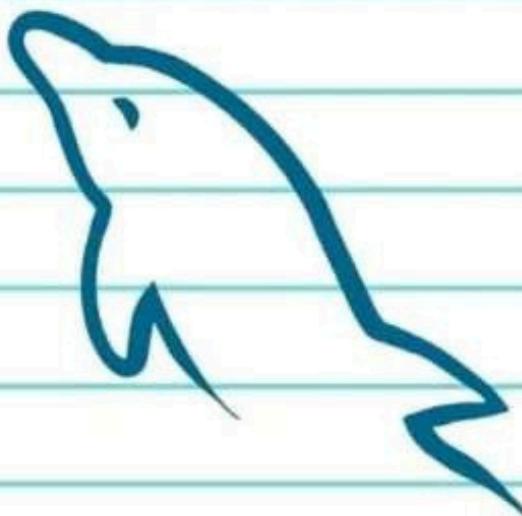




FUTURE
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BASIC SQL

Basics of SQL : A Beginner Guide



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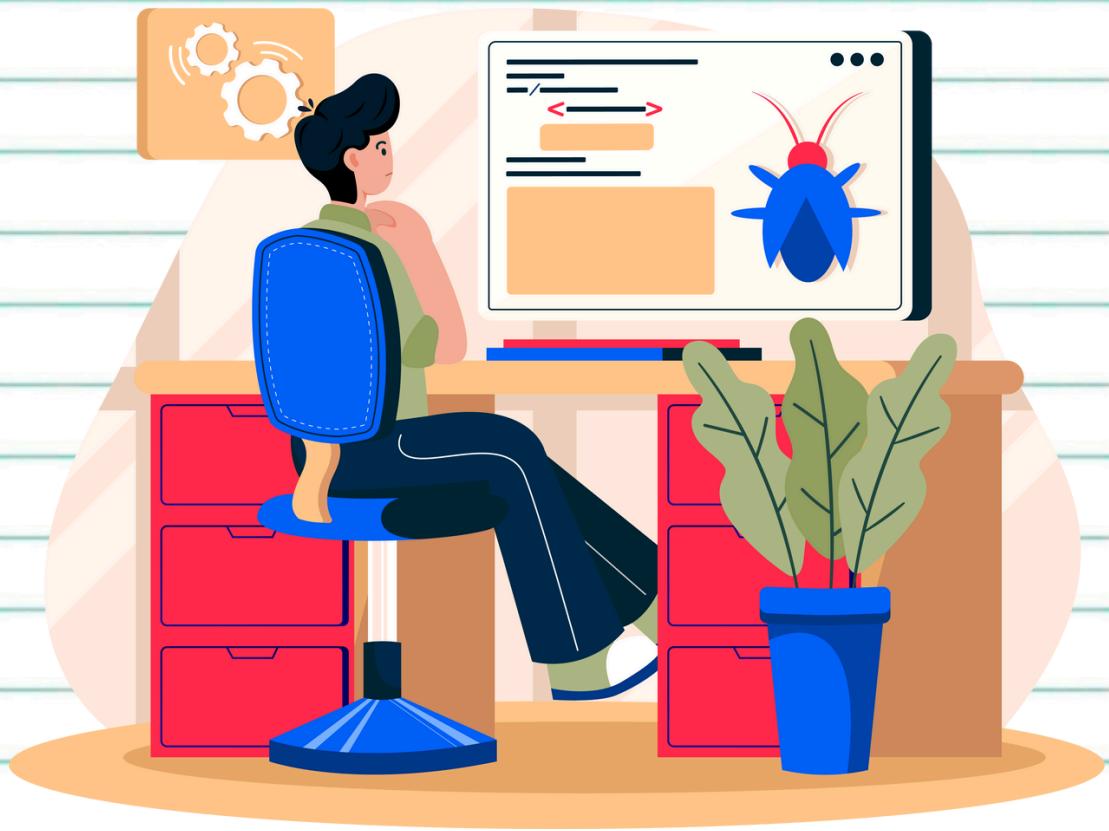
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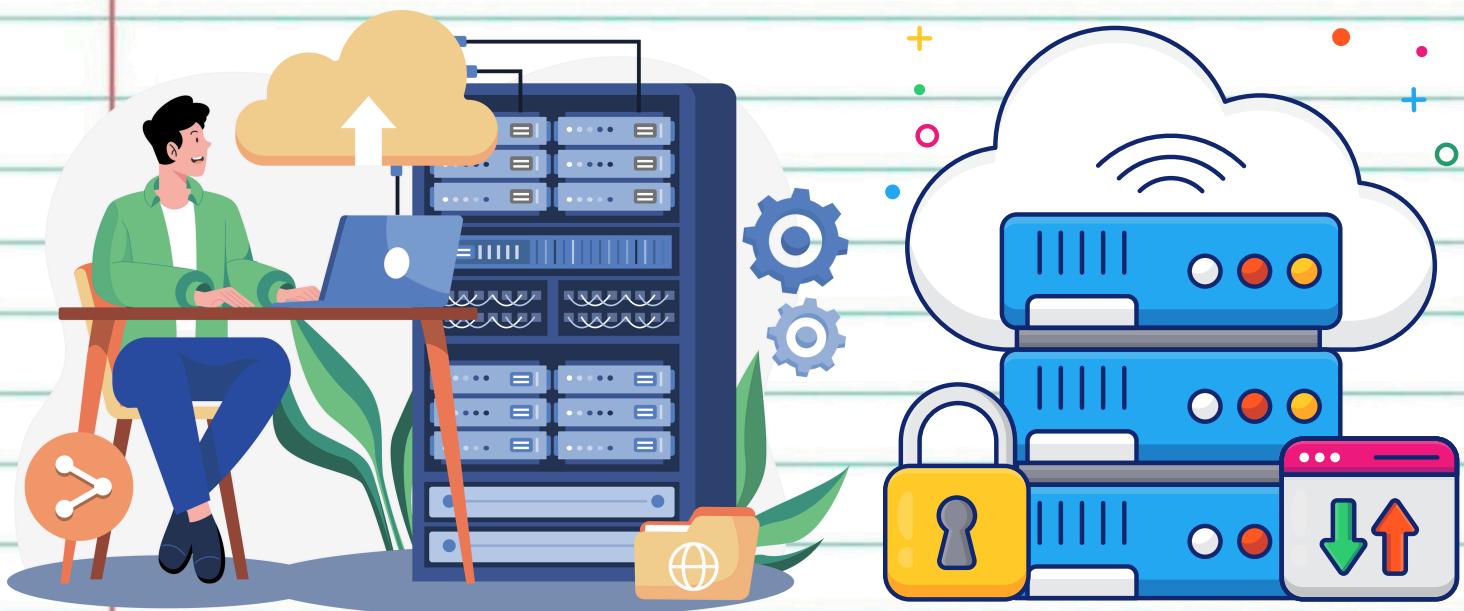
What is SQL?

SQL is used to communicate with databases. It allows you to perform various operations like querying data, updating records, and managing the database structure.

Basic Concepts:

- **Database:** A collection of organized data. Think of it as a digital filing cabinet where data is stored in tables.
- **Table:** A set of data organized into rows and columns. Each table represents a different type of information. For example, a table named **Customers** might store customer details.
- **Row:** A single record in a table. Each row contains data for one entity. For example, one row in the **Customers** table might represent a single customer.





- **Column:** A field in a table. Each column holds a particular type of data. For example, columns in the Customers table might include CustomerID, Name, and Email.

Basic SQL Commands:

- **SELECT:** Retrieves data from one or more tables.

```
SELECT column1, column2 FROM table_name;
```

Example:

```
SELECT Name, Email FROM Customers;
```

- **INSERT:** Adds new rows to a table.

```
INSERT INTO table_name (column1, column2)  
VALUES (value1, value2);
```



Example:

```
INSERT INTO Customers (Name, Email)  
VALUES ('Alice', 'alice@example.com');
```

- **UPDATE:** Modifies existing rows in a table.

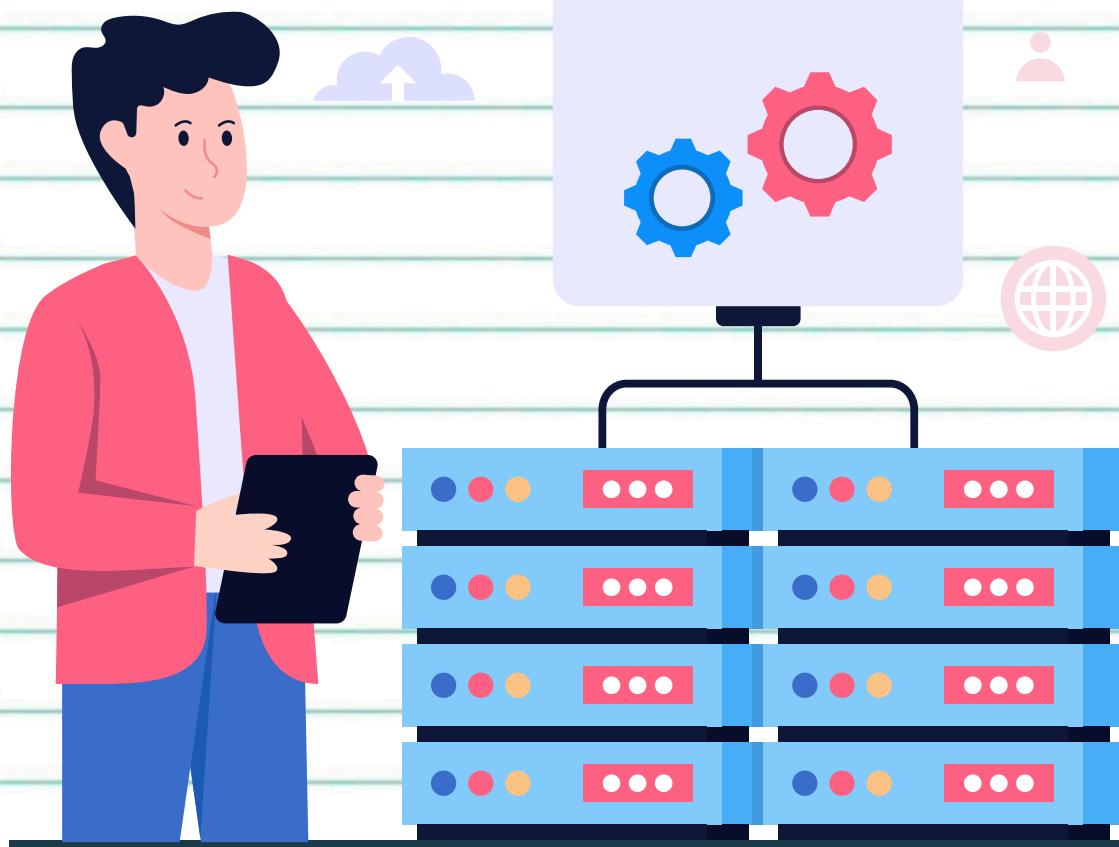
```
UPDATE table_name SET column1 = value1  
WHERE condition;
```

Example:

```
UPDATE Customers SET Email = 'alice@no.com'  
WHERE Name = 'Alice';
```

- **DELETE:** Removes rows from a table.

```
DELETE FROM table_name WHERE condition;
```



Example:

```
DELETE FROM Customers WHERE Name = 'Alice';
```

- **CREATE TABLE:** Creates a new table.

```
CREATE TABLE table_name (
    column1 datatype,
    column2 datatype
);
```

Example:

```
CREATE TABLE Customers (
    CustomerID INT PRIMARY KEY,
    Name VARCHAR(100),
    Email VARCHAR(100)
);
```



- **ALTER TABLE:** Modifies an existing table structure.

```
ALTER TABLE table_name ADD column_name datatype; ;
```

Example:

```
ALTER TABLE Customers ADD PhoneNumber VARCHAR(15); ;
```

- **DROP TABLE:** Deletes a table and its data.

```
DROP TABLE table_name;
```

Filtering and Sorting Data:

- **WHERE:** Filters records based on a condition.

```
SELECT * FROM table_name WHERE condition;
```



- **ORDER BY:** Sorts the result set.

```
SELECT * FROM table_name ORDER BY  
column1 [ASC|DESC];
```

Joining Tables:

Sometimes you need data from multiple tables.

SQL allows you to join tables.

- **INNER JOIN:** Returns records that have matching values in both tables.

```
SELECT columns FROM table1  
INNER JOIN table2 ON table1.column = table2.column;
```



Aggregating Data:

SQL also supports aggregate functions to summarize data.

- **COUNT:** Returns the number of rows.

```
SELECT COUNT(*) FROM table_name;
```

- **SUM:** Adds up values.

```
SELECT SUM(column_name) FROM table_name;
```

- **AVG:** Calculates the average value.

```
SELECT AVG(column_name) FROM table_name;
```