format that can be analyzed and stored in a data warehouse or other system. Extract, load, transform is an alternate but related approach designed push processing down to the database for improved performance.