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## What is Data?

Data refers to any information or set of information that can be collected, stored, and processed. It can take many forms such as text, numbers, images, videos, or sound. Data is crucial for making informed decisions and analyzing patterns and trends.

## Different Data Storage Devices

There are several types of data storage devices available today. Some of the most common ones include hard disk drives (HDDs), solid-state drives (SSDs), USB flash drives, and memory cards. These devices vary in their storage capacity, speed, and portability.

## Where does the DBMS and RDBMS Data get stored?

Data in a DBMS (Database Management System) is stored in a centralized database, which can be accessed by multiple users simultaneously. An RDBMS (Relational Database Management System) stores data in tables that are related to one another by a common key. The data in an RDBMS is also stored in a centralized database.

## Traditional Databases

A traditional database is a structured collection of data that is organized in a specific way to make it easier to search and retrieve. These databases are typically designed for a specific purpose, such as managing inventory, tracking customer orders, or processing financial transactions.



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## What is RDBMS?

An RDBMS is a type of database that stores data in tables that are related to one another. It uses a relational model to represent data in a structured manner, which makes it easier to organize, manage, and retrieve data. RDBMS is the most widely used type of database management system and is used by many businesses and organizations worldwide.

## Difference between DBMS and RDBMS

The main difference between a DBMS and RDBMS is the way they store and manage data. A DBMS stores data in a non-relational manner, while an RDBMS stores data in a relational manner. This means that an RDBMS is more structured and organized, making it easier to manage and retrieve data. Additionally, RDBMSs are more secure and scalable than DBMSs.

## Examples

Some examples of DBMSs include Microsoft Access and FileMaker Pro, while some examples of RDBMSs include Oracle, MySQL, and Microsoft SQL Server. These systems are widely used in different industries and applications such as healthcare, finance, education, and e-commerce.



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## What is SQL?

SQL stands for Structured Query Language. It's a programming language used to manage and manipulate relational databases. SQL is used to create, read, update, and delete data from a database, as well as perform other functions like creating and modifying tables and managing access to the database.

## Why do we use SQL?

SQL is a standard language for managing and manipulating data in relational databases. Some of the key reasons why we use SQL include:

It's a powerful language for managing large amounts of data.  
It allows us to quickly and easily retrieve data from a database.  
It provides a standard way of working with databases, making it easy to move data between different systems.  
It's widely used in the industry, so knowledge of SQL is highly valued by employers.

## How to use SQL

SQL is used through a variety of tools, including command-line interfaces, graphical user interfaces, and programming libraries. The basic syntax of SQL is relatively simple and easy to learn, but more advanced usage can require significant expertise.

## What are databases, schemas, and tables?

A database is a collection of data that's organized and stored in a way that allows for efficient retrieval and manipulation. Databases can contain multiple schemas, which are logical containers for tables



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and other database objects. Tables are the fundamental building blocks of a database, and they store data in rows and columns.

## Data types in SQL with examples

SQL supports a wide range of data types, including:

Numeric data types, such as INTEGER and DECIMAL

Character and string data types, such as CHAR and VARCHAR

Date and time data types, such as DATE and TIME

Boolean data types, such as BOOLEAN

Here are some examples of SQL data types:

INTEGER: a whole number, such as 1, 2, 3, etc.

DECIMAL: a number with decimal places, such as 3.14159

CHAR: a fixed-length string of characters, such as 'hello'

VARCHAR: a variable-length string of characters, such as 'world'

DATE: a date, such as '2023-03-21'

TIME: a time of day, such as '09:30:00'

BOOLEAN: a true or false value, such as TRUE or FALSE.

I hope this information helps you understand the basics of SQL!



## SQL Commands and it's types :

There are several types of SQL commands that are used to perform different operations on a relational database. Here are some of the most common types of SQL commands:

### **Data Definition Language (DDL) Commands:**

**CREATE:** This command creates a new table in your database. For example:

```
CREATE TABLE customers (  
  id INT PRIMARY KEY,  
  name VARCHAR(50),  
  email VARCHAR(100)  
);
```

**ALTER:** This command modifies the structure of an existing table in your database. For example:

```
ALTER TABLE customers  
ADD COLUMN address VARCHAR(200);
```

**DROP:** This command deletes an existing table in your database. For example:

```
DROP TABLE customers;
```



## Data Manipulation Language (DML) Commands:

**INSERT:** This command adds new data to a table in your database. For example:

```
INSERT INTO customers (id, name, email)
VALUES (1, 'John Smith', 'john.smith@example.com');
```

**UPDATE:** This command modifies existing data in a table in your database. For example:

```
UPDATE customers
SET email = 'jsmith@example.com'
WHERE name = 'John Smith';
```

**DELETE:** This command removes data from a table in your database. For example:

```
DELETE FROM customers
WHERE id = 1;
```

## Data Query Language (DQL) Commands:

**SELECT:** This command retrieves data from one or more tables in your database. For example:

```
SELECT name, email
FROM customers
WHERE email LIKE '%example.com';
```



## Transaction Control Language (TCL) Commands:

**COMMIT:** This command saves all the changes you have made to your database since the last COMMIT or ROLLBACK. For example:

```
COMMIT;
```

**ROLLBACK:** This command undoes all the changes you have made to your database since the last COMMIT or ROLLBACK. For example:

```
ROLLBACK;
```

**SAVEPOINT:** This command creates a savepoint within a transaction, allowing you to roll back to that point if needed. For example:

```
SAVEPOINT my_savepoint;
```

## Data Control Language (DCL) Commands:

**GRANT:** This command gives a user or role permission to access specific objects in your database. For example:

```
GRANT SELECT, INSERT ON customers TO my_user
```

**REVOKE:** This command removes a user or role's permission to access specific objects in your database. For example:

```
REVOKE SELECT, INSERT ON customers TO my_user
```