Project – Student Course Management System

You are required to create and query a mini relational database involving students and the courses they enroll in.

Identify tables with entity. Apply constraint on it. Minimum 3 tables require to perform the system successfully.

Tasks:

1. Create the tables

2. Insert at least 3–5 sample records in each table.

3. Write SQL queries for the following:

a. Display all student details.

b. Display the names of students from a specific city (e.g., 'Ahmedabad').

c. Display all course names whose fees are more than 5000.

d. List all students along with the course names they are enrolled in (Use equi join).

e. Count how many students are enrolled in each course.

f. Display total number of enrollments per city (Use GROUP BY).

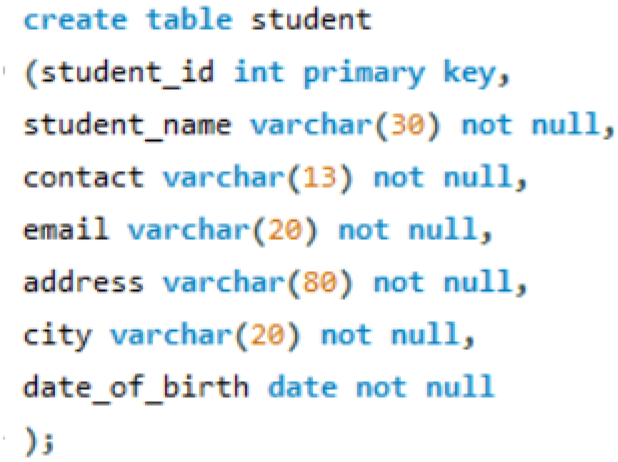
g. Display courses having more than 1 student enrolled (Use GROUP BY + HAVING).

h. List students and their total number of enrolled courses, sorted by name (Use GROUP BY + ORDER BY).

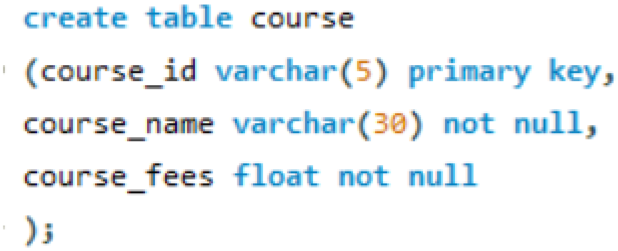
i. List all students with their course names ordered by enrollment date (Use ORDER BY).

j. Find the city with the highest number of enrolled students (Use GROUP BY, ORDER BY, LIMIT).

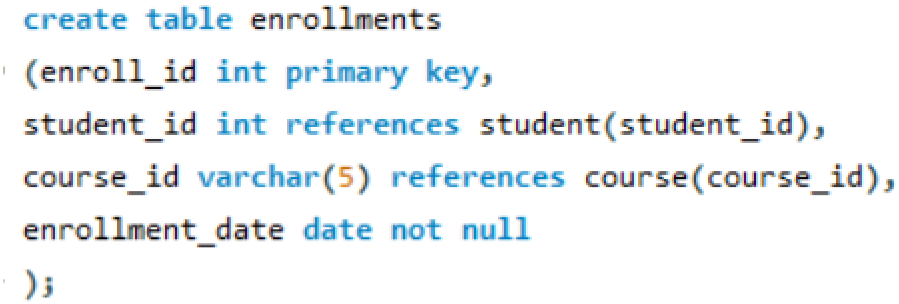
1. **Create the Tables**



```
create table student
(student_id int primary key,
student_name varchar(30) not null,
contact varchar(13) not null,
email varchar(20) not null,
address varchar(80) not null,
city varchar(20) not null,
date_of_birth date not null
);
```

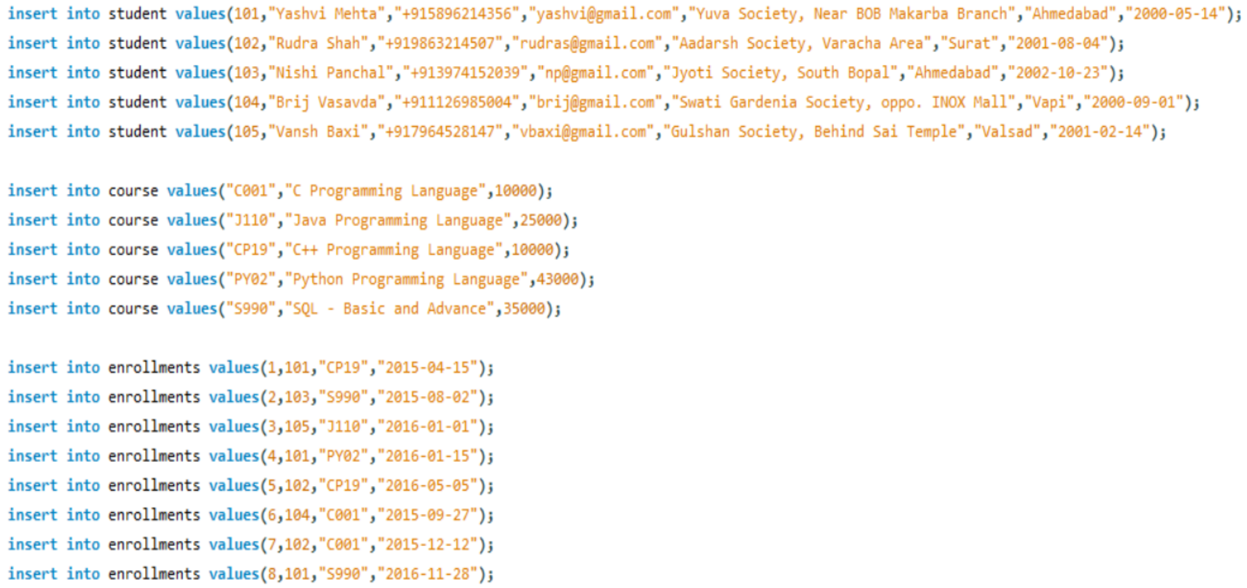


```
create table course
(course_id varchar(5) primary key,
course_name varchar(30) not null,
course_fees float not null
);
```



```
create table enrollments
(enroll_id int primary key,
student_id int references student(student_id),
course_id varchar(5) references course(course_id),
enrollment_date date not null
);
```

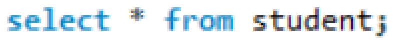
2. Insert at least 3–5 sample records in each table.



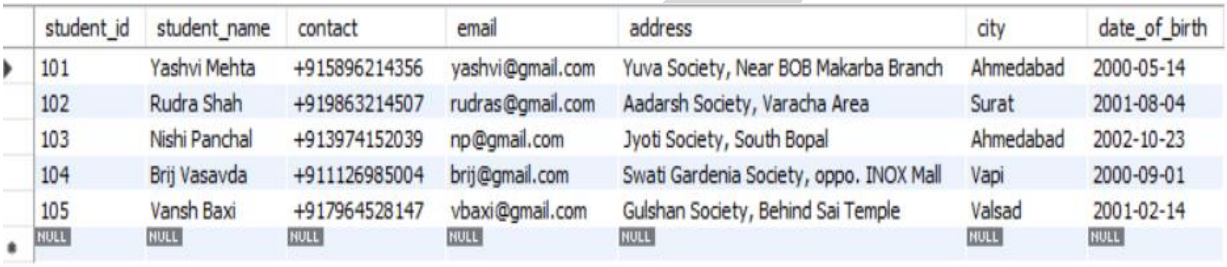
```
insert into student values(101,"Yashvi Mehta","+915896214356","yashvi@gmail.com","Yuva Society, Near BOB Makarba Branch","Ahmedabad","2000-05-14");
insert into student values(102,"Rudra Shah","+919863214507","rudras@gmail.com","Aadarsh Society, Varacha Area","Surat","2001-08-04");
insert into student values(103,"Nishi Panchal","+913974152039","np@gmail.com","Jyoti Society, South Bopal","Ahmedabad","2002-10-23");
insert into student values(104,"Brij Vasavda","+911126985004","brij@gmail.com","Swati Gardenia Society, oppo. INOX Mall","Vapi","2000-09-01");
insert into student values(105,"Vansh Baxi","+917964528147","vbaxi@gmail.com","Gulshan Society, Behind Sai Temple","Valsad","2001-02-14");

insert into course values("C001","C Programming Language",10000);
insert into course values("J110","Java Programming Language",25000);
insert into course values("CP19","C++ Programming Language",10000);
insert into course values("PY02","Python Programming Language",43000);
insert into course values("S990","SQL - Basic and Advance",35000);

insert into enrollments values(1,101,"CP19","2015-04-15");
insert into enrollments values(2,103,"S990","2015-08-02");
insert into enrollments values(3,105,"J110","2016-01-01");
insert into enrollments values(4,101,"PY02","2016-01-15");
insert into enrollments values(5,102,"CP19","2016-05-05");
insert into enrollments values(6,104,"C001","2015-09-27");
insert into enrollments values(7,102,"C001","2015-12-12");
insert into enrollments values(8,101,"S990","2016-11-28");
```

3. Write SQL queries for the following:

a. Display all student details.

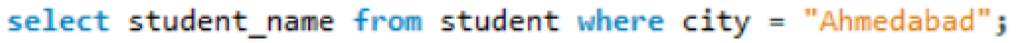


```sql
select * from student;
```

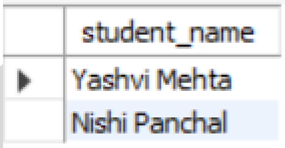


student_id	student_name	contact	email	address	city	date_of_birth
101	Yashvi Mehta	+915896214356	yashvi@gmail.com	Yuva Society, Near BOB Makarba Branch	Ahmedabad	2000-05-14
102	Rudra Shah	+919863214507	rudras@gmail.com	Aadarsh Society, Varacha Area	Surat	2001-08-04
103	Nishi Panchal	+913974152039	np@gmail.com	Jyoti Society, South Bopal	Ahmedabad	2002-10-23
104	Brij Vasavda	+911126985004	brij@gmail.com	Swati Gardenia Society, oppo. INOX Mall	Vapi	2000-09-01
105	Vansh Baxi	+917964528147	vbaxi@gmail.com	Gulshan Society, Behind Sai Temple	Valsad	2001-02-14
NULL	NULL	NULL	NULL	NULL	NULL	NULL

b. Display the names of students from a specific city (e.g., 'Ahmedabad').

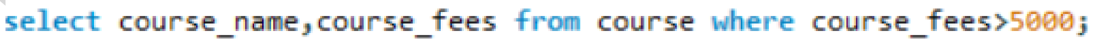


```sql
select student_name from student where city = "Ahmedabad";
```

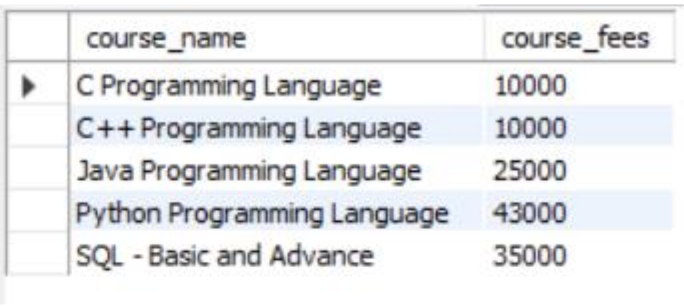


student_name
Yashvi Mehta
Nishi Panchal

c. Display all course names whose fees are more than 5000.

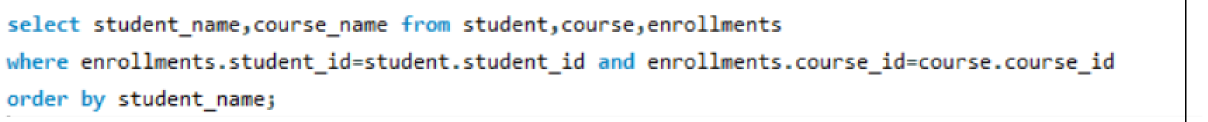


```sql
select course_name,course_fees from course where course_fees>5000;
```

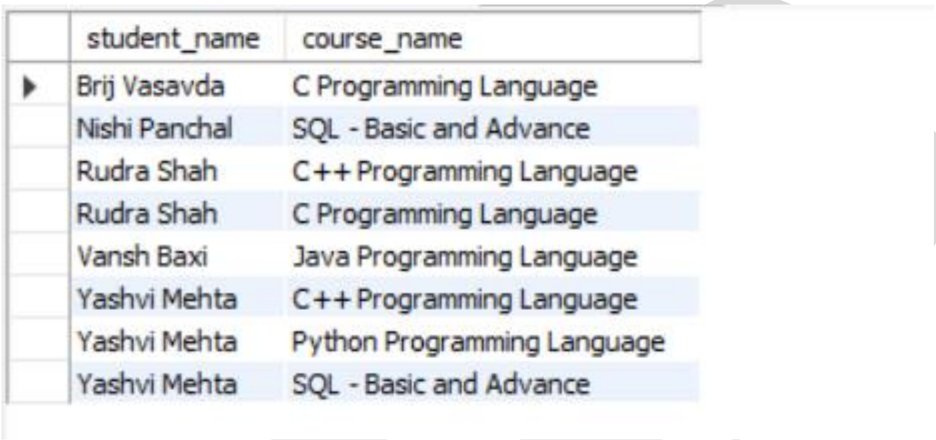


course_name	course_fees
C Programming Language	10000
C++ Programming Language	10000
Java Programming Language	25000
Python Programming Language	43000
SQL - Basic and Advance	35000

d. List all students along with the course names they are enrolled in (Use equi join).

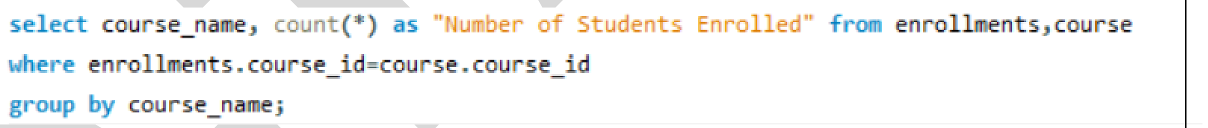


```
select student_name,course_name from student,course,enrollments
where enrollments.student_id=student.student_id and enrollments.course_id=course.course_id
order by student_name;
```

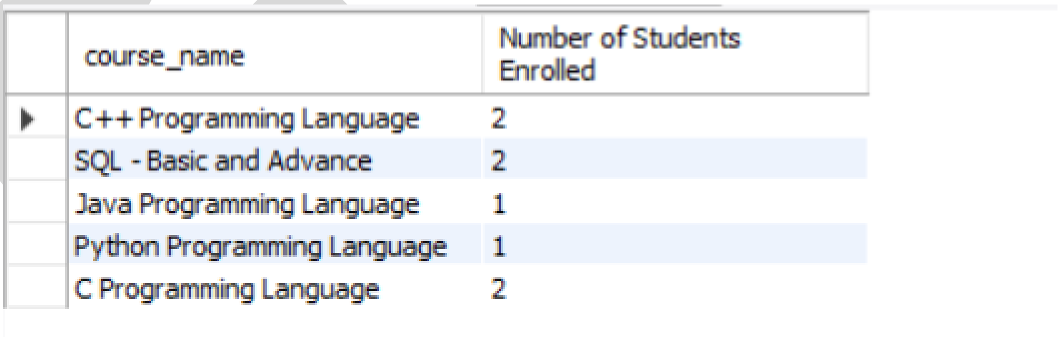


	student_name	course_name
▶	Brij Vasavda	C Programming Language
	Nishi Panchal	SQL - Basic and Advance
	Rudra Shah	C++ Programming Language
	Rudra Shah	C Programming Language
	Vansh Baxi	Java Programming Language
	Yashvi Mehta	C++ Programming Language
	Yashvi Mehta	Python Programming Language
	Yashvi Mehta	SQL - Basic and Advance

e. Count how many students are enrolled in each course.

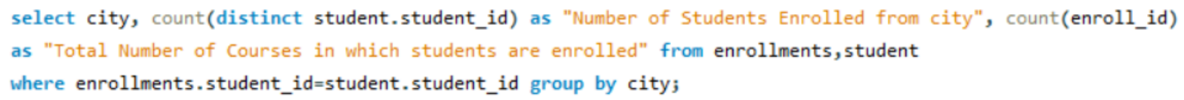


```
select course_name, count(*) as "Number of Students Enrolled" from enrollments,course
where enrollments.course_id=course.course_id
group by course_name;
```

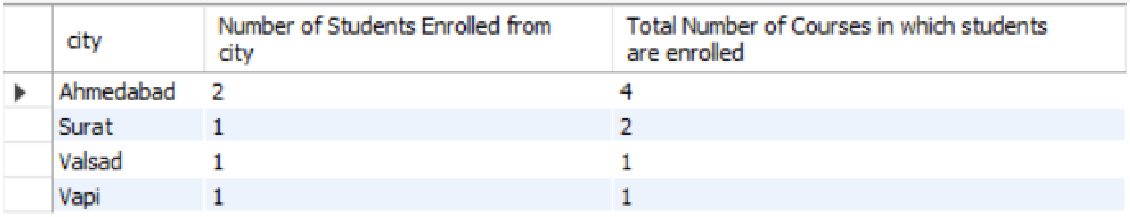


	course_name	Number of Students Enrolled
▶	C++ Programming Language	2
	SQL - Basic and Advance	2
	Java Programming Language	1
	Python Programming Language	1
	C Programming Language	2

f. Display total number of enrollments per city (Use GROUP BY).

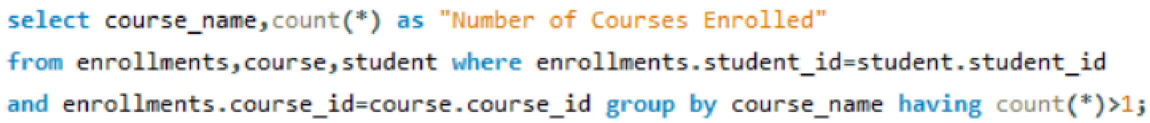


```
select city, count(distinct student.student_id) as "Number of Students Enrolled from city", count(enroll_id)
as "Total Number of Courses in which students are enrolled" from enrollments,student
where enrollments.student_id=student.student_id group by city;
```

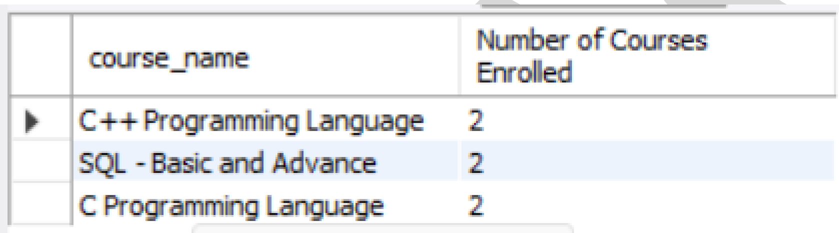


	city	Number of Students Enrolled from city	Total Number of Courses in which students are enrolled
▶	Ahmedabad	2	4
	Surat	1	2
	Valsad	1	1
	Vapi	1	1

g. Display courses having more than 1 student enrolled (Use GROUP BY + HAVING).

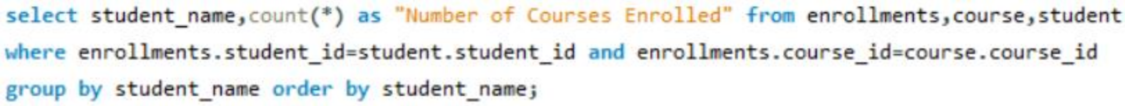


```
select course_name,count(*) as "Number of Courses Enrolled"
from enrollments,course,student where enrollments.student_id=student.student_id
and enrollments.course_id=course.course_id group by course_name having count(*)>1;
```

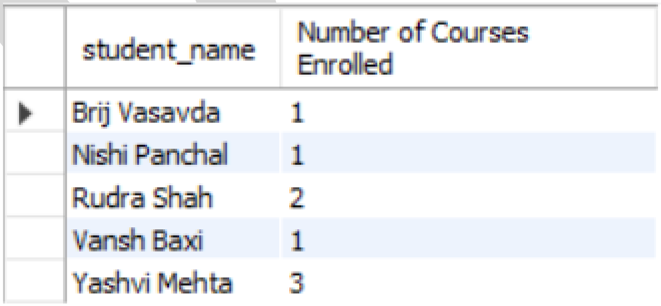


	course_name	Number of Courses Enrolled
▶	C++ Programming Language	2
	SQL - Basic and Advance	2
	C Programming Language	2

h. List students and their total number of enrolled courses, sorted by name (Use GROUP BY + ORDER BY).

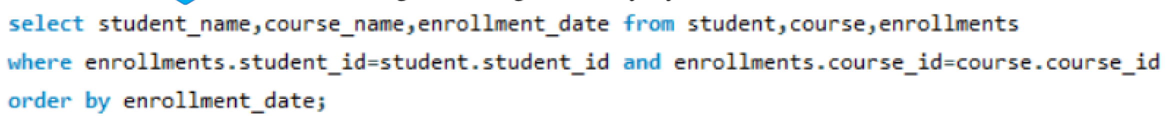


```
select student_name,count(*) as "Number of Courses Enrolled" from enrollments,course,student
where enrollments.student_id=student.student_id and enrollments.course_id=course.course_id
group by student_name order by student_name;
```

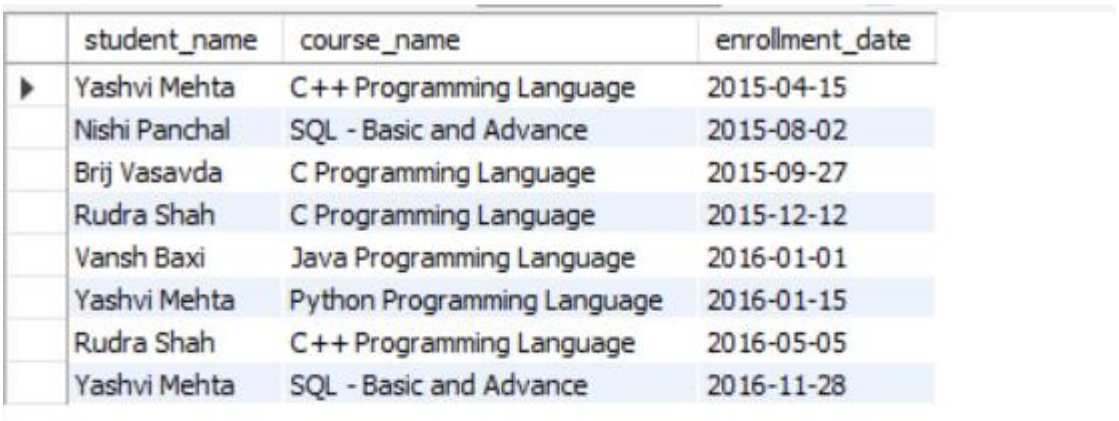


	student_name	Number of Courses Enrolled
▶	Brij Vasavda	1
	Nishi Panchal	1
	Rudra Shah	2
	Vansh Baxi	1
	Yashvi Mehta	3

i. List all students with their course names ordered by enrollment date (Use ORDER BY).

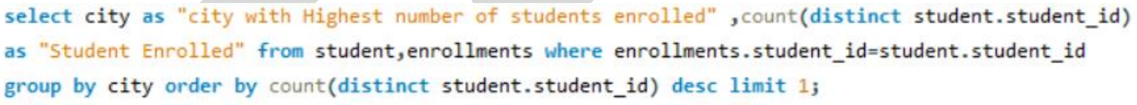


```
select student_name,course_name,enrollment_date from student,course,enrollments
where enrollments.student_id=student.student_id and enrollments.course_id=course.course_id
order by enrollment_date;
```

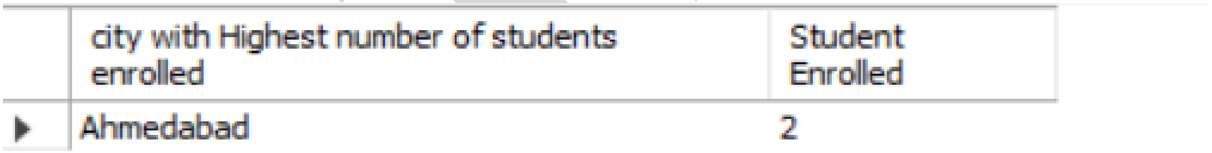


student_name	course_name	enrollment_date
Yashvi Mehta	C++ Programming Language	2015-04-15
Nishi Panchal	SQL - Basic and Advance	2015-08-02
Brij Vasavda	C Programming Language	2015-09-27
Rudra Shah	C Programming Language	2015-12-12
Vansh Baxi	Java Programming Language	2016-01-01
Yashvi Mehta	Python Programming Language	2016-01-15
Rudra Shah	C++ Programming Language	2016-05-05
Yashvi Mehta	SQL - Basic and Advance	2016-11-28

j. Find the city with the highest number of enrolled students (Use GROUP BY, ORDER BY, LIMIT).



```
select city as "city with Highest number of students enrolled" ,count(distinct student.student_id)
as "Student Enrolled" from student,enrollments where enrollments.student_id=student.student_id
group by city order by count(distinct student.student_id) desc limit 1;
```



city with Highest number of students enrolled	Student Enrolled
Ahmedabad	2