Course Title: SQL Fundamentals for Data Analysis

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Course Description:

This course serves as an introduction to Structured Query Language (SQL) for the aspiring data analyst, focusing on fundamental concepts and practical applications. The course is divided into two parts: the first part provides a foundational understanding of RDBMS, SQL, and access to databases, while the second part introduces applications of the SELECT statement, other statements related to Data Manipulation Language (DML), various functions, clauses, and operators. The course incorporates interactive video lectures, as well as weekly course exercises to reinforce learning.

Prerequisites:

There are no required prerequisites for this course.

Platform: YouTube
Duration: < 15 minutes

Course Content:

1. ***Week 1: Introduction to the course***
    a. Overview of material
2. ***Week 2: What is SQL?***
    a. What is a database?
    b. What is a RDBMS?
    c. Define SQL
    d. What is an SQL flavour? Are there differences between different SQL flavours?
3. ***Week 3: Getting Started with SQL***
    a. Download SQL tutorial
    b. Setting up the database
4. ***Week 4: What is an SQL table?***
    a. Tabular data storage (ie. records, and columns)
    b. Primary Key (natural)
    c. Foreign Key
    d. Unique Key
    e. Super Key
5. ***Week 5: What are the types of SQL commands?***
    a. What are they used for?
    b. Explain their definitions and use cases
    c. Statements vs. Functions vs. Clauses vs. Operators
6. ***Week 6: What are the SQL data types?***
    a. Understanding the data types

        i. Boolean
        ii. Numeric
        iii. String
        iv. Date / Time
    b. Identifying the data type of a column, or data types in a table
7. ***Week 7: Constructing a Select Statement***
    a. Selecting from a table / table within a database
    b. Select All / Single Column / Multiple Columns
    c. Selecting Distinct values from a column
    d. Referencing more than one table
    e. Using Aliases
8. ***Week 8: Basic Aggregations***
    a. Count
    b. Sum
    c. Avg
    d. Min
    e. Max
9. ***Week 9: Limit, Order By, Group By***
    a. Limit
    b. Order By
        i. Asc
        ii. Desc
    c. Group By
10. ***Week 10: Introduction to the Where & Having Statements***
    a. Where
    b. Having
11. ***Week 11: Logical & Comparison Operators***
    a. And / Or / Between / In
    b. Not / Is (Not) Null
    c. Like
    d. Greater (Than) / Less (Than)
    e. Equality / Inequality
12. ***Week 12: Arithmetic Operators***
    a. Addition
    b. Subtraction
    c. Product
    d. Division
    e. Modulo
13. ***Week 13: Basic Formatting Functions***
    a. String Functions
        i. Lower()
        ii. Upper()
    b. Numeric Functions
        i. Floor()

        ii. Round()

14. Week 14: Use cases for the Case When statement

a. Using case when w/ logical & comparison operators
b. Using case when w/ arithmetic operators

15. Week 15: Introduction to Joins

a. Left Join
b. Right Join
c. Inner Join
d. Outer Join

Course Material:

- https://github.com/filsan95/Course-SQL_Fundamentals_for_Data_Analysis

Resources (Optional):

- https://www.w3schools.com/sql/default.asp