Beginner's Handout
(SQL for Data Analysis)

1. What is SQL?

SQL stands for Structured Query Language.
It's like a language to talk to databases.
- A database stores information in tables (just like Excel sheets).
- SQL helps you find, filter, and summarize that information.

Example: Think of a library – books are stored in shelves (tables). SQL is like asking the librarian:
- "Show me all books by J.K. Rowling."
- "List books published after 2015."

2. Why Learn SQL for Data Analysis?

- Most companies store data in databases.
- You can quickly search and filter large datasets.
- You can join different tables to get complete information.
- It's used in reporting, dashboards, and decision-making.

3. Basic SQL Structure

A SQL statement usually looks like this:

```
SELECT columns
FROM table
WHERE condition;
```

Example:

```
SELECT name, age
FROM students
WHERE age > 18;
```

This means: "Show me the name and age of students who are older than 18."

4. Common SQL Commands

1. SELECT → Pick the columns you want

```
SELECT name, age FROM students;
```

2. WHERE → Filter rows

```
SELECT * FROM students WHERE age > 18;
```

3. ORDER BY → Sort results

```
SELECT name, marks FROM students ORDER BY marks DESC;
```

4. LIMIT → Show only a few results

```
SELECT * FROM students LIMIT 5;
```

5. Aggregates (Summarize data)
- COUNT() → How many rows
- SUM() → Add values
- AVG() → Average value
- MAX() / MIN() → Largest / Smallest

```
SELECT AVG(marks) FROM students;
```

6. GROUP BY → Summarize by category

```
SELECT class, AVG(marks)
FROM students
GROUP BY class;
```

7. JOIN → Combine data from multiple tables

```
SELECT students.name, courses.course_name
FROM students
JOIN courses
ON students.course_id = courses.id;
```

5. Example Table – Students

id	name	age	class	marks
1	Aisha	17	10	85
2	Rahul	18	12	90
3	Meena	16	10	70
4	Arjun	19	12	95

Queries you can try:

- Get all students →

  SELECT * FROM students;

- Find students in class 12 →

  SELECT name FROM students WHERE class = 12;

- Average marks of class 10 →

  SELECT AVG(marks) FROM students WHERE class = 10;

6. Tips for Beginners

- Always start with SELECT * FROM table; to see the data.
- Use UPPERCASE for commands (SELECT, WHERE) – makes it easier to read.
- Don't worry about remembering everything – focus on practicing small queries.

✅ By now, you should understand:

✓ What SQL is and why it's used

✓ How to select, filter, and sort data

✓ How to summarize with aggregates

✓ How to combine tables with JOIN

---------- All the Best ----------