Heaven's light is our guide

RAJSHAHI UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Electrical & Computer Engineering

Course Code	**:**	ECE 2216
Course Name	**:**	Data Base Systems Sessional
Experiment No.	**:**	02
Date of Experiment	**:**	24 September 2024
Date of Submission	**:**	30 September 2024

Submitted by	**Submitted to**
Name: Mst. Sumaiya Mostary Esha Roll: 2110054 Session : 2021-2022	Oishi Jyoti Assistant Professor Electrical & Computer Engineering RUET

EXPERIMENT NO. : 02

EXPERIMENT NAME :
Creation of a database containing following info :

i)student_id
ii)student_name
iii)age
iv)GPA
v)department
vi)year_of_admission
vii)fees_paid
viii)credits_earned
ix)enrollment_status

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.

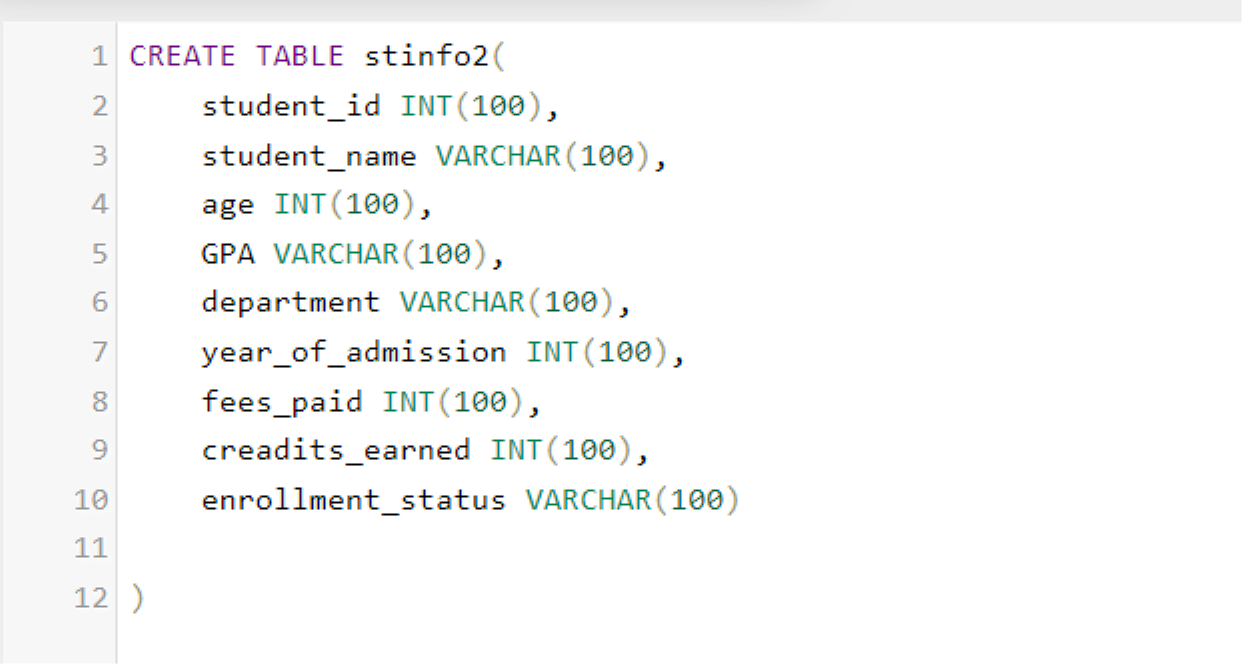
4)Find students who are not active (i.e., enrollment_status = 'inactive') and have not paid any fees (fees_paid = 0).

5)Calculate the total fees paid and average GPA for each department, but only for departments with more than 10 students :

OBJECTIVE :
-To get a good idea of Mysql Database.
-To learn how to create a database & efficient handling & management of a database.

QUERY & OUTPUT :

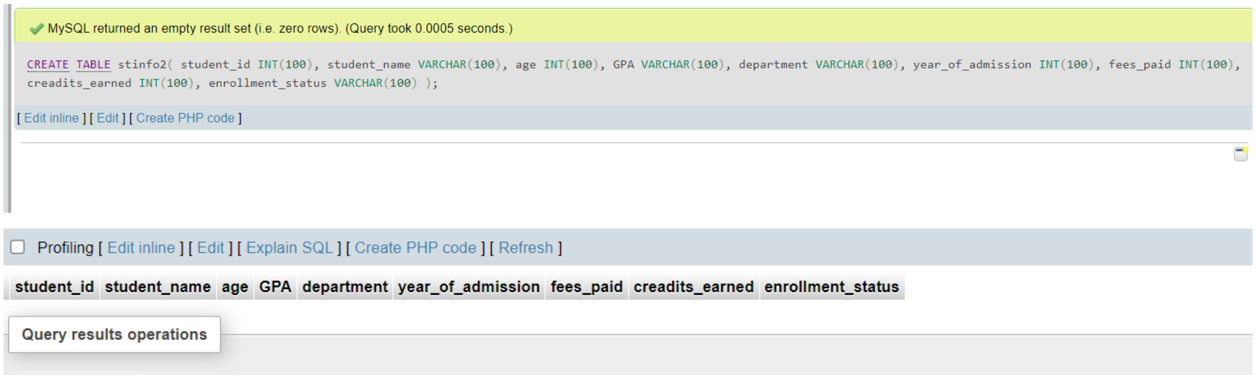
~ Query for creating Table :



```
CREATE TABLE stinfo2(
    student_id INT(100),
    student_name VARCHAR(100),
    age INT(100),
    GPA VARCHAR(100),
    department VARCHAR(100),
    year_of_admission INT(100),
    fees_paid INT(100),
    creadits_earned INT(100),
    enrollment_status VARCHAR(100)

)
```

~ <u>Output :</u>



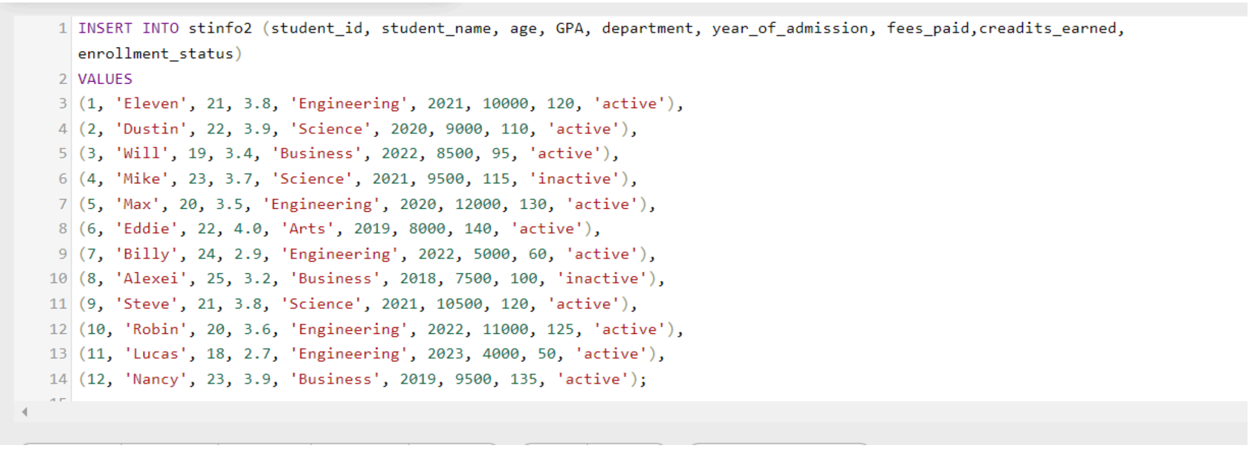
✓ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0005 seconds.)

```
CREATE TABLE stinfo2( student_id INT(100), student_name VARCHAR(100), age INT(100), GPA VARCHAR(100), department VARCHAR(100), year_of_admission INT(100), fees_paid INT(100),
creadits_earned INT(100), enrollment_status VARCHAR(100) );
```

[Edit inline] [Edit] [Create PHP code]
☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

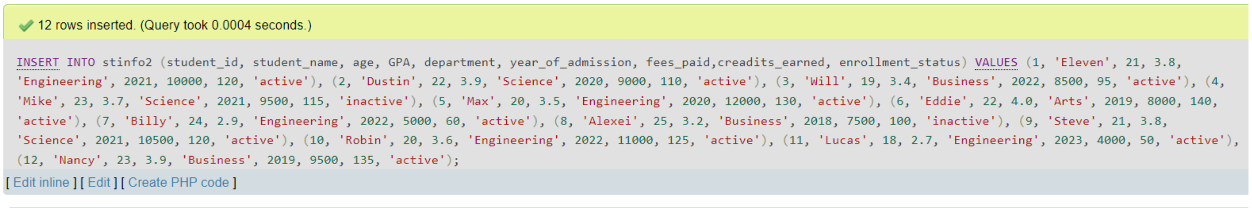
student_id	student_name	age	GPA	department	year_of_admission	fees_paid	creadits_earned	enrollment_status

<u>~ Query for inserting data in Table :</u>



```
INSERT INTO stinfo2 (student_id, student_name, age, GPA, department, year_of_admission, fees_paid,creadits_earned, enrollment_status)
VALUES
(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');
```

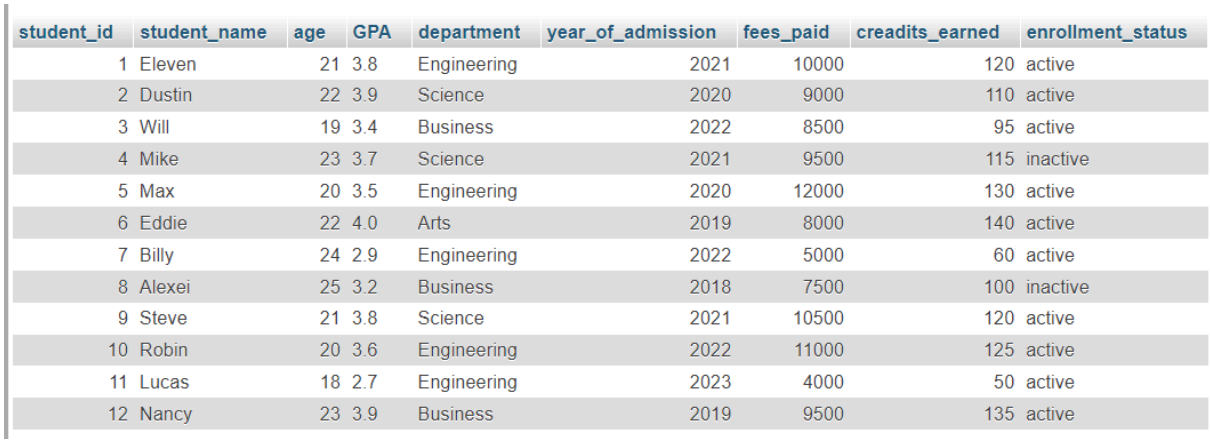
~ Output :



✓ 12 rows inserted. (Query took 0.0004 seconds.)

```
INSERT INTO stinfo2 (student_id, student_name, age, GPA, department, year_of_admission, fees_paid,creadits_earned, enrollment_status) VALUES (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');
```

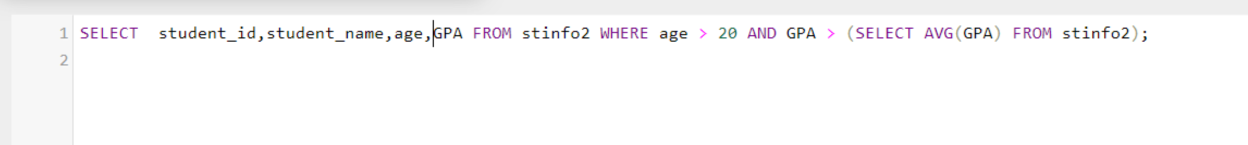
[Edit inline] [Edit] [Create PHP code]



student_id	student_name	age	GPA	department	year_of_admission	fees_paid	creadits_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

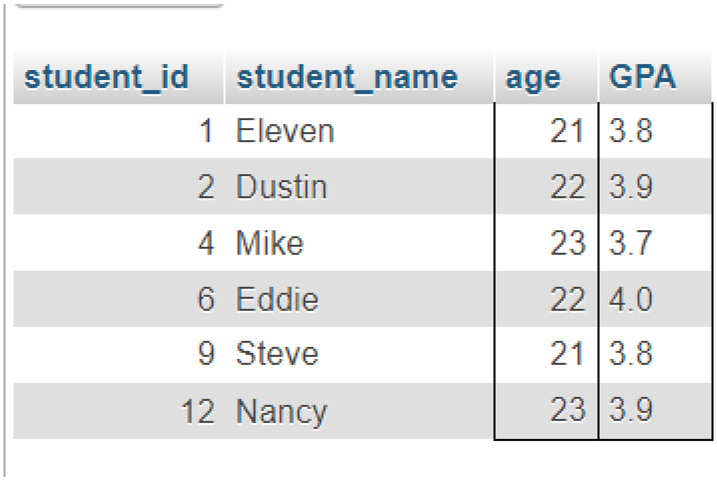
1)

~ Query to Find students who are older than 20 and have a GPA above the average GPA of all students :



```
SELECT  student_id,student_name,age,GPA FROM stinfo2 WHERE age > 20 AND GPA > (SELECT AVG(GPA) FROM stinfo2);
```

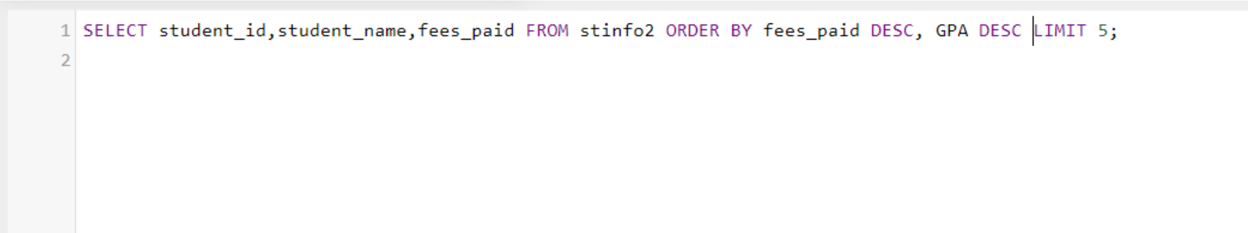
~OutPut :



student_id	student_name	age	GPA
1	Eleven	21	3.8
2	Dustin	22	3.9
4	Mike	23	3.7
6	Eddie	22	4.0
9	Steve	21	3.8
12	Nancy	23	3.9

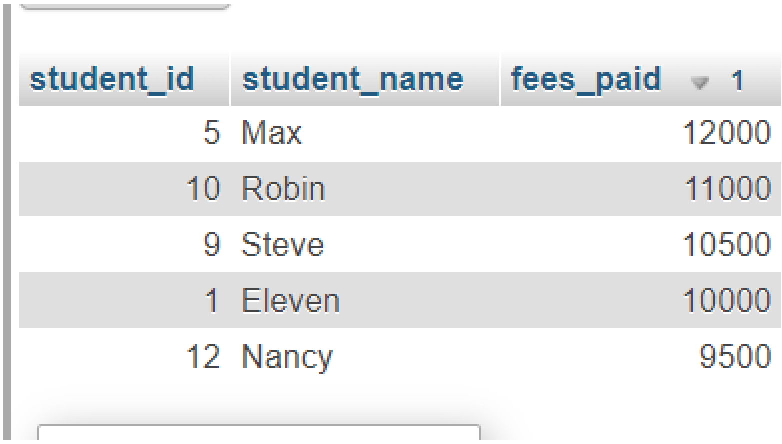
2)

~ Query to find the top 5 students with the highest fees paid, ordered by GPA (in descending order) as a tiebreaker:



```
SELECT student_id,student_name,fees_paid FROM stinfo2 ORDER BY fees_paid DESC, GPA DESC LIMIT 5;
```

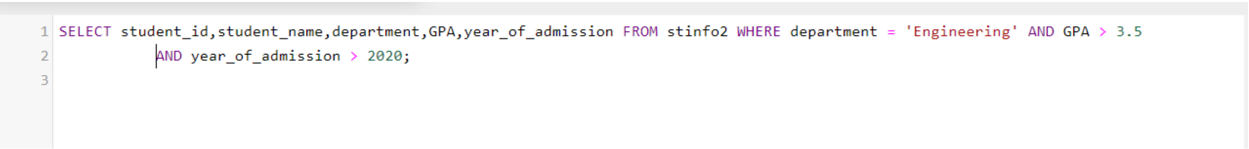
~OutPut :



student_id	student_name	fees_paid ▼ 1
5	Max	12000
10	Robin	11000
9	Steve	10500
1	Eleven	10000
12	Nancy	9500

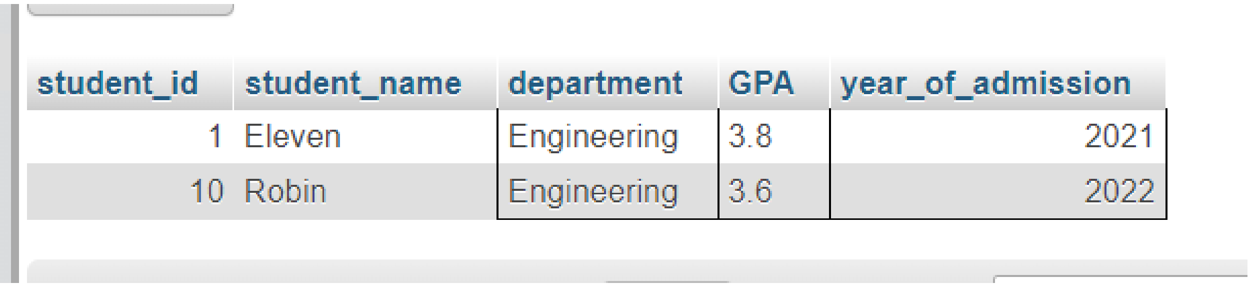
3)

~ Query to list students who belong to the "Engineering" department, have a GPA greater than 3.5, and are enrolled after 2020 :



```sql
SELECT student_id,student_name,department,GPA,year_of_admission FROM stinfo2 WHERE department = 'Engineering' AND GPA > 3.5
            AND year_of_admission > 2020;
```

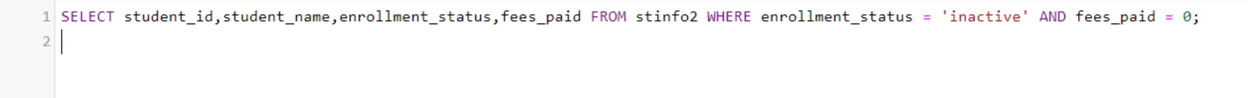
~OutPut :



student_id	student_name	department	GPA	year_of_admission
1	Eleven	Engineering	3.8	2021
10	Robin	Engineering	3.6	2022

4)

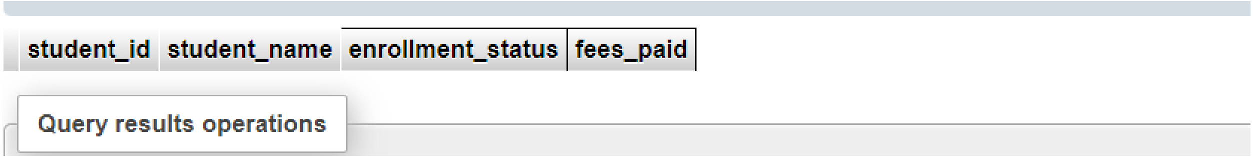
~ Query to find students who are not active (i.e., enrollment_status = 'inactive') and have not paid any fees (fees_paid = 0) :



```sql
SELECT student_id,student_name,enrollment_status,fees_paid FROM stinfo2 WHERE enrollment_status = 'inactive' AND fees_paid = 0;

```

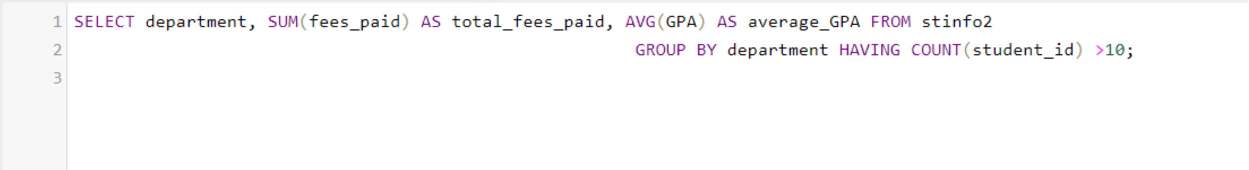
~OutPut :



student_id	student_name	enrollment_status	fees_paid

5)

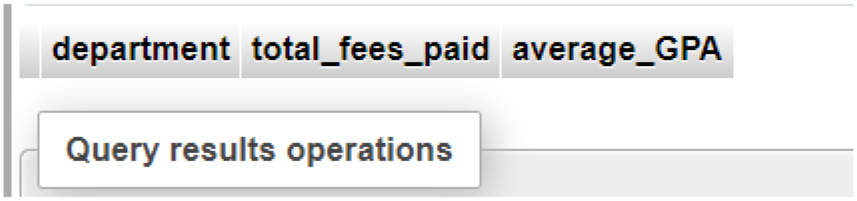
~ Query to calculate the total fees paid and average GPA for each department, but only for departments with more than 10 students :



```sql
SELECT department, SUM(fees_paid) AS total_fees_paid, AVG(GPA) AS average_GPA FROM stinfo2
                                                      GROUP BY department HAVING COUNT(student_id) >10;

```

~OutPut :



department	total_fees_paid	average_GPA