1. what is Data?

Data is a collection of discrete or continuous facts that convey information. It can be qualitative or quantitative, and it can be represented in a variety of formats, such as text, numbers, images, and sounds. Data is often collected and stored in databases, and it can be used for a variety of purposes, such as research, analysis, and decision-making.

Here are some of the key characteristics of data:

* Data is objective. It is not influenced by human opinion or interpretation.
* Data is measurable. It can be quantified and recorded in a consistent way.
* Data is relevant. It is related to the problem or question that is being addressed.
* Data is accurate. It is free from errors and mistakes.
* Data is complete. It contains all of the relevant information that is needed.
* Data is consistent. It is consistent with other data sources.
* Data is timely. It is up-to-date and reflects the current situation.

Data is a valuable asset that can be used to improve decision-making, solve problems, and gain insights into the world around us.

2.       what is Information?

Information is the processed form of data. It is knowledge derived from data and has the power to inform. Information can be used to make decisions, solve problems, and gain insights into the world around us.

Information can be created, consumed, and shared. It can be stored in a variety of formats, such as text, numbers, images, and sounds. Information can be transmitted in time, via data storage, and space, via communication and telecommunication.

3.      what is Database(DB)?

A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system (DBMS). Databases are used to store, retrieve, and manage data. They are used in a wide variety of applications, including banking, e-commerce, healthcare, and manufacturing.

4.      What is the Relation Database Management System(RDBMS)?

A relational database management system (RDBMS) is a collection of software that enables users to create, manage, and access relational databases. Relational databases are a type of database that stores data in tables, with each table having a set of rows and columns. The rows in a table represent individual records, and the columns represent the fields of those records.

5.      Define the importance of Relation Database Management System(RDBMS)?

A relational database management system (RDBMS) is a software application that enables users to create, manage, and access relational databases. Relational databases are a type of database that organizes data into tables, with each table having a set of rows and columns. The rows in a table represent individual records, and the columns represent the fields of those records

6.     As we all know that there are Two types of Database. Relational Database(SQL) AND Non-Relational DB(NO sql). what is the difference between them.

Relational databases (RDBMS) and non-relational databases (NoSQL) are two different approaches to storing and managing data. Each type of database has its own strengths and weaknesses, and the best choice for a particular application will depend on the specific needs of that application.

**Relational databases** are based on the relational model, which was developed by E.F. Codd in the 1970s. The relational model organizes data into tables, where each table has a set of rows and columns. The rows in a table represent individual records, and the columns represent the fields of those records.

**Non-relational databases** do not use the relational model. Instead, they use a variety of different data models, such as key-value, document, and graph. These data models are more flexible than the relational model, and they can be used to store a wider variety of data.

7. List examples of Relation Database Management System(RDBMS)?

Here are some of the most popular relational database management systems (RDBMS) on the market today:

1. MySQL: MySQL is an open-source RDBMS that is popular for web applications. It is known for its ease of use, performance, and scalability.
2. PostgreSQL: PostgreSQL is an open-source RDBMS that is known for its reliability, feature set, and adherence to the SQL standard.

PostgreSQL RDBMS icon

1. Microsoft SQL Server: Microsoft SQL Server is a commercial RDBMS that is popular for enterprise applications. It is known for its performance, scalability, and integration with other Microsoft products.

Microsoft SQL Server RDBMS icon

1. Oracle Database: Oracle Database is a commercial RDBMS that is known for its scalability, performance, and support for a wide range of platforms.

Oracle Database RDBMS icon

1. IBM DB2: IBM DB2 is a commercial RDBMS that is popular for mainframe and enterprise applications. It is known for its security, scalability, and performance.IBM DB2 RDBMS icon

These are just a few of the many RDBMSs that are available on the market today. The best choice for a particular organization will depend on its specific needs and requirements.

8.       List examples of Non-Relational DB(Nosql)?

1. MongoDB: MongoDB is a NoSQL document database that is popular for its flexibility and scalability. It is often used for storing large amounts of unstructured data.

MongoDB NoSQL icon

1. Cassandra: Cassandra is a NoSQL distributed database that is popular for its high availability and scalability. It is often used for storing large amounts of data that needs to be replicated across multiple servers.

Cassandra NoSQL icon

1. Redis: Redis is a NoSQL in-memory data store that is popular for its high performance. It is often used for caching, session management, and real-time applications.

Redis NoSQL icon

1. Couchbase: Couchbase is a NoSQL document database that is popular for its scalability and performance. It is often used for mobile applications and web applications.

Couchbase NoSQL icon

1. HBase: HBase is a NoSQL distributed database that is popular for its scalability and performance. It is often used for storing large amounts of data that needs to be analyzed.

HBase NoSQL icon

These are just a few of the many NoSQL databases that are available on the market today. The best choice for a particular organization will depend on its specific needs and requirements.

9.       Define and Describe is Structured Query Language(SQL)?

Structured Query Language (SQL) is a standardized language used to manage relational databases. It is an essential tool for data analysts, database administrators, and anyone who works with data.

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Structured Query Language(SQL) icon

SQL is used for a variety of tasks, including:

* Creating, modifying, and deleting databases
* Inserting, updating, and deleting data
* Retrieving data from databases
* Running queries to analyze data
* Enforcing data integrity
* Protecting data security

Benefits of using SQL

There are many benefits to using SQL, including:

* It is a standardized language that is supported by a wide range of databases.
* It is a powerful language that can be used to perform a wide range of tasks.
* It is a relatively easy language to learn.
* It is a versatile language that can be used for a variety of applications.

Examples of SQL statements

Here are a few examples of SQL statements:

* CREATE TABLE customers ( id INT PRIMARY KEY, name VARCHAR(255), email VARCHAR(255), created\_at DATETIME );
* INSERT INTO customers (name, email) VALUES ('John Doe', 'johndoe@example.com');
* UPDATE customers SET email = 'johndoe@newemail.com' WHERE id = 1;
* SELECT \* FROM customers;
* DELETE FROM customers WHERE id = 1;

10.       List and Describe each of the different subsets of SQL(Mean DDL, DML, DCL, TCL)?

1. Data Definition Language (DDL): DDL is used to define the structure of a database, such as creating, modifying, and deleting tables and columns.

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Data Definition Language (DDL) icon

* + CREATE TABLE: Creates a new table in the database.
  + ALTER TABLE: Modifies an existing table in the database.
  + DROP TABLE: Deletes an existing table from the database.

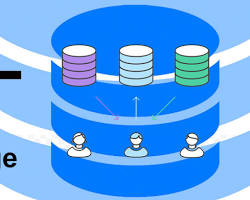
1. Data Manipulation Language (DML): DML is used to manipulate data in a database, such as inserting, updating, and deleting data.

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Data Manipulation Language (DML) icon

* + INSERT INTO: Inserts new data into a table.
  + UPDATE: Modifies existing data in a table.
  + DELETE FROM: Deletes existing data from a table.

1. Data Control Language (DCL): DCL is used to control access to data in a database, such as granting and revoking permissions to users.

[Opens in a new windowfrieyadie.web.id](https://frieyadie.web.id/penggunaan-data-control-language-dcl/)

Data Control Language (DCL) icon

* + GRANT: Grants permissions to users.
  + REVOKE: Revokes permissions from users.

1. Transaction Control Language (TCL): TCL is used to manage transactions in a database, such as committing or rolling back transactions.

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Transaction Control Language (TCL) icon

* + COMMIT: Commits a transaction, making the changes permanent.
  + ROLLBACK: Rolls back a transaction, undoing the changes.

Here is a table that summarizes the different subsets of SQL and their functions:

11.      what is table in Database(DB)?

A table is a fundamental building block of a relational database. It is a collection of related data organized into rows and columns. Each row represents a unique record, and each column represents a field in that record. For example, a table of customer information might have rows for each customer, and columns for the customer's name, address, and phone number.

12.     what is column and Row(tuples) in table?

**Rows and Columns in Tables**

* **Rows** represent individual records or items in a table. They are horizontal entries in a table and are often referred to as tuples. Each row contains the values for the different fields or attributes of the record. For instance, in a table of customer information, each row would represent a single customer.
* **Columns** represent the fields or attributes of the records in a table. They are vertical entries in a table. Each column has a name that identifies the field and a data type that specifies the kind of data that can be stored in that column. For example, in a table of customer information, there might be columns for customer name, address, email address, and phone number.