Lab 5 *CLO-1*

Topic: Aggregate functions, Alias, and Having Clause

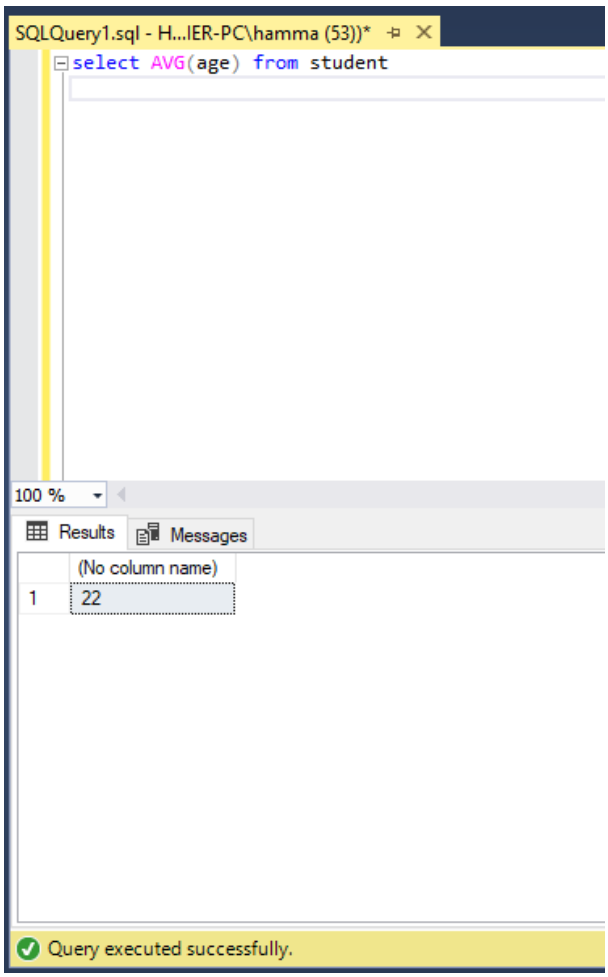
Objectives: Develop understanding of aggregation functions, Alias and Having clause.

Aggregation:

Aggregate functions allow you to perform a calculation on a set of values to return a single scalar value. The most common aggregatefunctions will be performed today.

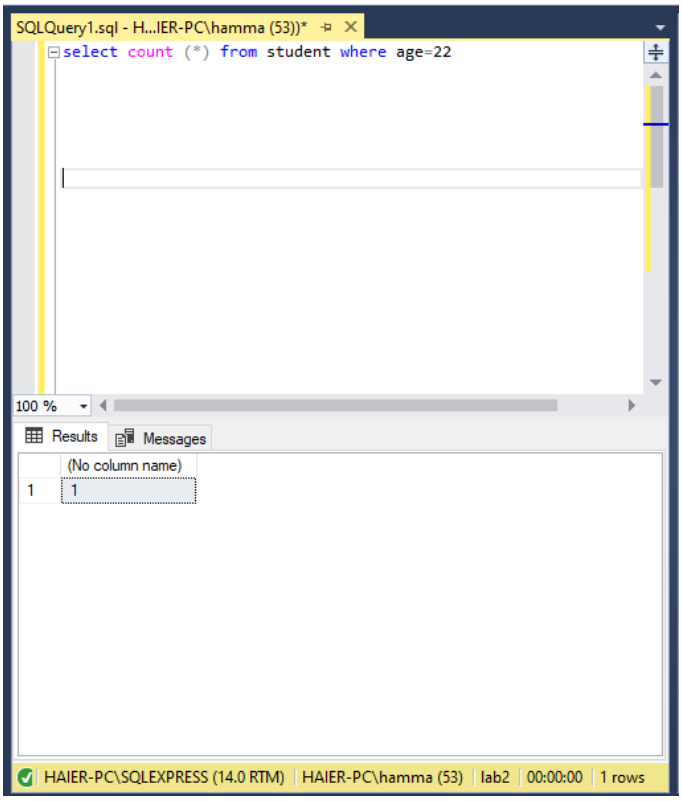
AVG function:

AVG function is used to get average of the values in a column.



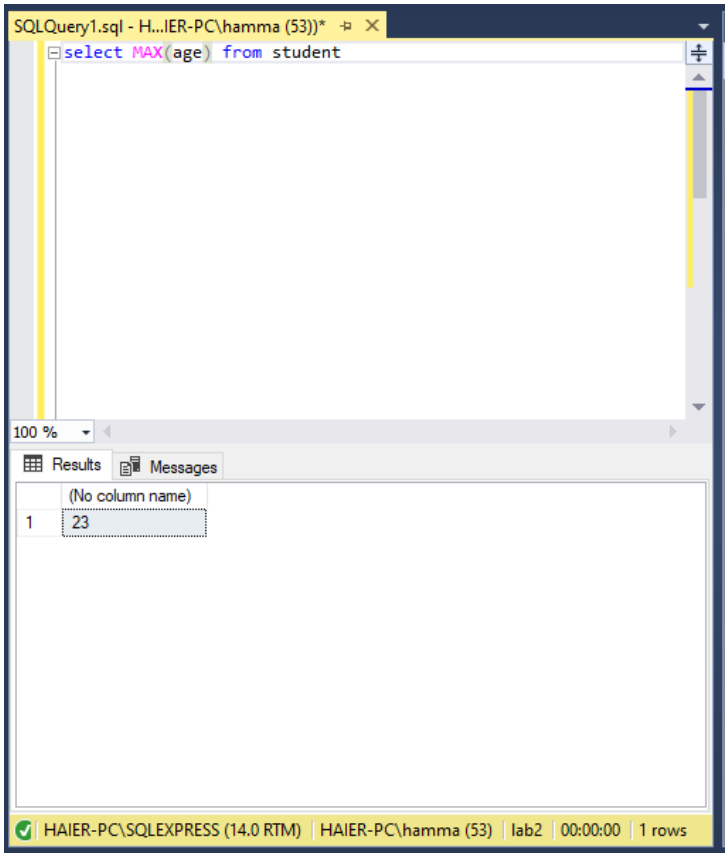
Count function:

Count function is used to count the number of rows.



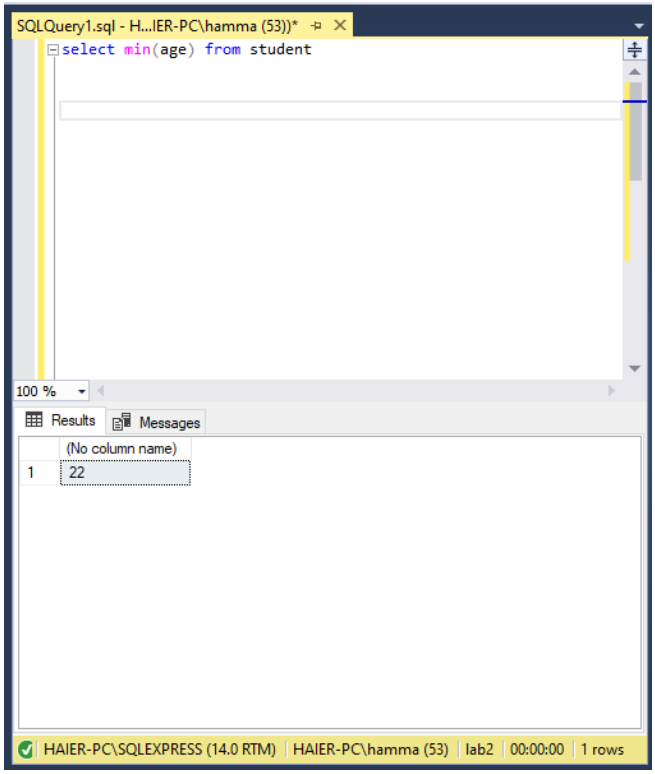
Max function:

Max function is used to get maximum value from a column.



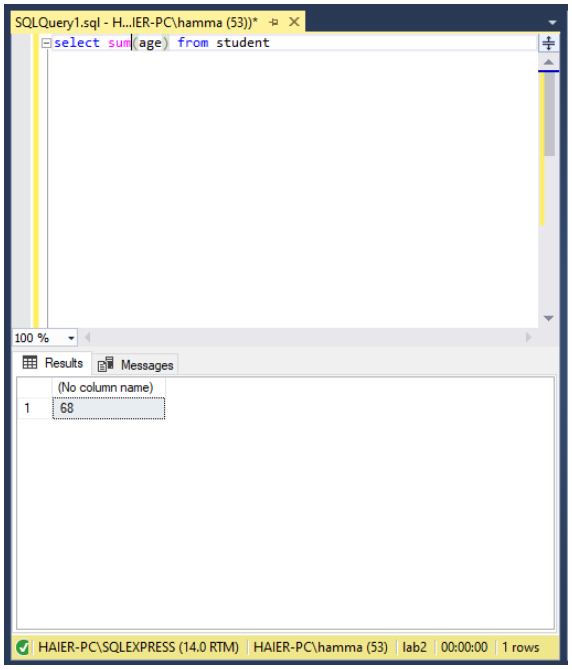
Min function:

Min function is used to get minimum value from a column.



Sum function:

Sum function is used to get sum of values from a column.

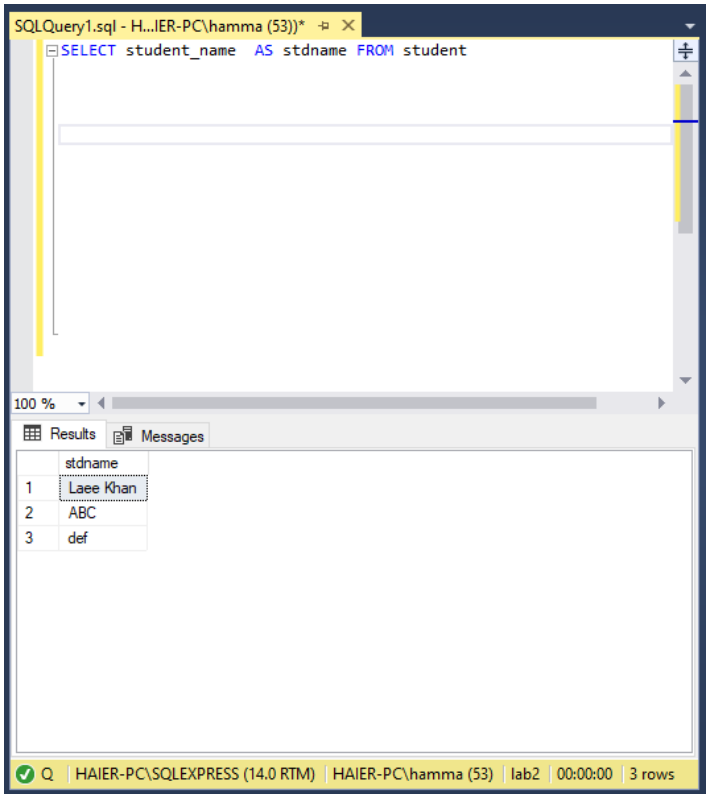


ALIASING TABLES AND COLUMNS:

Aliases provide database administrators, as well as other database users, with the ability to reduce the amount of code required for a query, and to make queries simpler to understand. In addition, aliasing can be used as an obfuscation technique to protect the real names of database fields.

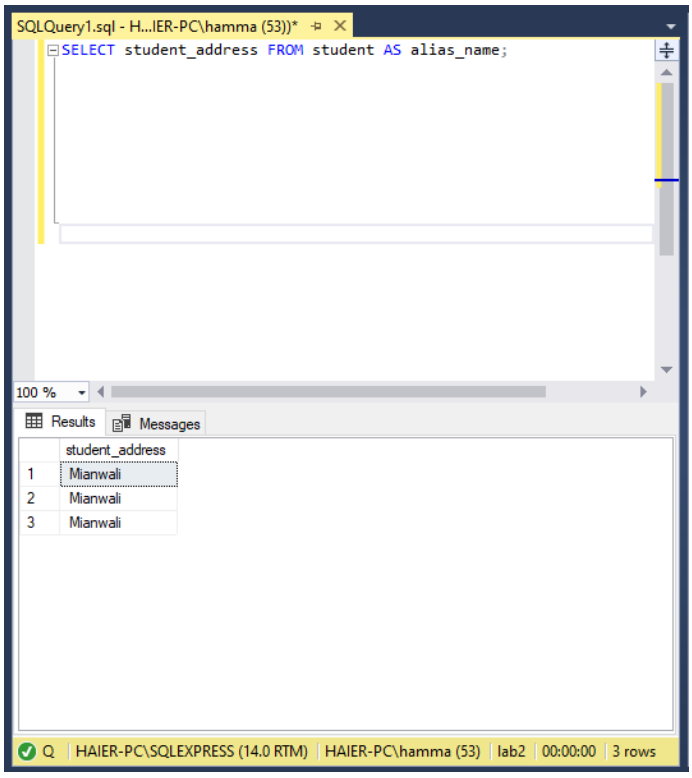
ALIASING COLUMNS

```
SELECT column_name AS alias_name FROM table_name
```



ALIASING TABLES

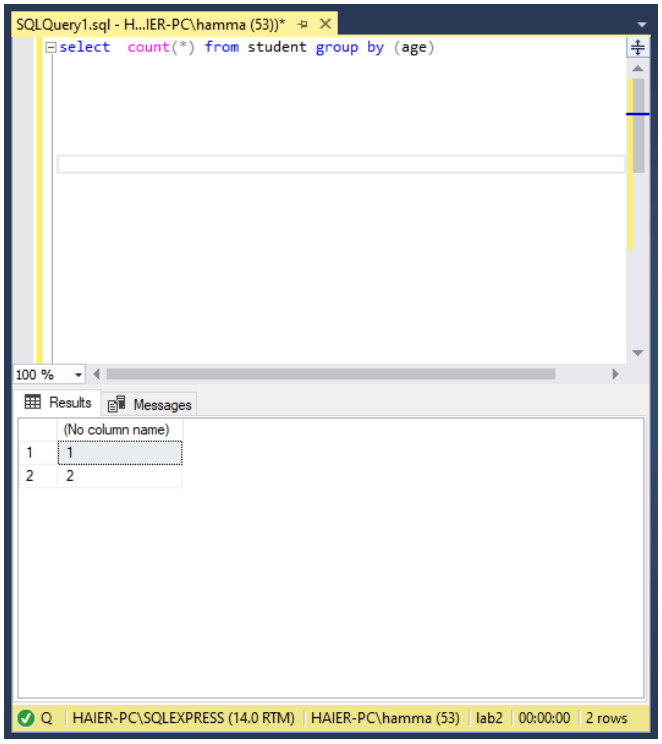
```
SELECT column_name(s) FROM table_name AS alias_name;
```



Group By Clause:

The SQL GROUP BY clause is used in collaboration with the SELECT statement to arrange identical data into groups. This GROUP BY clause follows the WHERE clause in a SELECT statement and precedes the ORDER BY clause.

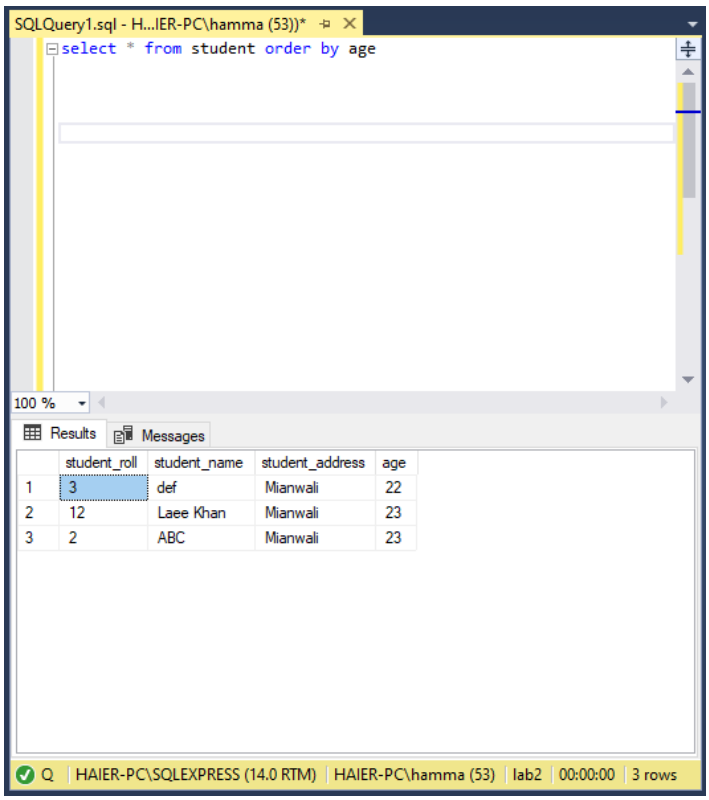
```
select count(*) from student group by (age)
```



Order By Clause:

The ORDER BY is used to sort the result-set in ascending or descending order.

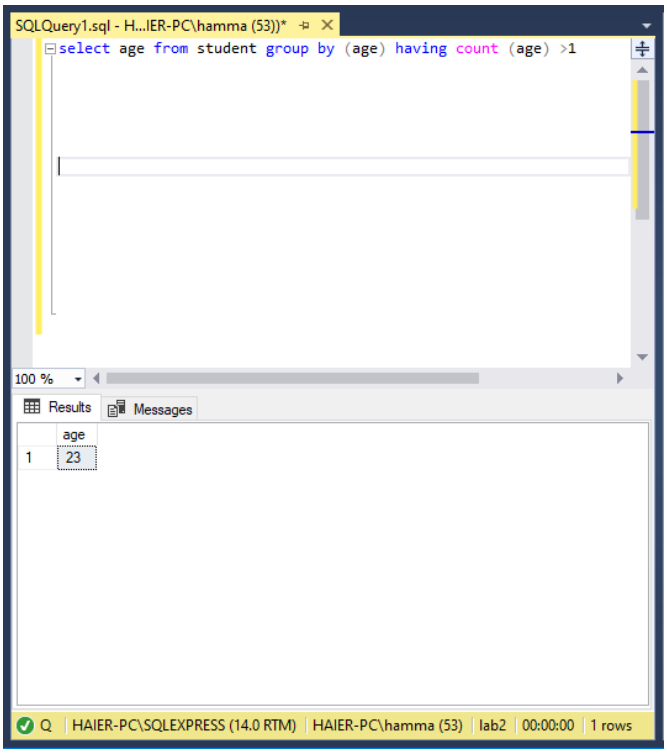
The ORDER BY sorts the records in ascending order by default. To sort the records in descending order, use the DESC keyword.



Having Clause:

The WHERE clause is a row filter, the HAVING clause is a group filter. Only groups for which the HAVING predicate evaluates to TRUE are returned by the HAVING phase to the next logical query processing phase. Groups for which the predicate evaluates to FALSE or UNKNOWN are discarded. Because the HAVING clause is processed after the rows have been grouped, you can refer to aggregate functions in the logical expression.

```
select age from student group by (age) having count (age) >1
```



SQL Query Tasks

(1) Calculate Average Salary:

Task: Write a SQL query to calculate the average salary of all employees.

(2) Find Maximum Salary:

Task: Write a SQL query to find the maximum salary among all employees

(3) Count Employees in Each Department:

Task: Write a SQL query to count the number of employees in each department.

(4) **Calculate Total Salary:**

Task: calculate the total salary earned by each employee based on their job title.

(5) **Identify Department with Highest Average Salary:**

Task: Write a SQL query to identify the department with the highest average salary among its employees.

(6) Determine Number of Dependents per Employee:

Task: Write a SQL query to count the number of dependents each employee has.

(7) Find Minimum and Maximum Years of Service:

Task: Write a SQL query to find the minimum and maximum years of service among all employees.

(8) Calculate Total Salary Expense per Department:

Task: Write a SQL query to calculate the total salary expense for each department.

(9) Identify Employees Earning Above Average Salary:

Task: Write a SQL query to identify employees who earn above the average salary.

(10) **Calculate Total Salary Expense by Job Title:**

Task: Write a SQL query to calculate the total salary expense for each job title.