

WORKSHEET 1 SQL

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 |

Correct Answer: (a),(d)

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

Correct Answer: (a),(b)

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 |

Correct Answer: (b)

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

Correct Answer: (b)

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

Correct Answer: (a)

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 |

Correct Answer: (c)

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 |

Correct Answer : (c)

8. Which of the following statements can be used to drop the column added in the above question?
- | | |
|--------------------|---------------------------------------|
| A) Table A Drop D | B) Alter Table A Drop Column D |
| C) Delete D from A | D) None of them |

Correct Answer: (b)

9. Which of the following statements can be used to change the data type (from float to int) of the 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

Correct Answer: (a)

10. Suppose we want to make Column B of Table A as primary key of the table. By which of the 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

Correct Answer: (c)

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

11. What is data-warehouse?

A Data Warehousing (DW) is process for collecting and managing data from varied sources to provide meaningful business insights. A Data warehouse is typically used to connect and analyze business data from heterogeneous sources. The data warehouse is the core of the BI system which is built for data analysis and reporting. It is a blend of technologies and components which aids the strategic use of data. It is electronic storage of a large amount of information by a business which is designed for query and analysis instead of transaction processing. It is a process of transforming data into information and making it available to users in a timely manner to make a difference. The Data warehouse benefits users to understand and enhance their organization's performance. The need to warehouse data evolved as computer systems became more complex and needed to handle increasing amounts of Information. However, Data Warehousing is a not a new thing.

A Data Warehouse works as a central repository where information arrives from one or more data sources. Data flows into a data warehouse from the transactional system and other relational databases.

Data may be:

1. Structured
2. Semi-structured
3. Unstructured data

The data is processed, transformed, and ingested so that users can access the processed data in the Data Warehouse through Business Intelligence tools, SQL clients, and spreadsheets. A data warehouse merges information coming from different sources into one comprehensive database. By merging all of this information in one place; an organization can analyze its customers more holistically. This helps to ensure that it has considered all the information available. Data warehousing makes data mining possible

12. What is the difference between OLTP VS OLAP?

DIFFERENCE between OLTP and OLAP:

- Online Analytical Processing (OLAP) is a category of software tools that analyze data stored in a database whereas Online transaction processing (OLTP) supports transaction-oriented applications in a 3-tier architecture.
- OLAP creates a single platform for all type of business analysis needs which includes planning, budgeting, forecasting, and analysis while OLTP is useful to administer day to day transactions of an organization.
- OLAP is characterized by a large volume of data while OLTP is characterized by large numbers of short online transactions.
- In OLAP, data warehouse is created uniquely so that it can integrate different data sources for building a consolidated database whereas OLTP uses traditional DBMS.

Parameters	OLTP	OLAP
Process	It is an online transactional system. It manages database modification.	OLAP is an online analysis and data retrieving process.
Characteristic	It is characterized by large numbers of short online transactions.	It is characterized by a large volume of data.
Functionality	OLTP is an online database modifying system.	OLAP is an online database query management system.
Method	OLTP uses traditional DBMS.	OLAP uses the data warehouse.
Query	Insert, Update, and Delete information from the database.	Mostly select operations
Table	Tables in OLTP database are normalized.	Tables in OLAP database are not normalized.
Source	OLTP and its transactions are the sources of data.	Different OLTP databases become the source of data for OLAP.
Data Integrity	OLTP database must maintain data integrity constraint.	OLAP database does not get frequently modified. Hence, data integrity is not an issue.
Response time	It's response time is in millisecond.	Response time in seconds to minutes.
Data quality	The data in the OLTP database is always detailed and organized.	The data in OLAP process might not be organized.
Usefulness	It helps to control and run fundamental business tasks.	It helps with planning, problem-solving, and decision support.
Operation	Allow read/write operations.	Only read and rarely write.
Audience	It is a market orientated process.	It is a customer orientated process.
Query Type	Queries in this process are standardized and simple.	Complex queries involving aggregations.
Design	DB design is application oriented. Example: Database design changes with industry like Retail, Airline, Banking, etc.	DB design is subject oriented. Example: Database design changes with subjects like sales, marketing, purchasing, etc.
User type	It is used by Data critical users like clerk, DBA & Data Base professionals.	Used by Data knowledge users like workers, managers, and CEO.
Purpose	Designed for real time business operations.	Designed for analysis of business measures by category and attributes.
Performance metric	Transaction throughput is the performance metric	Query throughput is the performance metric.
Number of users	This kind of Database users allows thousands of users.	This kind of Database allows only hundreds of users.
Productivity	It helps to Increase user's self-service and productivity	Help to Increase productivity of the business analysts.
Challenge	Data Warehouses historically have been a development project which may prove costly to build.	An OLAP cube is not an open SQL server data warehouse. Therefore, technical knowledge and experience is essential to manage the OLAP server.
Process	It provides fast result for daily used data.	It ensures that response to the query is quicker consistently.
Characteristic	It is easy to create and maintain.	It lets the user create a view with the help of a spreadsheet.
Style	OLTP is designed to have fast response time, low data redundancy and is normalized.	A data warehouse is created uniquely so that it can integrate different data sources for building a consolidated database

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

Data warehouse can be controlled when the user has a shared way of explaining the trends that are introduced as specific subject. Below are major **characteristics** of data warehouse:

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 is 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

Functions of Data warehouse:

It works as a collection of data and here is organized by various communities that endures the features to recover the data functions. It has stocked facts about the tables which have high transaction levels which are observed so as to define the data warehousing techniques and major functions which are involved in this are mentioned below:

1. Data consolidation
2. Data Cleaning
3. Data Integration

14. What is Star-Schema??

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 centre and the dimension tables at its peripheral representing the star's points.

Advantages of Star Schema –

1. **Simpler Queries:**
Join logic of star schema is quite cinch in compare to other join logic which are needed to fetch data from a transactional schema that is highly normalized.
2. **Simplified Business Reporting Logic:**
In compared to a transactional schema that is highly normalized, the star schema makes simpler common business reporting logic, such as as-of reporting and period-over-period.
3. **Feeding Cubes:**
Star schema is widely used by all OLAP systems to design OLAP cubes efficiently. In fact, major OLAP systems deliver a ROLAP mode of operation which can use a star schema as a source without designing a cube structure.

15. What do you mean by SETL?

