**📅 Day 1: SQL Basics – SELECT & Filtering**

**🎯 Goal: Learn how to fetch data using SELECT and apply filters.**

**⏱️ Time to Invest: 2 hours**

Split into:

* 40 mins: Concept Understanding
* 40 mins: Practicing Queries
* 40 mins: Self-practice + Review mistakes

**🧱 1. Core Concepts to Learn**

Here are the basic building blocks:

| **Keyword** | **Purpose** | **Example** |
| --- | --- | --- |
| SELECT | Choose which columns to show and all Column to Show | SELECT name |
| FROM | Choose which table to pull data from | FROM customers |
| WHERE | Apply condition/filter | WHERE city = 'Delhi' |
| ORDER BY | Sort rows | ORDER BY name ASC |
| IN | Filter within multiple values | WHERE city IN ('Delhi', 'Mumbai') |
| BETWEEN | Filter within a range | WHERE price BETWEEN 100 AND 500 |
| LIKE | Pattern matching using wildcards | LIKE '%Pro%' |
| DISTINCT | Remove duplicate values | SELECT DISTINCT city |

**📘 2. Sample Table: products**

| **id** | **name** | **category** | **price** | **created\_at** |
| --- | --- | --- | --- | --- |
| 1 | Pro Mouse | Accessories | 500 | 2024-01-01 |
| 2 | Gaming Mouse | Accessories | 700 | 2023-11-20 |
| 3 | Pro Keyboard | Accessories | 1000 | 2024-02-05 |
| 4 | Laptop Pro | Laptop | 50000 | 2024-03-01 |
| 5 | Laptop Basic | Laptop | 30000 | 2023-12-15 |

**🧪 3. Practice Queries**

✅ Type these one by one (you can use https://www.db-fiddle.com/):

**1. Show all products**

SELECT \* FROM products;

**2. Show name and price only**

SELECT name, price FROM products;

**3. Products priced above 500**

SELECT name FROM products

WHERE price > 500;

**4. Products containing “Pro” in the name**

SELECT name FROM products

WHERE name LIKE '%Pro%';

**5. Products created in 2024**

SELECT name FROM products

WHERE created\_at BETWEEN '2024-01-01' AND '2024-12-31';

**6. All unique categories**

SELECT DISTINCT category FROM products;

**🎯 4. Day 1 Self-Practice Assignments**

Try solving these on your own:

* Show names of products priced between 300 and 1000.
* List products in the “Laptop” category.
* List products whose name starts with "Laptop".
* Show product names in alphabetical order.

**📌 5. Focus Areas for Data Engineering**

| **Area** | **Importance (1–5)** | **Notes** |
| --- | --- | --- |
| SELECT + WHERE | ⭐⭐⭐⭐⭐ | Used in 90% of queries |
| Filtering Dates | ⭐⭐⭐⭐ | Important for ETL & reporting |
| LIKE/Pattern Match | ⭐⭐⭐ | For logs, names, partial data |
| DISTINCT | ⭐⭐ | Used for removing duplicates |

**📦 6. Bonus Tools (Optional)**

* LeetCode SQL Practice
* SQLZoo
* Mode SQL Tutorial

**✅ What You Should Achieve by End of Day 1**

* You should understand how to:
  + Write a basic SELECT query
  + Filter using WHERE
  + Use LIKE, IN, BETWEEN, and DISTINCT
  + Read and understand results

While writing or debugging a SQL query, it's common to **pause** and check a table's structure — like its **columns**, **data types**, and **constraints**.

**1. Use DESCRIBE Command.**