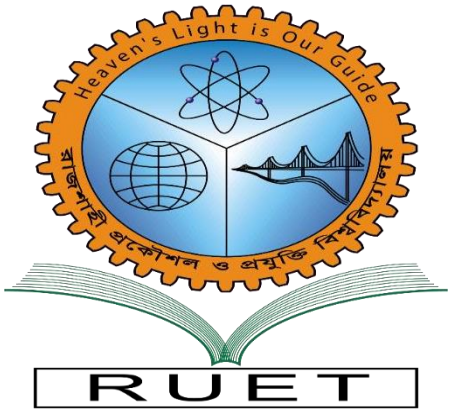
"Heaven's Light is Our Guide"

Rajshahi University of Engineering & Technology, Rajshahi



Department of Electrical & Computer Engineering

Course Code : ECE 2216

Course Title : Database Systems Sessional

Lab report No. : 02

Submission Date :01.10.2024

Submitted To-
Oishi Jyoti
Assistant Professor
ECE, RUET

Submitted By-
Md.Rubaid Hoque
Roll:2110010

Experiment No: 02.

Experiment Name:

Students Table

student_id	student_name	age	GPA	department	year_of_admission	fees_paid	credits_earned	enrollment_status
1	Eleven	21	3.8	Engineering	2021	10000	120	active
2	Dustin	22	3.9	Science	2020	9000	110	active
3	Will	19	3.4	Business	2022	8500	95	active
4	Mike	23	3.7	Science	2021	9500	115	inactive
5	Max	20	3.5	Engineering	2020	12000	130	active
6	Eddie	22	4.0	Arts	2019	8000	140	active
7	Billy	24	2.9	Engineering	2022	5000	60	active
8	Alexei	25	3.2	Business	2018	7500	100	inactive
9	Steve	21	3.8	Science	2021	10500	120	active
10	Robin	20	3.6	Engineering	2022	11000	125	active
11	Lucas	18	2.7	Engineering	2023	4000	50	active
12	Nancy	23	3.9	Business	2019	9500	135	active

Task:

1. Find students who are older than 20 and have a GPA above the average GPA of all students
2. Find the top 5 students with the highest fees paid, ordered by GPA (in descending order) as a tiebreaker
3. List students who belong to the "Engineering" department, have a GPA greater than 3.5, and are enrolled after 2020
4. Find students who are not active (i.e., enrollment_status = 'inactive') and have not paid any fees (fees_paid = 0)
5. Calculate the total fees paid and average GPA for each department, but only for departments with more than 10 students

Objective:

The objective of the student table in the provided MySQL code is to store and manage information related to students in a structured format within a relational database.The few objectives are:

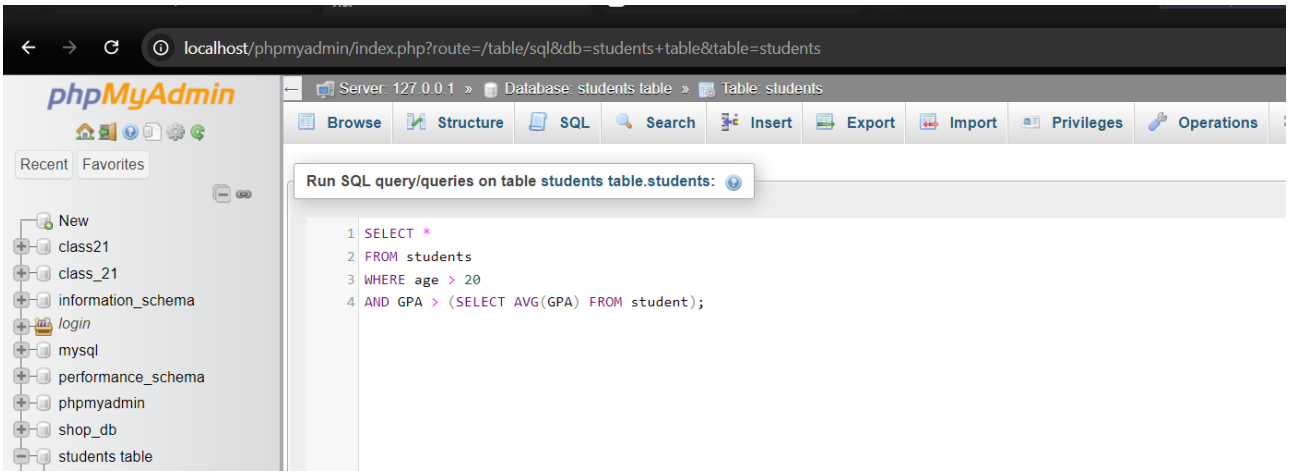
- **Data Storage and Retrieval**: Store essential details about each student that can be retrieved, updated, or manipulated through queries.

- **Perform Queries and Analysis**: Enable complex queries, such as filtering students by GPA, calculating departmental statistics, or analyzing financial data.
- **Organize Information**: Facilitate the management of student records by structuring the information in a way that is easy to access, modify, and use for reporting purposes.

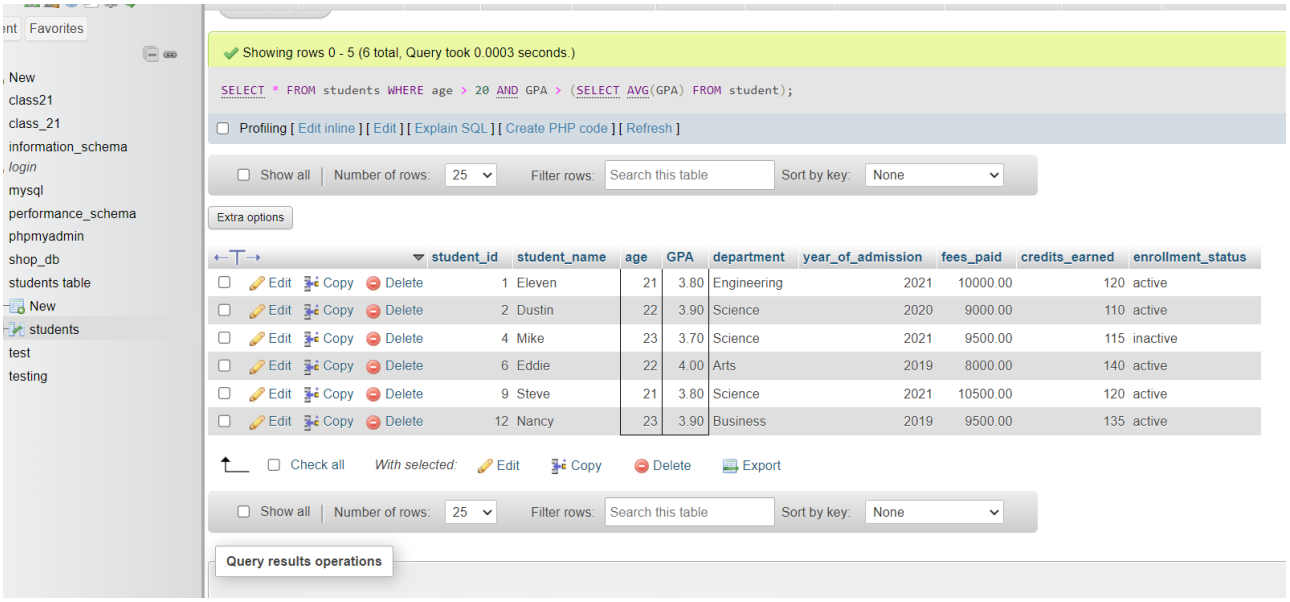
In summary, the objective of this table is to act as a repository for student-related data and provide the foundation for data manipulation and analysis in a school or university database system.

Query and Output:

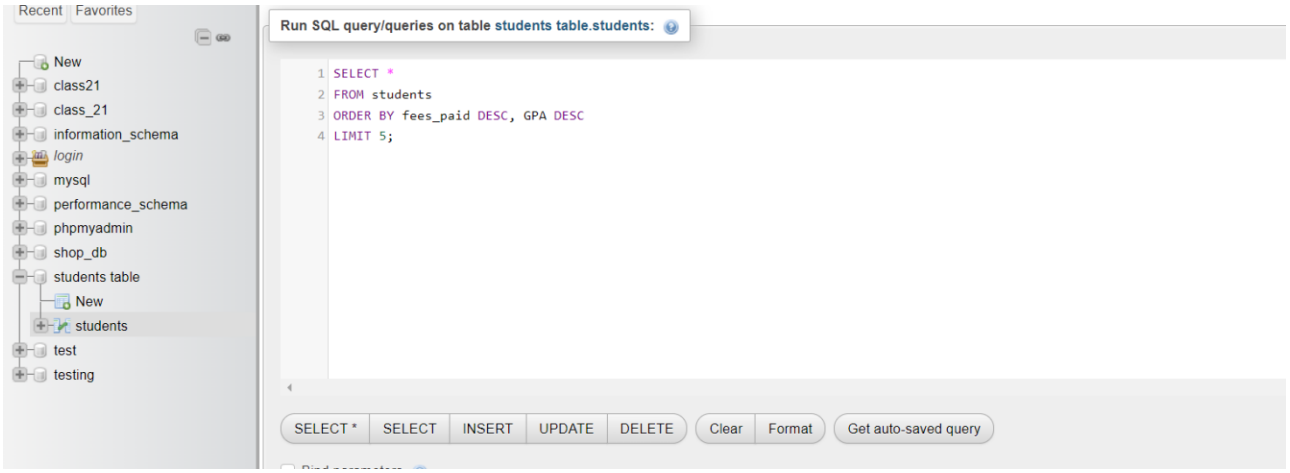
For task 1



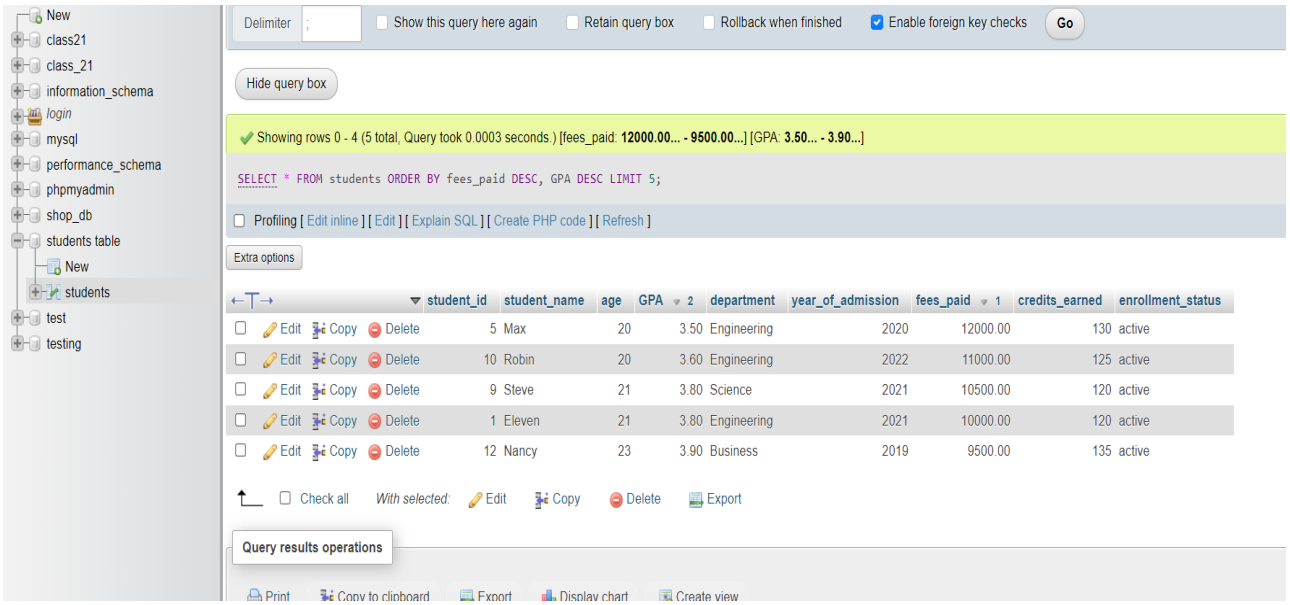
Output:



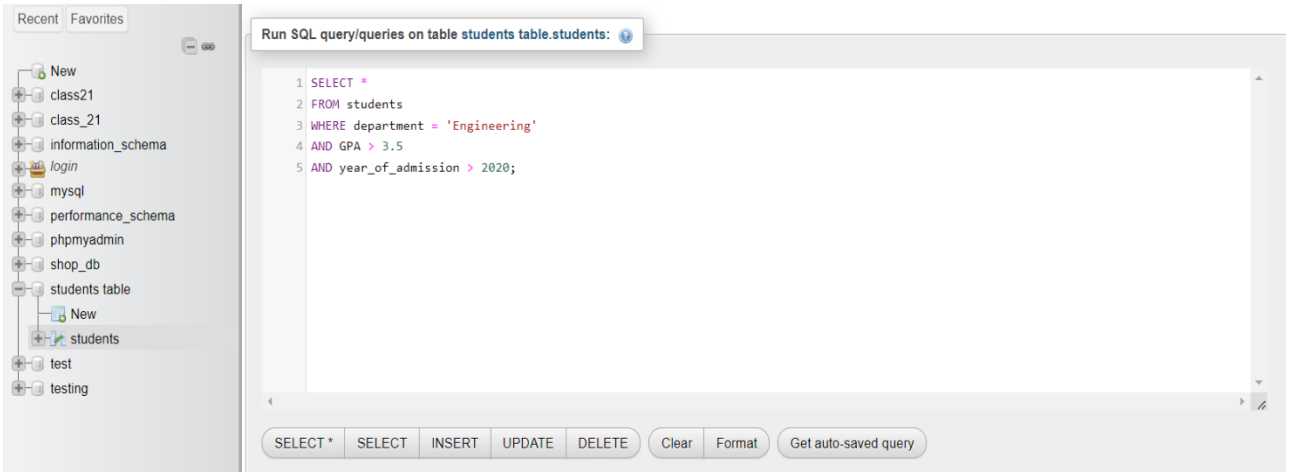
For task 2



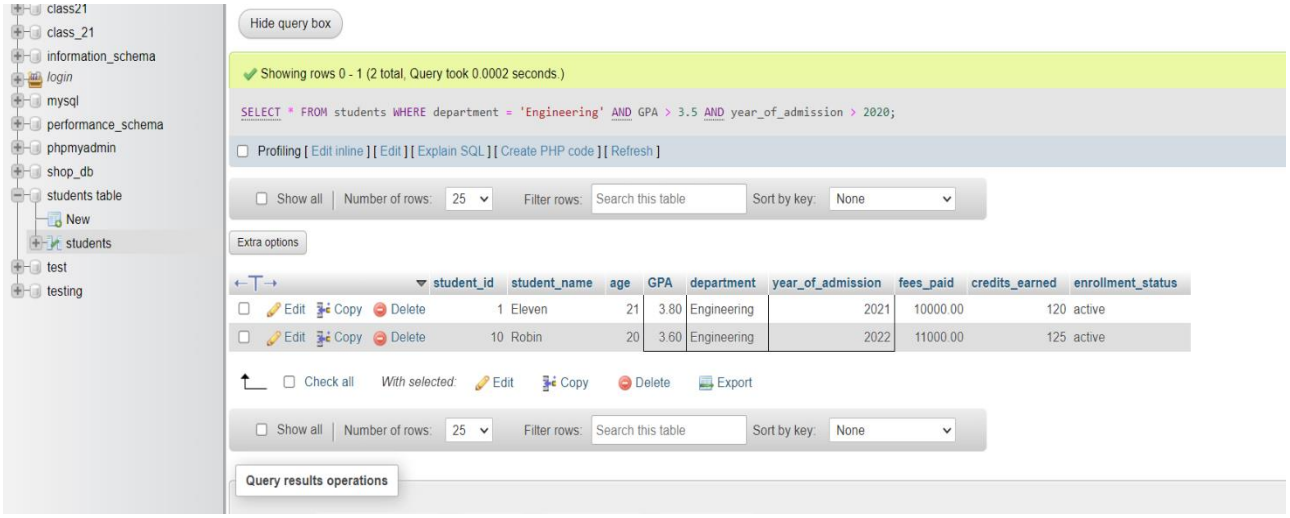
Output:



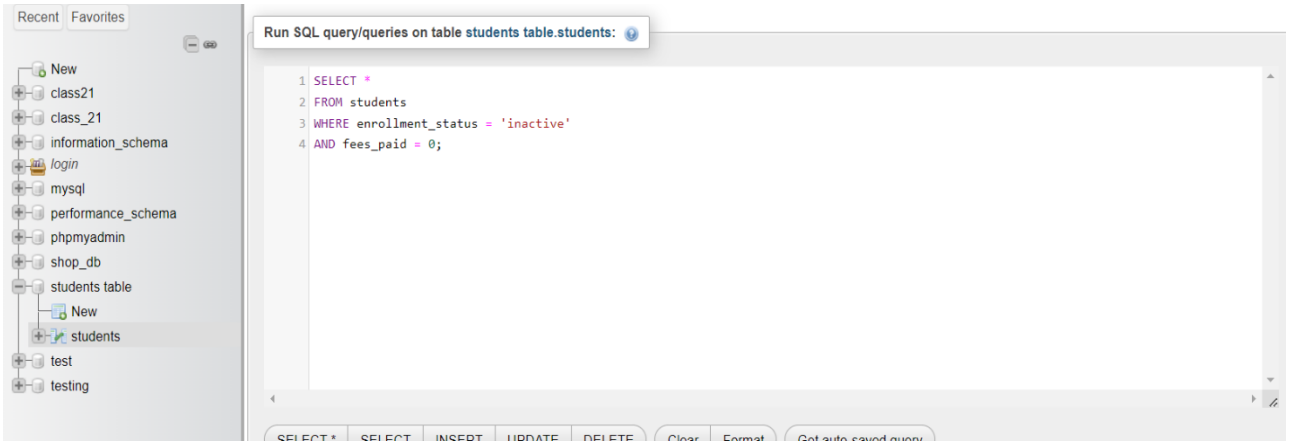
For task 3



Output:



For task 4



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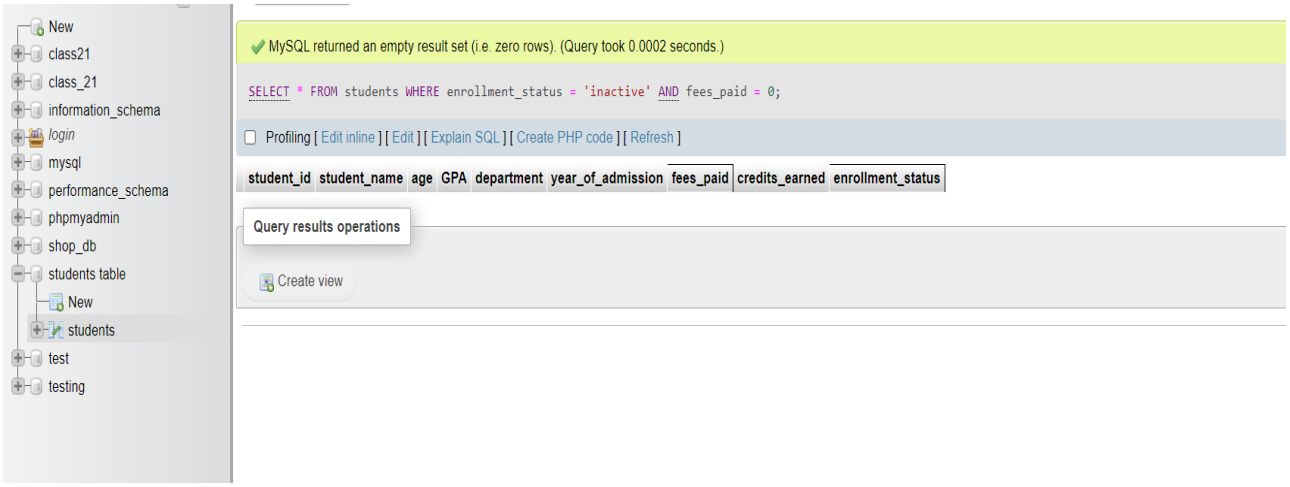
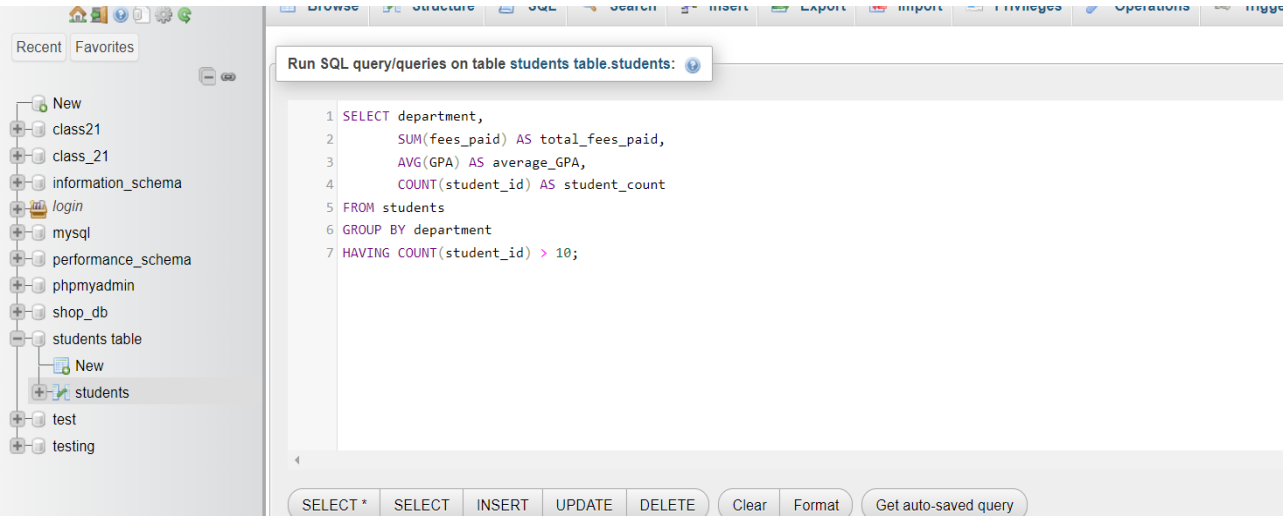


For task 5



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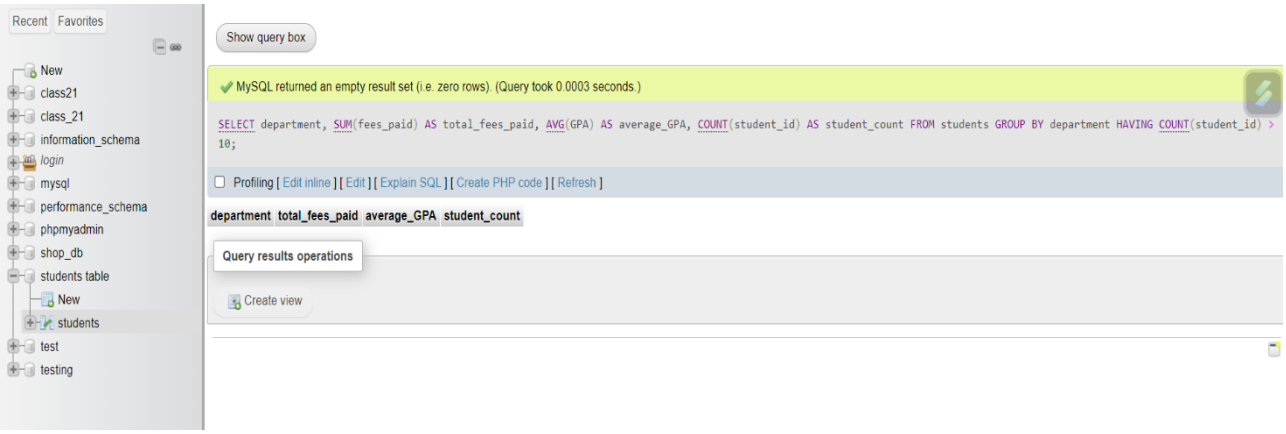

Discussion:

The student table is a structured repository for storing essential student information, including personal details, academic performance, financial contributions, and enrollment status. It enables educational institutions to efficiently manage and analyze data, such as tracking student progress through GPA and credits_earned, monitoring financial status with fees_paid, and identifying active or inactive students. This table facilitates complex queries for decision-making, allowing administrators to gain insights into academic performance, financial compliance, and departmental statistics, thereby supporting informed decisions and efficient resource management.