SQL

Short Notes

MySQL

WHAT IS SQL ?

SQL (Structured Query Language) is a programming language used to manage and manipulate relational databases .

It allows users to create, modify, and query databases that are organized in a structured way, where data is stored in tables with defined relationships between them.

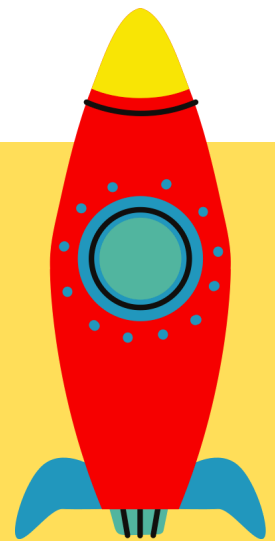**in** **@Kiran Kanwar Rathore**

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SQL is widely used in various industries such as banking, healthcare, and e-commerce, to manage large amounts of data efficiently and effectively.

SQL can perform a wide range of operations including selecting, inserting, updating, and deleting data from a database.

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It is considered a standard language for interacting with relational databases and is supported by most database management systems.

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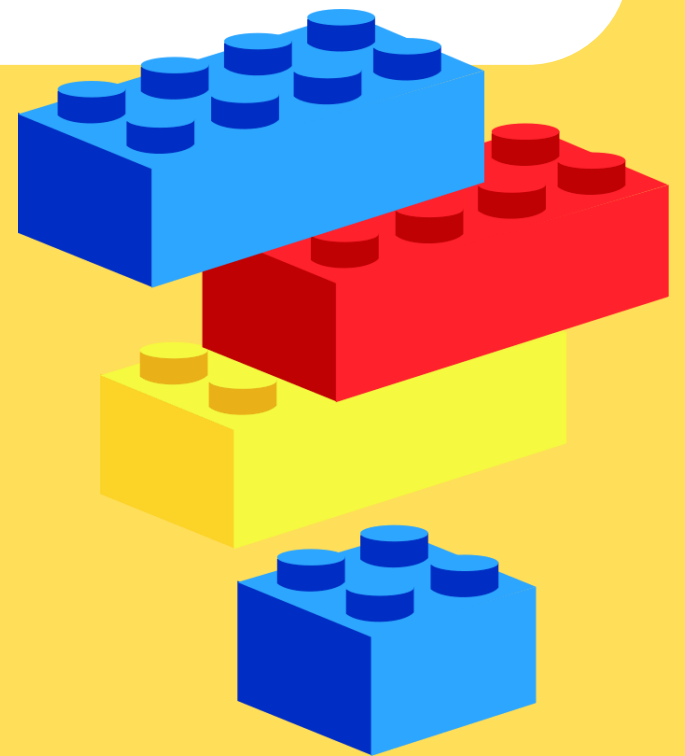
TYPES OF SQL COMMANDS

SQL (Structured Query Language) commands can be broadly classified into four categories:

DDL

DML

DCL

TCL

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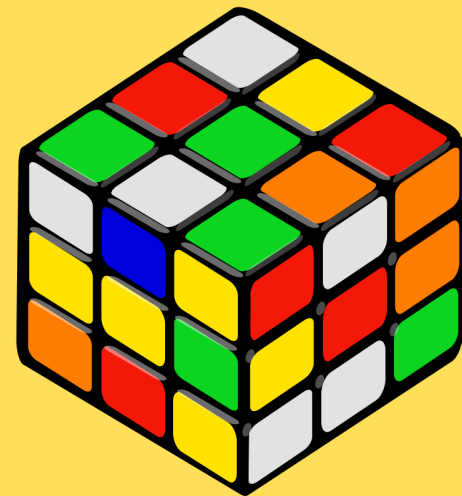
DDL COMMAND

DDL (Data Definition Language): These commands are used to define the structure and layout of the database.

Some common DDL commands includes:

CREATE

ALTER

DROP

TRUNCATE

EXAMPLES :

CREATE

This command is used to create a new table in the database. Here's an example:

```sql
CREATE TABLE students (
id INT PRIMARY KEY,
name VARCHAR(50),
age INT,
gender VARCHAR(10)
);
```

ALTER

This command is used to modify the structure of an existing table. Here's an example:

```
ALTER TABLE students
ADD email VARCHAR(100);
```

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DROP

This command is used to delete an existing table and all its data. Here's an example:

```
DROP TABLE students;
```

TRUNCATE

This command is used to delete all the data from an existing table. Here's an example:

```
TRUNCATE TABLE students;
```

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DML COMMAND

DML (Data Manipulation Language): These commands are used to manipulate the data in the database.

Some common DML commands includes :

SELECT

INSERT

UPDATE

DELETE

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SELECT

This command is used to retrieve data from one or more tables in the database.
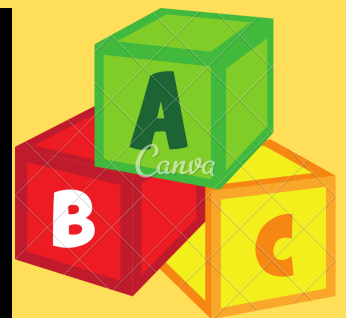
For Example :

```
SELECT * FROM students;
```

If you want to retrieve specific columns from the table, we can list them after the SELECT

```
SELECT Name, Age FROM students;
```

INSERT

This command is used to insert new data into a table. Here's an example:

```sql
INSERT INTO students (id, name, age,
gender) VALUES (1, 'John Smith', 25,
'Male');
```

UPDATE

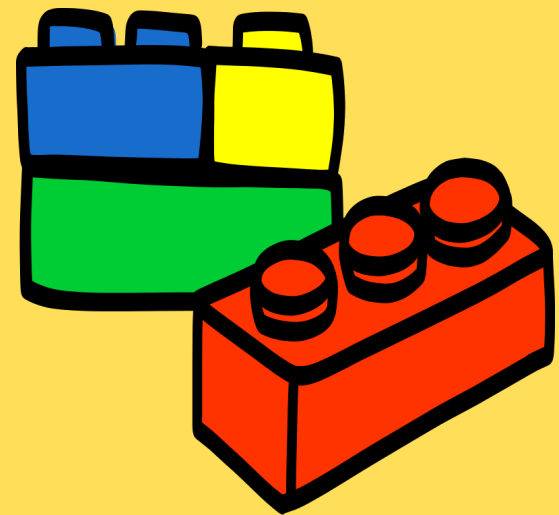*This command is used to update existing data in a table. Here's an example:*
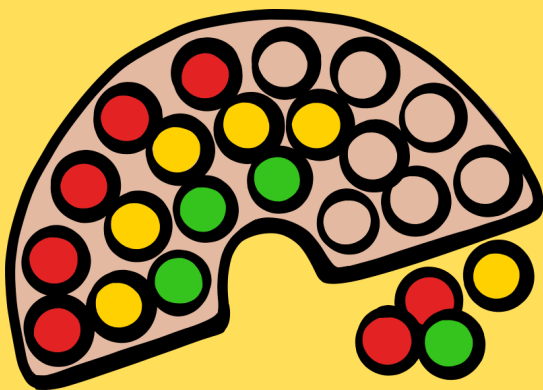
```sql
UPDATE students
SET age = 26
WHERE id = 1;
```

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DELETE

This command is used to delete data from a table. Here's an example:

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

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DCL COMMAND

DCL (Data Control Language): These commands are used to control access to the database.

Some common DCL commands include :

GRANT

REVOKE

SWIPE >>>

GRANT

This command is used to grant permissions to users or roles to perform certain actions on database objects. Here's an example:

```
GRANT SELECT, INSERT, UPDATE ON students
TO analyst;
```

This command grants the "analyst" user or role the permission to select, insert, and update data in the "students" table.

REVOKE

This command is used to revoke permissions from users or roles to perform certain actions on database objects. Here's an example:

```
REVOKE SELECT ON students FROM guest;
```

This command revokes the "guest" user or role's permission to select data from the "students" table.
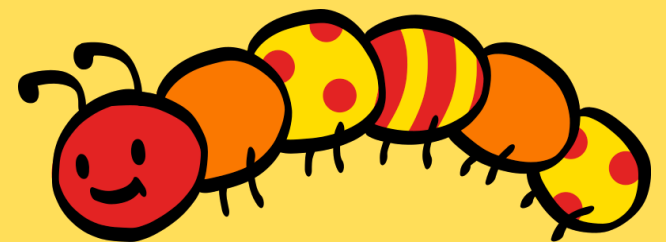
SWIPE >>>

TCL COMMAND

TCL (Transaction Control Language): These commands are used to manage transactions in the database.

Some common TCL commands includes:

COMMIT

ROLLBACK

COMMIT

This command is used to save all changes made during a transaction.

Suppose you have a database table named "employees" that contains information about employees in your company. You want to update the salary of an employee with the employee ID of 12345. You can use the following SQL statements to do this:

```
BEGIN TRANSACTION;
UPDATE employees
SET salary = 50000
WHERE employee_id = 12345;
COMMIT;
```

ROLLBACK

This command is used to undo all changes made during a transaction and restore the database to its previous state.

Suppose you have a database table named "orders" that contains information about customer orders. You want to update the quantity of an order with the order ID of 123. You can use the following SQL statements to do this:

```
BEGIN TRANSACTION;
UPDATE orders
SET quantity = 5
WHERE order_id = 123;
```

SWIPE >>>

After executing these statements, you realize that you made a mistake and the quantity should have been set to 10 instead of 5. You can use the ROLLBACK command to undo the changes made in the transaction:

```
ROLLBACK;
```

The *ROLLBACK* statement undoes all the changes made in the current transaction and restores the database to its state before the transaction started.

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