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SQL Introduction - Exercises

1. Creating a Database and Table

Create a database called School.

Inside the database, create a table named Students with the following columns:

- StudentID (INT, Primary Key, Not Null)
- FirstName (VARCHAR(50), Not Null)
- LastName (VARCHAR(50), Not Null)
- Age (INT)
- Grade (VARCHAR(10))

2. Inserting Data

Insert at least 5 records into the Students table.

```
INSERT INTO Students (StudentID, FirstName, LastName, Age, Grade)
VALUES (1, 'John', 'Doe', 15, '10th');
```

3. Querying Data

- Write a query to retrieve all columns from the Students table.
- Retrieve only the FirstName and Grade of students whose Age is greater than 14.

4. Updating Data

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Update the grade of a specific student.

For example:

```
UPDATE Students
SET Grade = '11th'
WHERE StudentID = 1;
```

5. Deleting Data

Delete a student record where the StudentID is 3.

Be sure to use the WHERE clause to avoid deleting all rows accidentally.

6. Filtering Rows

Write a query to select students with the Grade of '10th'.

Use the BETWEEN operator to find students whose Age is between 14 and 16.

7. Sorting Results

Write a query to retrieve all students, sorted by LastName in ascending order.

Modify the query to sort by Age in descending order.

8. Using Aliases

Write a query to display FirstName and LastName concatenated as FullName, along with Grade. Use an alias for the concatenated column.

9. Advanced Insertion

Create a new table called Graduates with the same structure as Students.

Insert all students from the Students table who have a grade of '12th' into the Graduates table.

10. View Creation

Create a view called v_StudentsByGrade that shows FullName (concatenated FirstName and LastName) and Grade of all students.

11. Exploration of SQL Functions (Optional)

Use the COUNT function to determine how many students are in the Students table.

Write a query to find the average Age of students.