Week	Class Number	Class Name	Description	Topics to be covered	Assignment Template
Week 1	1	Introduction to SQL & Databases	Understand relational databases, tables, and SQL syntax along with the importance, relevance and history	What is SQL Importance of SQL History of SQL What is RDBMS Importance of RDBMS Difference between SQL and RDBMS Tables, columns, rows, and schemas optional Installing SQL Server Setting up SQL Environment Tools for SQL	Assignment will be sent after class number 3
	2	DA Problem Solving : Week 7		PRACTICAL: CASE STUDY CASE 2: Profitability Analysis INDUSTRY: Automotive (EV) QUESTION: An electric vehicle company has been facing a drop in its profitability. What factors are contributing to this profit decline, and what actions can the company take to resolve it? PRACTICAL: GUESSTIMATE LEVEL: Easy QUESTION: Calculate the number of schools in Delhi.	SQL_PS_Week7
	3	Working with Data	This module introduces students to the importance of normalization, data, constraints	What is Data Types of Data Data Storage Data Retrieval First Normal Form (1NF) Second Normal Form (2NF) Third Normal Form (3NF) Advantages of Normalization What are Constraints Types of Constraint Understanding Primary key What is a Foreign Key Why Use Foreign Keys other constraints	SQL_Week1_A1(10MCQ) SQL_Week1_A2(10MCQ) SQL_Week1_A3(8MCQ)\
Week 2	4	Important Data Types and ACID Properties	This module covers the different data types in SQL and how to create tables in SQL	Numeric Data Types String (Character) Data Types Date and Time Data Types Boolean Data Type Other Data Types explain all different data types and their use cases with examples Explain ACID Properties and their importance in Databases Atomicity Consistency Isolation Durability	Assignment will be sent after class number 6
	5	DA Problem Solving : Week 8		PRACTICAL: CASE STUDY CASE 3: Market Entry INDUSTRY: Consumer Products QUESTION: Imagine that you're having lunch with an old friends from your college and they are looking for some business advice. They are thinking of opening a coffee shop in a tier 1 city like Delhi, Mumbai, Bangalore etc. near to a place which has a massive concentration of offices. They want your help in determining whether opening a coffee shop is a good idea. PRACTICAL: GUESSTIMATE LEVEL: Medium QUESTION: Calculate the number of whatsapp messages in India in a day	SQL_PS_Week8

	6	SQL Commands and Creating Databases	This module covers the basics of DML commands, basic structure of databases	DDL Commands DML Commands DQL Commands DCL Commands TCL Commands Creating tables and adding data Syntax for Creating Tables Naming Conventions Creating Tables with Constraints Altering Tables Deleting and updating existing records in tables	SQL_Week2_A1(6MCQ) SQL_Week2_A2(5MCQ) SQL_Week2_A3(6MCQ)
Week 3	7	Basic Queries	Learn how to retrieve and filter data, advanced filtering and sorting techniques.	Writing basic SELECT statements Selecting columns in specific order Using FROM and WHERE for filtering Basic ORDER BY for sorting (ASC, DESC) Using DISTINCT to remove duplicates Advanced filtering with LIKE, BETWEEN, IN, NOT IN Pattern matching using wildcards (%, _) LIKE, BETWEEN, IN, NOT IN, UPPER(), LOWER(), TRIM()	SQL_Week3_A1(13 query question)
	8	DA Problem Solving : Week 9		PRACTICAL: CASE STUDY CASE 4: Competitor Analysis + Profitability INDUSTRY: Fashion & Apparel QUESTION: Our client is FashionCo, a player in the women's fashion market. It's been in the industry for a long time, but has experienced declining revenues each year for the past five years. PRACTICAL: GUESSTIMATE LEVEL: Medium QUESTION: What is monthly residential electricity consumption in India in unit terms ?	SQL_PS_Week9
	9	Intro to Functions in SQL	Introduction of the SQL functions used to perform operations on data, manipulate values, and generate meaningful insights. Learn how to categorize data and create custom logic.	String Functions UPPER(), LOWER(), CONCAT(), SUBSTRING(), LTRIM(), RTRIM(), TRIM(), LENGTH(), REPLACE(), LEFT(), RIGHT() Date & Time Functions NOW(), CURDATE(), CURTIME(), YEAR(), MONTH(), DAY(), DATEDIFF(), DATE_ADD(), DATE_FORMAT(), DATE_SUB(), EXTRACT() Math & Numeric Functions ABS(), ROUND(), CEIL(), FLOOR(), SQRT(), POWER(), MOD(), RAND() Conditional Functions CASE WHEN, IF(), COALESCE(), NULLIF() JSON Functions JSON_EXTRACT(), JSON_ARRAY(), JSON_OBJECT() System Functions DATABASE(), USER(), TABLE_NAME() Logical Functions CASE WHEN for conditional calculations Nested CASE statements Using CASE inside aggregation functions"	SQL_Week3_A2(16 query ques) SQL_Week3_A3(16 query ques)
	10	Aggregate Functions & Grouping	Summarize and analyze large datasets using aggregation.	COUNT() SUM() AVG() MIN() MAX() Using GROUP BY for summarization Filtering grouped data with HAVING Sorting on aggregated data	SQL_Week4_A1(15 Query Ques)

Week 4	11	DA Problem Solving : Week 10		PRACTICAL: CASE STUDY CASE 5: Competitor Analysis + Profitability INDUSTRY: BFSI (Banking) QUESTION: You have a banking client, let's say any big bank like HDFC or ICICI and they want to launch a new credit card in the market and they have hired you as a consultant to tell them if they should do this business and if yes, how should they proceed with it." PRACTICAL: GUESSTIMATE LEVEL: Hard QUESTION: You need to calculate the number of EV cars that Tata, MG, Mahindra, Hyundai, Kia, BMW, Mercedes, Audi, Volvo are collectively producing in a month ? PRACTICAL: GUESSTIMATE LEVEL: Medium QUESTION: How many tons of steel are required to build one year's worth of skyscrapers globally?	SQL_PS_Week10
	12	SQL Joins	Learn to merge data from multiple tables efficiently.	Inner Join Left Join Right Join Full Outer Join Cross Join Self Join Join on Multiple variables and conditions Handling NULL values in joins practical examples and use cases of different joins	SQL_Week4_A2(15 query ques)
Week 5	13	Unions, Subqueries & Nested Querie	Use subqueries to break down complex queries into manageable parts.	UNION UNION ALL difference between joins and unions use case and examples Types of Subqueries: Scalar, Multi-row, Correlated IN EXISTS NOT EXISTS WITH clause for defining CTEs Recursive CTEs for hierarchical data (e.g., org structures)	SQL_Week5_A1(11 ques)
	14	DA Problem Solving : Week 11		PRACTICAL: INCOME STATEMENT - PROBLEM 1 QUESTION: ABC limited is a manufacturing company. They have hired you as an accountant they want you to help them calculate the Net Profit of the company. During FY2023 they have sold products worth 6 lakhs and they spent 2 lakhs to produce the products. During that year they also incurred selling, general and admin expenses worth 50 thousand. There was also asset depreciation that year 20 thousand. They also had to pay income tax which was 10% of gross profit. THEORY: Why Is It Important For Everyone To Know Financial Statements ? THEORY: Basic structure of financial statements PRACTICAL: GUESSTIMATE LEVEL: Easy QUESTION: Estimate the number of cars that pass through a busy toll booth in a day ? PRACTICAL: GUESSTIMATE LEVEL: Hard QUESTION: Calculate the number of queries answered by Google per second	SQL_PS_Week11

	15	Window Functions for Data Analysis	Perform advanced calculations across partitions.	ROW_NUMBER() Assigns a unique row number within a partition RANK() Assigns a rank with gaps for ties DENSE_RANK() Assigns a rank without gaps for ties LEAD() Gets the next row's value LAG() Gets the previous row's value LEAD(), LAG() for trend analysis NTILE(n) Divides rows into n equal parts SUM() OVER() Computes a cumulative sum AVG() OVER() Computes a moving average	SQL_Week5_A2(11 Ques)
Week 6	16	Performance Optimization, Indexing & Views	How to optimize queries for better performance.	Understanding indexing and how it speeds up queries Types of Indexes: Clustered vs. Non-Clustered Analyzing query execution with EXPLAIN SQL Order of execution Solving for syntactical and logical errors in queries	SQL_Week6_A1(16 ques)
	17	DA Problem Solving : Week 12		PRACTICAL: INCOME STATEMENT - PROBLEM 1 QUESTION: Sales = 10,00,000 Cost of goods sold = 30% of sales SG&A = 10% of COGS R&D = 20% of SG&A Depreciation & Amortization = 20% of COGS + 20% SG&A Interest Expense = 10% of Gross Profit Income Tax Expense = 10% of Operating Income PRACTICAL: GUESSTIMATE LEVEL: Medium QUESTION: Calculate the revenue of the nearest McDonalds around your house. PRACTICAL: GUESSTIMATE LEVEL: Easy QUESTION: How many toothbrushes are bought in a month in India?	SQL_PS_Week12
	18	Data Analysis with SQL	Work on complex SQL queries using real datasets. in-class EDA project	End-to-end data cleaning and transformation Analysis and insights Data summarization and trend analysis	SQL_MINI_1