



ADA GLOBAL ACADEMY

SQL for Data Engineering Professional Course

Course Schedule

S/N	Weeks	Topic	Lessons			Time	Instructor
			Wednesday	Friday	Saturday		
1.	1	Introduction to SQL	Introduction to Databases and SQL	SQL Syntax and Statement Structure	Basic Queries: SELECT, FROM, WHERE	2 hours	JS
	2	Sorting, Aggregating, and Grouping Data	Sorting Data	Aggregation Functions (COUNT, SUM, AVG, etc.)	Grouping Data with GROUP BY	2 hours	JS
2.	3	Joining and Combining Data	Understanding Table Relationships (One-to-One, One-to-Many, Many-to-Many)	Inner Joins Outer Joins (LEFT JOIN, RIGHT JOIN, FULL JOIN)	Combining Data with UNION	2 hours	
	4	Subqueries and Advanced Filtering	Subqueries and Nested Queries	Correlated Subqueries	Advanced Filtering with WHERE and HAVING	2 hours	
3.	5	Data Manipulation and Data Types	Inserting Data into Tables	Updating and Deleting Data	Working with Different Data Types (Numbers, Strings, Dates)	2 hours	
	6	Table Design and Indexing	Creating Tables and Defining Constraints	Primary Keys and Foreign Keys	Indexing for Performance Optimization	2 hours	
4.	7	Working with Views and Stored Procedures	Creating and Using Views	Modifying and Dropping Views	Introduction to Stored Procedures	2 hours	
	8	Advanced SQL Concepts	Transactions and Concurrency Control	Performance Tuning and Optimization	Handling Large Datasets and Partitioning	2 hours	

Course Outline

SQL and Databases

S/N	Lesson	Description	Curriculum
1.	Introduction to SQL	Provides a beginner-friendly introduction to SQL and databases. Students will learn and understand relational database concepts that would aid them to construct and execute SQL queries and manage databases. By the end of the course, students will have practical skills in SQL and demonstrate hands-on experience accessing data from databases	❖ Intro. to SQL and Databases: working with Tables - Where and how SQL is used? - Types of Databases and how they are used - Downloads and Installations - MySQL Workbench (dev tool for SQL): demo - Core SQL Commands - Core Table elements - Common Data types ❖ Basic SQL Syntax - Building tables: primary and foreign keys - Setting Constraints on a table - Data retrieval techniques (SELECT statements) - Data modification techniques (INSERT, UPDATE, DELETE statements) ❖ Working with Data - Filtering Data – logical operators - Sorting data - Aggregation and analysis of data - Normalisation - Many to many and self-referencing relationships
2.	Sorting, Aggregating, and Grouping Data	SQL's sorting, aggregating, and grouping operations are essential for organizing and summarizing data effectively, enabling insightful analysis.	
3.	Joining and Combining Data	Joining and combining data in SQL involve merging information from multiple tables or queries into a unified result. It helps establish relationships between tables and consolidate data from various sources. These operations are crucial for retrieving comprehensive information and generating unified reports.	

4.	Subqueries and Advanced Filtering	Subqueries and advanced filtering in SQL enable complex data retrieval and analysis with nested queries and refined filtering techniques.	
5.	Data Manipulation and Data Types	Data manipulation in SQL involves modifying, inserting, updating, and deleting data, while data types define the kind of information stored in columns or variables.	
6.	Table Design and Indexing	Table design and indexing in SQL are essential for efficient data storage and retrieval. Designing tables ensures proper representation and organization of data, while indexing improves query performance by optimizing data access and retrieval.	
7.	Working with Views and Stored Procedures	Views and stored procedures in SQL enhance data management and query execution. Views provide customized data representations and security, while stored procedures enable efficient code execution and management.	
8.	Advanced SQL Concepts	Advanced SQL concepts encompass techniques for enhanced data management and analysis, including transactions, performance tuning, handling large datasets, data integrity, advanced joins, and date/time functions.	

Pricing

S/N	Course Item	Time	Duration	Price		
				Day	Week	Month
1.	Data Science Professional Course	3 hours	2 months	\$10	\$30	\$120
	Total (2 months) + \$10				\$30	\$250