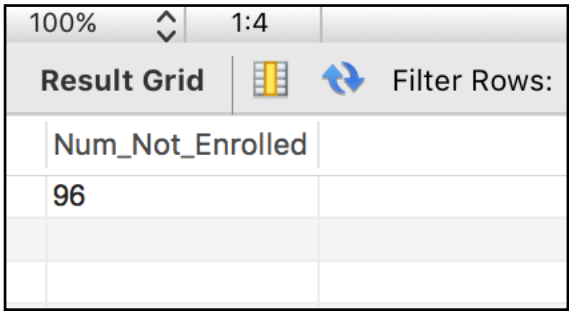
1. How many students are in the database but have not enrolled into any subjects?

Query:

```
select count(*) as Num_Not_Enrolled
from Student
left join StudentTakesSubject
on Student.id = StudentTakesSubject.student
where StudentTakesSubject.student is null;
```

Screenshot:



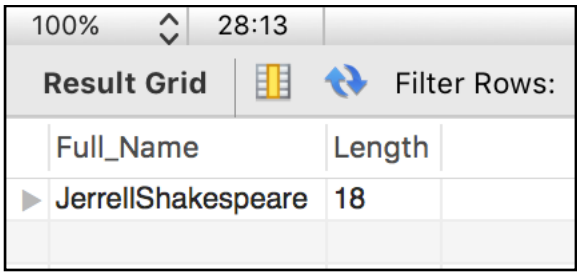
1 Row Returned

2. Which student has the longest name (sum of first and last names)? Print the student's name and its length.

Query:

```
select concat(firstname, lastname) as Full_Name, length(concat(firstname, lastname)) as Length
from Student
order by length(Full_Name) desc limit 1;
```

Screenshot:



1 Row Returned

3. For each letter of the alphabet, print how many suburbs begin with that letter.

Query:

```
select left(name,1) as First_Char, count(left(name,1)) as Char_Count
from Suburb
group by First_Char;
```

Screenshot:

Result Grid

First_Char	Char_Count
A	18
B	23
C	19
D	2
E	3
F	5
G	5
H	6
K	5
L	1

21 Row Returned

4. Which suburbs do most students live in? List the top 3 in descending order, showing postcode, suburb name, and number of students living there.

Query:

```
select Suburb.postcode, Suburb.name, count(Student.id) as Resident_Num  from Student
right join Suburb
on Student.postcode = Suburb.postcode
group by Suburb.name, Suburb.postcode
order by Resident_Num desc limit 3;
```

Screenshot:

Result Grid Filter Rows:

postcode	name	Resident_Num
3072	GILBERTON	20
3170	MULGRAVE	9
3195	ASPENDALE	6

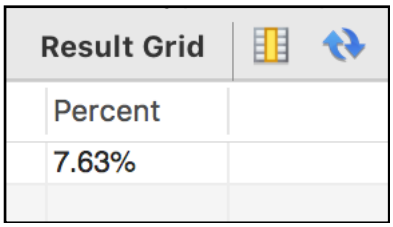
3 Row Returned

5. What percentage of suburb names contain the string 'MELBOURNE'? Show 2 decimal points in your answer.

Query:

```
select
concat(
        format(
                (select count(name)
                 from Suburb
                where name like "%MELBOURNE%")*100 /*count the number of suburbs matching
the pattern*/
                /
                (select count(name) from Suburb) /*count the number of total suburbs*/
                ,2), /*format the result to 2 decimal point*/
'%') /*add in the % sign*/
as Percent
from Suburb
group by Percent;
```

Screenshot:



Result Grid	
Percent	
7.63%	

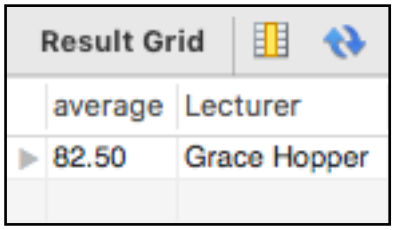
1 Row Returned

6. Which lecturer is associated with the highest average student result, averaged across all the subjects they teach?

Query:

```
select
format(avg(T.result), 2) as average,
concat(L.firstname, " ", L.lastname) as Lecturer
from Lecturer L
left join Subject S
on L.id = S.Lecturer
left join StudentTakesSubject T
on S.area = T.area
and S.yearlevel = T.yearlevel
and S.code = T.code
group by L.firstname, L.lastname
order by average desc limit 1;
```

Screenshot:



Result Grid	
average	Lecturer
82.50	Grace Hopper

1 Row Returned

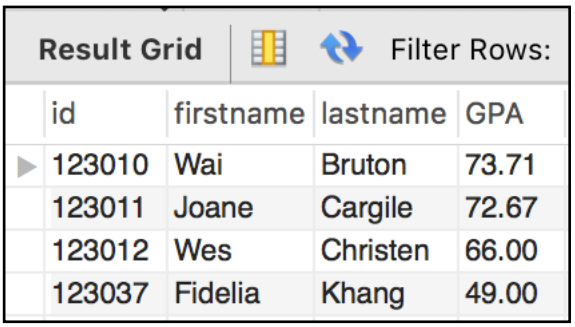
7. Print a list of students, showing studentid and lastname, along with the number of subjects that student has taken, and their Grade Point Average (average of results weighted by credit points). Don't include subjects without results.

Query:

```
select
U.id,
U.firstname,
U.lastname,
format(sum(T.result*S.creditpoints)/sum(S.creditpoints),2) as GPA
from Student U
inner join StudentTakesSubject T
on U.id = T.student
inner join Subject S
on T.area = S.area
and T.yearlevel = S.yearlevel
and T.code = S.code
```

```
where T.result is not null
group by U.id, U.firstname, U.lastname;
```

Screenshot:



Result Grid | Filter Rows:

id	firstname	lastname	GPA
123010	Wai	Bruton	73.71
123011	Joane	Cargile	72.67
123012	Wes	Christen	66.00
123037	Fidelia	Khang	49.00

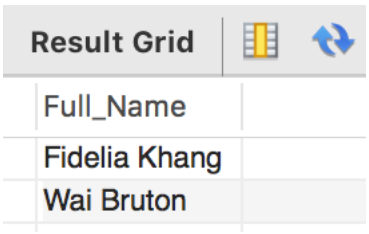
4 Row Returned

8. Which students have repeated a subject? Print their full names.

Query:

```
select
concat(S.firstname, " ", S.lastname) as Full_Name
from Student S
inner join StudentTakesSubject T
on S.id = T.student
group by S.firstname, S.lastname
having count(T.code) != count(distinct T.code);
```

Screenshot:



Result Grid

Full_Name
Fidelia Khang
Wai Bruton

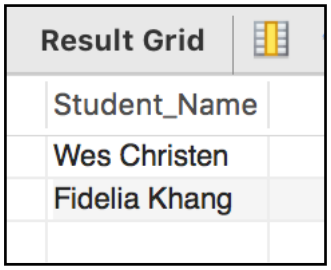
2 Row Returned

9. Of the students who have enrolled in at least one subject, which of them have never received a result greater than 80?

Query:

```
select
distinct concat(firstname, " ", lastname) as Student_Name
from Student S
right join StudentTakesSubject T
on S.id = T.student
where S.id not in
        (select S.id
        from Student S
        right join StudentTakesSubject T
        on S.id = T.student
        where T.result >= 80)
```

Screenshot:



Result Grid
Student_Name
Wes Christen
Fidelia Khang

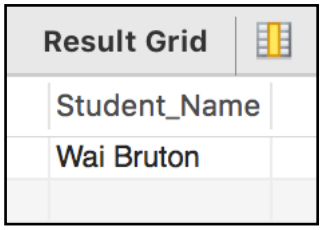
2 Row Returned

10.Print a list of any students who have enrolled in all available subjects.

Query:

```
select
concat(S.firstname, " ", S.lastname) as Student_Name
from Subject
left join StudentTakesSubject T
on Subject.code = T.code
left join Student S
on S.id = T.student
where T.code in
        (select distinct code from Subject)
        group by S.firstname, S.lastname
        having count(distinct T.code) =
                (select
      count(distinct code)
      from Subject);
```

Screenshot:



Result Grid
Student_Name
Wai Bruton

1 Row Returned