DAY 1-SQL REFRESHER AND

ADVANCE SQL

**What is SQL?** SQL (Structured Query Language) is the standard language used to interact with relational databases. It is used to perform tasks such as querying data, inserting records, updating records, and managing database structures.

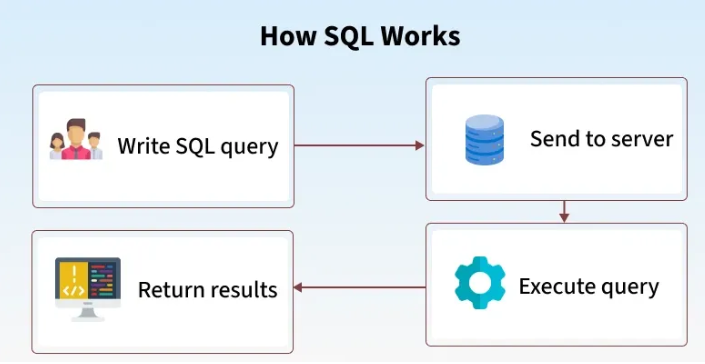
SQL is a [domain-specific language](https://en.wikipedia.org/wiki/Domain-specific_language) used to manage data, especially in a [relational database management system](https://en.wikipedia.org/wiki/Relational_database_management_system) (RDBMS). It is particularly useful in handling [structured data](https://en.wikipedia.org/wiki/Data_model), i.e., data incorporating relations among entities and variables.

Primary key-unique identifier

Domain driven design-we think in terms of domains like (bank system, retail application)  
  
**Types of SQL Commands:**

1. DDL (Data Definition Language) – CREATE, ALTER, DROP
2. DML (Data Manipulation Language) – SELECT, INSERT, UPDATE, DELETE

**How SQL work?**

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**CREATING THE TABLE:**

Create table students(

Id int primary key,

Name varchar(30),

course varchar(30),

join\_date date

);

**INSERTING RECORDS INTO THE TABLE**

Insert into students values

(1,'amit sharma','data engineering','2025-01-09'),

(2,'neha varma','data engineering','2025-01-08'),

(3,'rohit','data engineering','2025-01-10');

**DISPLAY**

Select \*from students;

select Name,course from students;

**USING WHERE CLAUSE**

select \* from students where course='data engineering';

select \* from students where join\_date>'2025-01-8';

select \* from students where course in ('data engineering','ai');

select \* from students where join\_date between '2025-01-8' and '2025-01-10';

**PATTERN MATCHING:**

select \* from students where Name like 'A%';

select \*from students where Name like '%a';

select \* from students where Name like '%it%';

**UPDATE:**

update students set course='adv data engineering' where id=1;

update students set join\_date='2025-01-18' where Name='rohit';

select \* from students;

UPDATE students SET join\_date = DATEADD(day, 1, join\_date);

**DELETE:**

delete from students where id=1;

delete from students where join\_date>'2024-09-19';

**EXERCISE OF DAY-1**

CREATE TABLE departments (

id INT PRIMARY KEY,

dept\_name VARCHAR(100));

INSERT INTO departments VALUES

(1, 'Human Resources'),

(2, 'Engineering'),

(3, 'Marketing');

CREATE TABLE employees (

emp\_id INT PRIMARY KEY,

emp\_name VARCHAR(100),

dept\_id INT,

salary INT);

INSERT INTO employees VALUES

(101, 'Amit Sharma', 1, 5),

(102,' Nena Reddy', 2, 45000),

(103,' Faizan Ali', 2, 48800),

(184, 'Divya Mehta', 3, 35000),

(165, 'Ravi Verma', NULL, 28999);

-- employees with dept

select e.emp\_name,d.dept\_name

from employees e

join departments d

on e.dept\_id=d.id;

--

select e.emp\_name,d.dept\_name

from employees e

left join departments d

on e.dept\_id=d.id

where dept\_id is null;

--

select d.dept\_name,count(e.dept\_id) as total

from employees e

join departments d

on e.dept\_id=d.id

group by dept\_name;

---

select d.id, d.dept\_name

from departments d

left join employees e on d.id = e.dept\_id

where e.dept\_id is null;

--

select e.emp\_name,d.dept\_name,e.salary

from employees e

join departments d

on e.dept\_id=d.id

having e.salary>40000;

**ASSIGNMENT-1**

**--Task1-Create a Table**

create table products(

product\_id int primary key,

product\_name varchar(30),

category varchar(30),

price decimal(10,2),

stock\_quantity int,

added\_date date);

**--Task2-Insert Records**

insert into products values

(1,'iphone','electronic',100000.00,5,'2025-03-09'),

(2,'mouse','electronic',1000.00,5,'2025-03-04'),

(3,'saree','fashion',1300.00,8,'2025-01-11'),

(4,'shoes','footwear',3000.00,10,'2025-02-13'),

(5,'laptop','electronic',150000.00,3,'2025-06-08');

**--Task 3: Write Queries**

**--List all products.**

select \* from products;

**--Display only product\_name and price .**

select product\_name,price from products;

**--Find products with stock\_quantity less than 10.**

select \* from products where stock\_quantity<10;

**--Find products with price between 500 and 2000.**

select \* from products where price between 500 and 2000;

**--Show products added after 2023-01-01 .**

select \* from products where added\_date>'2023-01-01';

**--List all products whose names start with ‘S’.**

select \* from products where product\_name like 'S%';

**--Show all products that belong to either Electronics or Furniture .**

select \* from products where category in ('electronic','furniture');

**--Task 4: Update & Delete**

**--Update the price of one product.**

update products set price=1200 where product\_id=2;

**--Increase stock of all products in a specific category by 5.**

update products set stock\_quantity=(stock\_quantity+5) where category='electronic';

**--Delete one product based on its product\_id .**

delete from products where product\_id=2;

**--Delete all products with stock\_quantity = 0**.

delete from products where stock\_quantity=0