**INTRODUCTION TO SUCTURED QUERY LANGUAGE (SQL)**

**PROJECT WEEK ONE**

Welcome to your SQL Week One Project!

You have now built a foundation with Excel, and it's time to explore a new tool: SQL. SQL (Structured Query Language) is a powerful language used for managing and manipulating databases. With SQL, you can efficiently query, update, and manage data, allowing for more complex and robust data analysis.

Before proceeding to answer the questions in Part B, it's essential to review the provided resources on Introduction to SQL Interface, Definition, Purpose, Relational Databases, DBMS, Data Types, DDL and DML. These resources lay the groundwork for understanding the fundamental concepts of SQL and database management, which are integral to effectively navigating the world of data.

If you encounter any uncertainties or require clarification on any topic, refer to the provided resources or reach out for assistance. Your understanding of these concepts will not only enrich your learning experience but also equip you with valuable skills for future endeavors in data management and analysis.

PART A

RESOURCES

LINK 1: INSTALLATION OF SSMS SQL: <https://youtu.be/h0nxCDiD-zg?si=F_lx5FAP9lVFB6_z>

LINK 2: <https://youtu.be/h0nxCDiD-zg?si=in24HQnrx6IVPP3m>

LINK 3: <https://youtu.be/QqiuBud3CUQ?si=euNTGGPnkaiuKi0L>

LINK 4: <https://youtu.be/pAB-z0knPpk?si=E3Lbq6WBkVKou8YX>

LINK 5: <https://youtu.be/k6HKfdfAywU?si=YnW2wBpfKc-YOSMg>

LINK 6: <https://youtu.be/6CzfqZU2k0c?si=r6J7K-xr98ZRdcfG>

**PART B**

**QUESTIONS:**

**Theoretical Questions:**

1. Definition and Purpose of SQL:

- What is SQL and what is its primary purpose in database management?

2. Relational Databases (RDBs):

- Explain what a relational database is and how it differs from a non-relational database.

3. Database Management System (DBMS):

- Define DBMS and describe its main functions.

4. Data Types - Integer and Floating-point:

- Describe the difference between an integer and a floating-point data type. Provide an example of when each might be used.

5. Data Types - Character and VARCHAR:

- What is the difference between CHAR and VARCHAR data types? In what scenario would you prefer one over the other?

6. Data Types - Date and Boolean:

- Explain the DATE and BOOLEAN data types and provide an example of their usage in a database.

**PRACTICAL QUESTIONS**

Data Definition Language (DDL)

1. CREATE:

- Write an SQL statement to create a table named “Employees” with the following columns: “EmployeeID” (integer), “FirstName” (VARCHAR(50)), “LastName” (VARCHAR(50)), “HireDate” (DATE), “Salary” (FLOAT).

2. ALTER:

- Write an SQL statement to add a column “Department” (VARCHAR(50)) to the “Employees” table.

3. ALTER:

- Write an SQL statement to modify the “Salary” column in the “Employees” table to have a “DECIMAL(10, 2)” data type.

4. DROP:

- Write an SQL statement to drop the “Department” column from the “Employees” table.

5. Indexes: - Write an SQL Statement to create an index on the ‘last name’ column in the Employees” table.

Data Manipulation Language (DML)

6. INSERT:

- Write an SQL statement to insert a new record into the “Employees” table with the following details: “EmployeeID” = 1, “FirstName” = 'Alice', “LastName” = 'Johnson', “HireDate” = '2021-05-15', “Salary” = 60000.

7. INSERT:

- Write an SQL statement to insert multiple records into the “Employees” table with the following details:

- “EmployeeID” = 2, “FirstName” = 'Bob', “LastName” = 'Smith', “HireDate” = '2020-03-22', “Salary” = 55000.

- “EmployeeID” = 3, “FirstName” = 'Charlie', “LastName” = 'Brown', “HireDate” = '2019-11-30', “Salary” = 70000.

8. UPDATE:

- Write an SQL statement to update the “Salary” of the employee with “EmployeeID” = 1 to 65000.

9. DELETE:/

- Write an SQL statement to delete the employee with “EmployeeID” = 3 from the “Employees” table.

10. INSERT and SELECT:

- Write an SQL statement to insert a new record into the “Employees” table with the same details as the employee with “EmployeeID” = 2, but with “EmployeeID” = 4 and “FirstName” = 'David'.

**PART C**

**SUBMISSION MODE**

You are expected to submit your assignment a week after it was given, with this, Submission starts from Friday 7am Nigerian time to April 3pm Nigerian time.

This submission will be done either on Twitter or LinkedIn, you can choose either of the two to submit your assignment or you can submit on both platforms. You would take a screenshot of your work Answers, you can add a write up if you want.

For twitter Submission, you would tag:

1. The TDI Official page @TDataInitiative
2. Annie @ DabereNnamnai
3. Jacob @Jacob\_Ajala
4. Tag @SQLSever
5. Use the #TDI

For LinkedIn Submission, you would tag:

1. TDI page @TheData Initiative
2. Annie @ Anne Nnamani

**PART D**

**CORRECTION CLASS**

Correction Classes, holds every Saturday, 4pm-6pm Nigerian time.

Venue: The TDI official Discord page or a google meet link will be sent.