Module-7

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Understanding

➢ Database

- MYSQL
- Workbanch Overview
- Crude Operation

➢ **MYSQL**

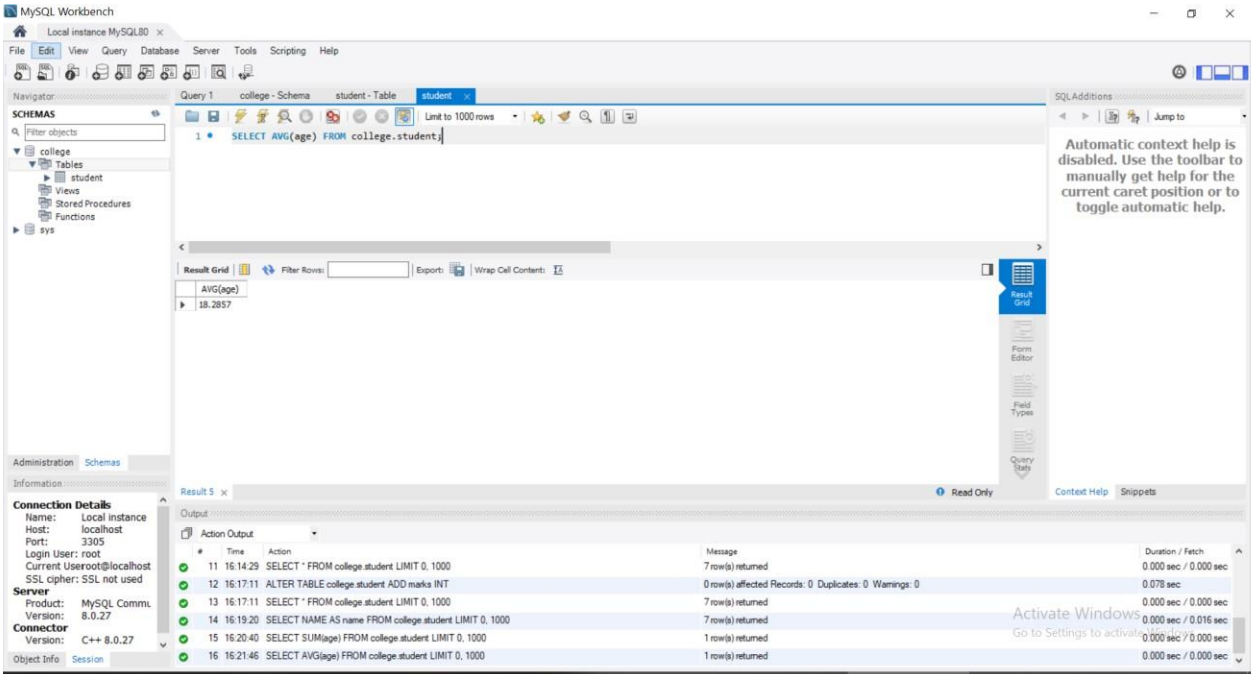
- ✓ MySQL is the most popular Open Source Relational SQL Database Management System.
- ✓ MySQL is one of the best RDBMS being used for developing various web-based software applications.
- ✓ MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company.
- ✓ A relational database is a type of database that stores and provides access to data points that are related to one another. Relational databases are based on the relational model, an intuitive, straightforward way of representing data in tables.
- ✓ Keys are very important part of Relational database model. They are used to establish and identify relationships between tables and also to uniquely identify any record or row of data inside a table.
- ✓ A Key can be a single attribute or a group of attributes, where the combination may act as a key.

➢ Workbanch Overview

- ✓ MySQL Workbench is a unified visual database designing or graphical user interface tool used for working with database architects, developers, and Database Administrators.
- ✓ It is developed and maintained by Oracle.
- ✓ It is available for all major operating systems like Mac OS, Windows, and Linux. MySQL Workbench fully supports MySQL Server version v5.6 and higher.
- ✓ Main functionality:
  - SQL Development
  - Data Modelling (Design)
  - Server Administration
  - Data Migration
  - MySQL Enterprise Supports
- ✓ MySQL Workbench is mainly available in three editions, which are given below:

  1. Community Edition (Open Source, GPL)
  2. Standard Edition (Commercial)
  3. Enterprise Edition (Commercial)

1.AVG keyword



```
SELECT AVG(age) FROM college.student;
```

AVG(age)
18.2857

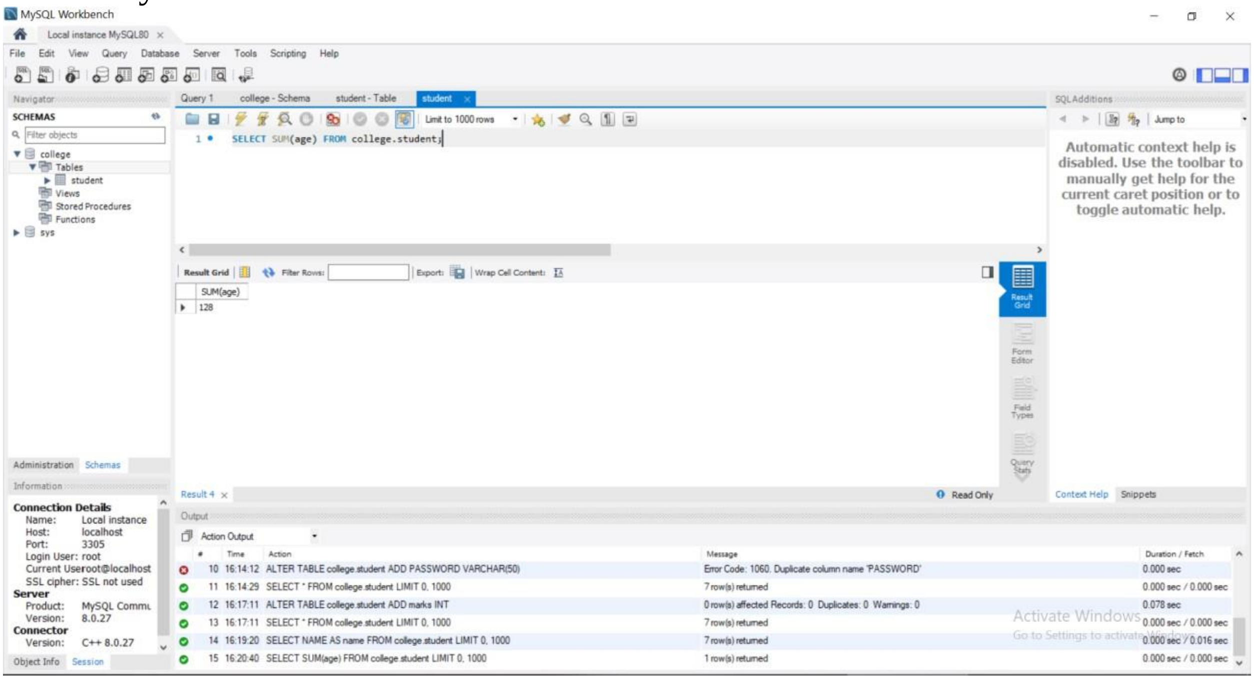
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Connection Details
Name: Local instance
Host: localhost
Port: 3305
Login User: root
Current User: root@localhost
SSL cipher: SSL not used
Server
Product: MySQL Commu
Version: 8.0.27
Connector
Version: C++ 8.0.27

Action Output

#	Time	Action	Message	Duration / Fetch
11	16:14:29	SELECT * FROM college.student LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
12	16:17:11	ALTER TABLE college.student ADD marks INT	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.078 sec
13	16:17:11	SELECT * FROM college.student LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
14	16:19:20	SELECT NAME AS name FROM college.student LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.016 sec
15	16:20:40	SELECT SUM(age) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
16	16:21:46	SELECT AVG(age) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

2.SUM keyword



```
SELECT SUM(age) FROM college.student;
```

SUM(age)
128

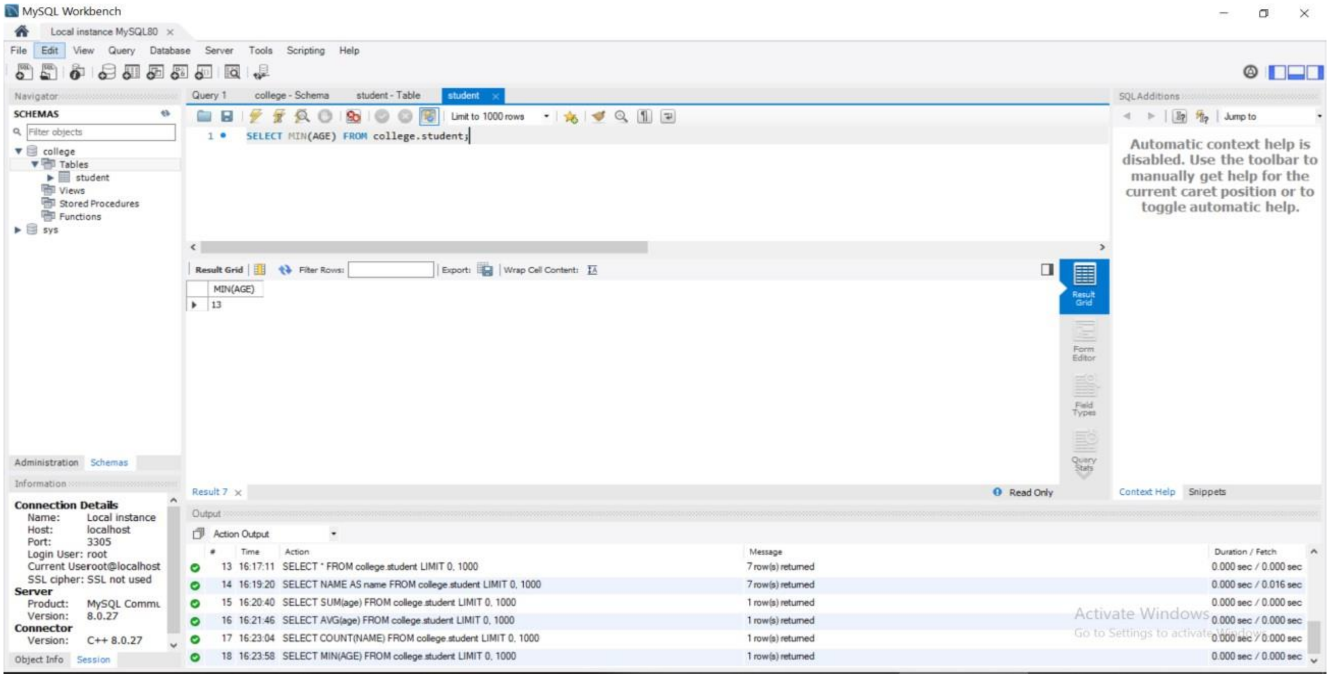
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Connection Details
Name: Local instance
Host: localhost
Port: 3305
Login User: root
Current User: root@localhost
SSL cipher: SSL not used
Server
Product: MySQL Commu
Version: 8.0.27
Connector
Version: C++ 8.0.27

Action Output

#	Time	Action	Message	Duration / Fetch
10	16:14:12	ALTER TABLE college.student ADD PASSWORD VARCHAR(50)	Error Code: 1060. Duplicate column name 'PASSWORD'	0.000 sec
11	16:14:29	SELECT * FROM college.student LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
12	16:17:11	ALTER TABLE college.student ADD marks INT	0 row(s) affected Records: 0 Duplicates: 0 Warnings: 0	0.078 sec
13	16:17:11	SELECT * FROM college.student LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
14	16:19:20	SELECT NAME AS name FROM college.student LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.016 sec
15	16:20:40	SELECT SUM(age) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

3.MIN keyword



```
1  SELECT MIN(AGE) FROM college.student;
```

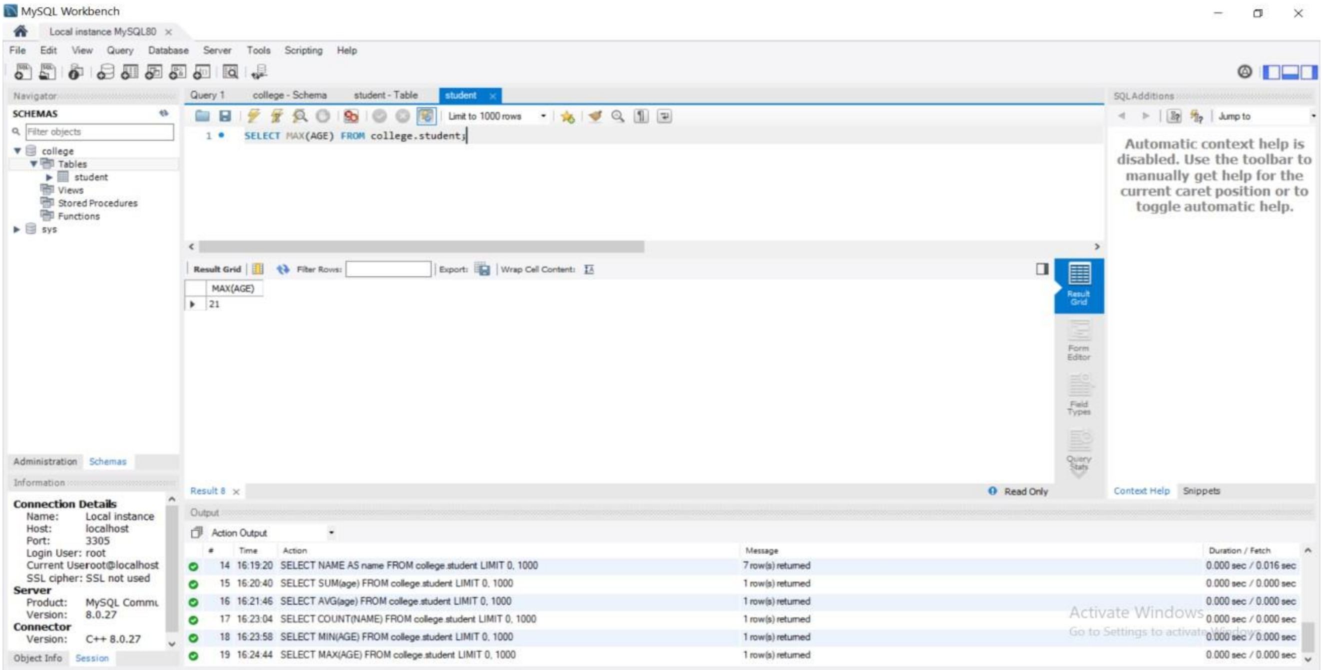
MIN(AGE)
13

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Connection Details
Name: Local instance
Host: localhost
Port: 3305
Login User: root
Current Useroot@localhost
SSL cipher: SSL not used
Server
Product: MySQL Commu
Version: 8.0.27
Connector
Version: C++ 8.0.27

#	Time	Action	Message	Duration / Fetch
13	16:17:11	SELECT * FROM college.student LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
14	16:19:20	SELECT NAME AS name FROM college.student LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.016 sec
15	16:20:40	SELECT SUM(age) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
16	16:21:46	SELECT AVG(age) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
17	16:23:04	SELECT COUNT(NAME) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
18	16:23:58	SELECT MIN(AGE) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

4. MAX keyword



```
1  SELECT MAX(AGE) FROM college.student;
```

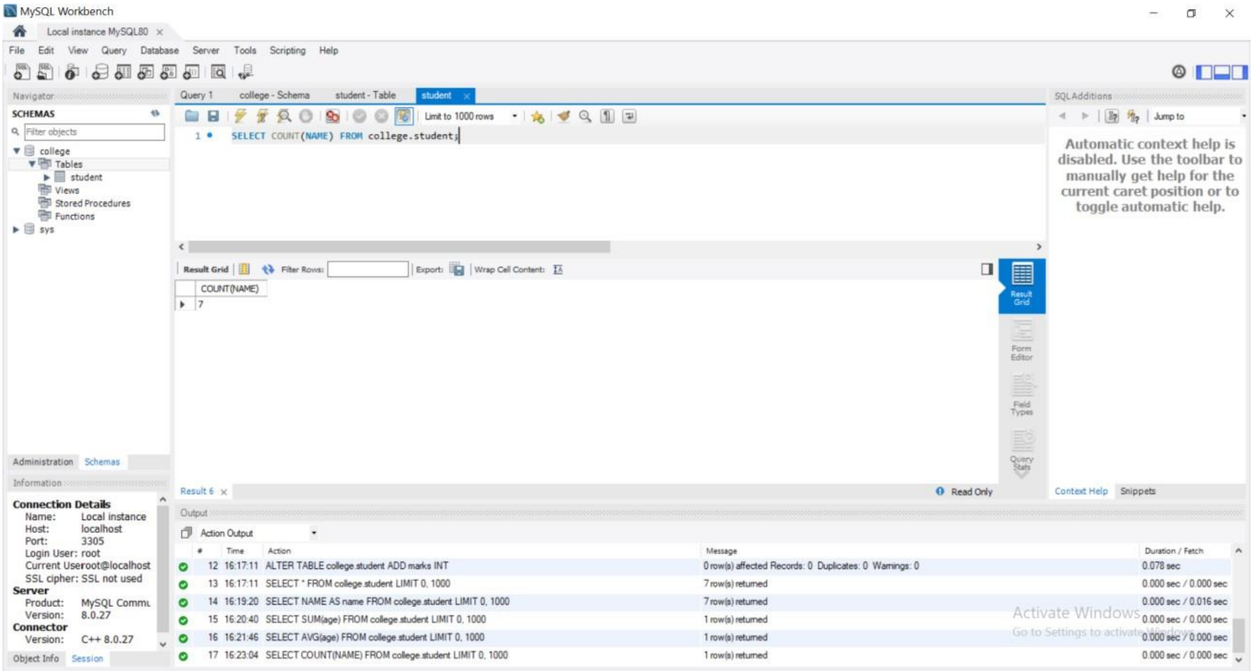
MAX(AGE)
21

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Connection Details
Name: Local instance
Host: localhost
Port: 3305
Login User: root
Current Useroot@localhost
SSL cipher: SSL not used
Server
Product: MySQL Commu
Version: 8.0.27
Connector
Version: C++ 8.0.27

#	Time	Action	Message	Duration / Fetch
14	16:19:20	SELECT NAME AS name FROM college.student LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.016 sec
15	16:20:40	SELECT SUM(age) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
16	16:21:46	SELECT AVG(age) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
17	16:23:04	SELECT COUNT(NAME) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
18	16:23:58	SELECT MIN(AGE) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
19	16:24:44	SELECT MAX(AGE) FROM college.student LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

5.COUNT keyword



```
SELECT COUNT(NAME) FROM college.student;
```

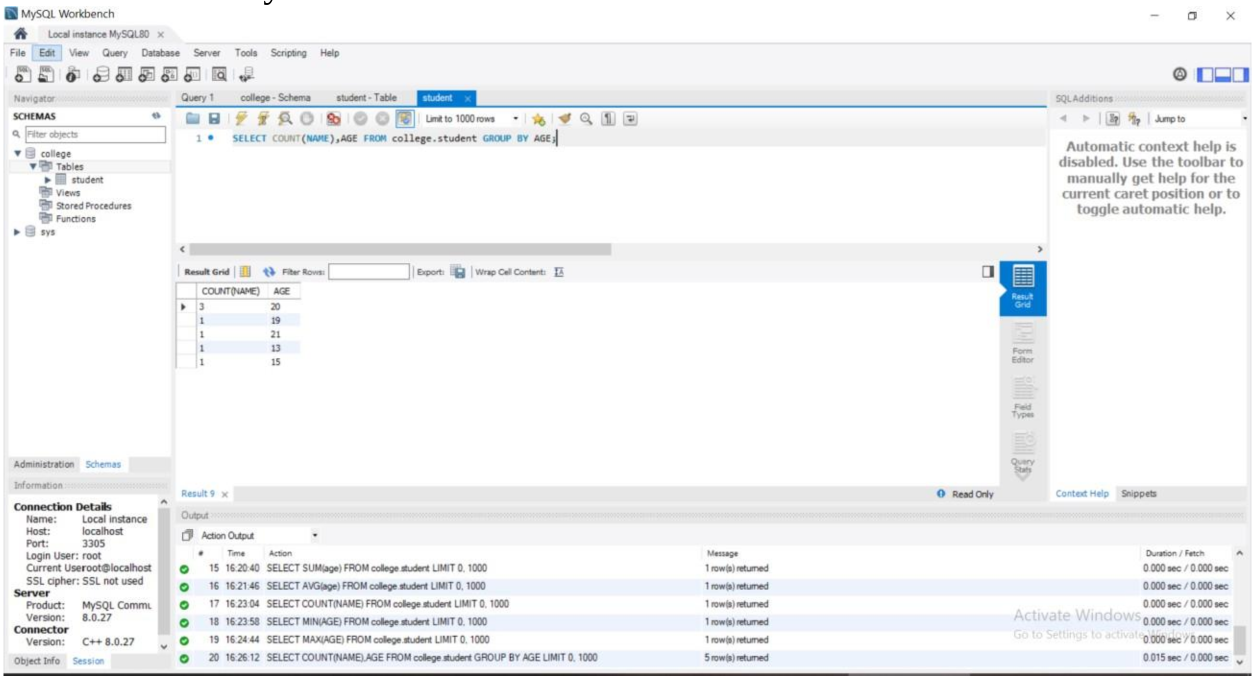
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

COUNT(NAME)
7

```
Connection Details
  Name:        Local instance
  Host:        localhost
  Port:        3305
  Login User: root
  Current User root@localhost
  SSL cipher: SSL not used
Server
  Product:     MySQL Commu
  Version:     8.0.27
Connector
  Version:     C++ 8.0.27
```

```
 #   Time      Action                                                Message                                                     Duration / Fetch
 12  16:17:11  ALTER TABLE college.student ADD marks INT             0 row(s) affected Records: 0  Duplicates: 0  Warnings: 0   0.078 sec
 13  16:17:11  SELECT * FROM college.student LIMIT 0, 1000           7 row(s) returned                                           0.000 sec / 0.000 sec
 14  16:19:20  SELECT NAME AS name FROM college.student LIMIT 0, 1000  7 row(s) returned                                         0.000 sec / 0.016 sec
 15  16:20:40  SELECT SUM(age) FROM college.student LIMIT 0, 1000    1 row(s) returned                                           0.000 sec / 0.000 sec
 16  16:21:46  SELECT AVG(age) FROM college.student LIMIT 0, 1000    1 row(s) returned                                           0.000 sec / 0.000 sec
 17  16:23:04  SELECT COUNT(NAME) FROM college.student LIMIT 0, 1000  1 row(s) returned                                          0.000 sec / 0.000 sec
```

6.GROUP BY keyword



```
SELECT COUNT(NAME),AGE FROM college.student GROUP BY AGE;
```

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

COUNT(NAME)	AGE
3	20
1	19
1	21
1	13
1	15

```
Connection Details
  Name:        Local instance
  Host:        localhost
  Port:        3305
  Login User: root
  Current User root@localhost
  SSL cipher: SSL not used
Server
  Product:     MySQL Commu
  Version:     8.0.27
Connector
  Version:     C++ 8.0.27
```

```
 #   Time      Action                                                              Message             Duration / Fetch
 15  16:20:40  SELECT SUM(age) FROM college.student LIMIT 0, 1000                  1 row(s) returned   0.000 sec / 0.000 sec
 16  16:21:46  SELECT AVG(age) FROM college.student LIMIT 0, 1000                  1 row(s) returned   0.000 sec / 0.000 sec
 17  16:23:04  SELECT COUNT(NAME) FROM college.student LIMIT 0, 1000               1 row(s) returned   0.000 sec / 0.000 sec
 18  16:23:58  SELECT MIN(AGE) FROM college.student LIMIT 0, 1000                  1 row(s) returned   0.000 sec / 0.000 sec
 19  16:24:44  SELECT MAX(AGE) FROM college.student LIMIT 0, 1000                  1 row(s) returned   0.000 sec / 0.000 sec
 20  16:26:12  SELECT COUNT(NAME),AGE FROM college.student GROUP BY AGE LIMIT 0, 1000  5 row(s) returned  0.015 sec / 0.000 sec
```

➢ Crude Operation

- ✓ CRUD stands for create ,read, update and delete operations.
- ✓ We can perform basic crud operation on the database with some http method asshown.

Create:

CREATE DATABASE databasename;

CREATE TABLE table_name(column1 datatype(length)....)

Read:

SELECT * FROM table_name; SELECT column1,column2;

SELECT FROM table_name WHERE condition;

Update:

UPDATE table_name SET column1=value_1; WHERE condition

Delete:

DELETE FROM table_name WHERE condition;

Insert:

INSERT INTO table_name(column1,column2,...)VALUES(value_1,value_2,..)