Lab 3 - SQL

1- Display the department names and the names of the city they are in.

```
select department_name,city

from iti.departments,iti.locations

where iti.departments.location_id=iti.locations.location_id;
```

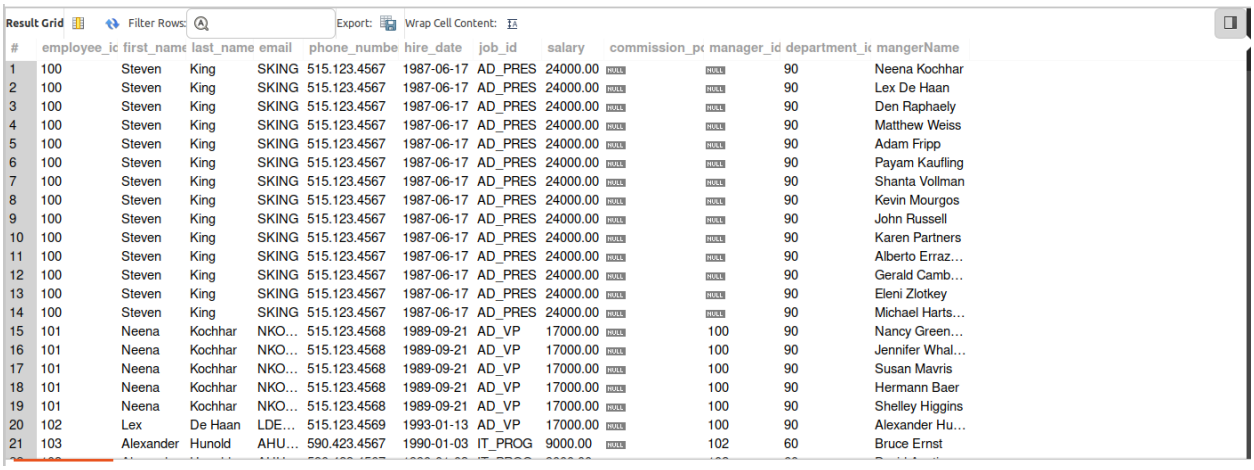
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

#	department_name	city
1	Administration	Seattle
2	Marketing	Toronto
3	Purchasing	Seattle
4	Human Resources	London
5	Shipping	South San Francisco
6	IT	Southlake
7	Public Relations	Munich
8	Sales	Oxford

Result 57

2- Display the full data about all employees along with the name of the employee they report to.

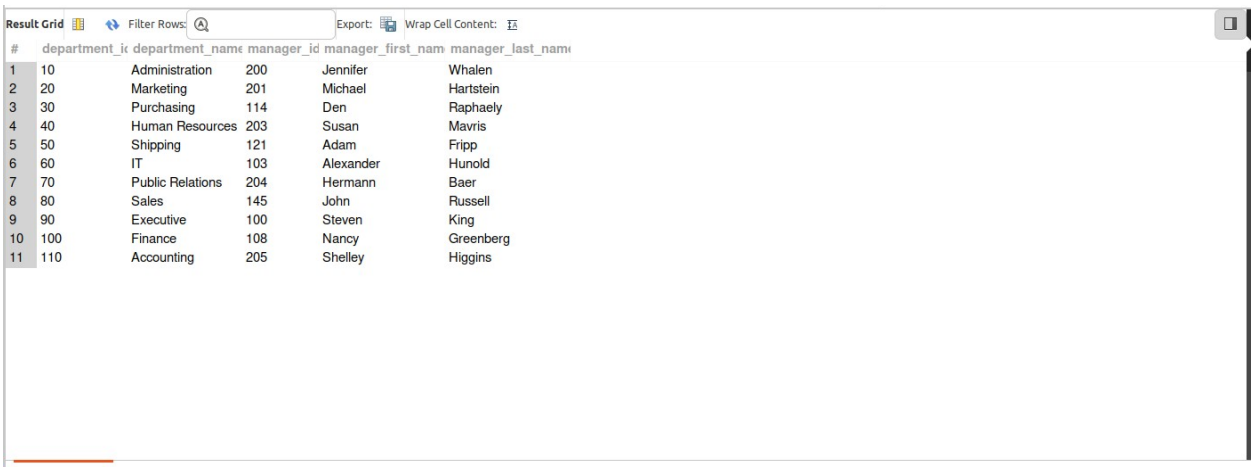
```
SELECT emp.*,concat(m.first_name,' ',m.last_name) as mangerName

FROM iti.employees emp LEFT JOIN iti.employees m

ON  emp.employee_id= m.manager_id;
```



#	employee_ic	first_name	last_name	email	phone_numbe	hire_date	job_id	salary	commission_pc	manager_id	department_ic	mangerName
1	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Neena Kochhar
2	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Lex De Haan
3	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Den Raphaely
4	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Matthew Weiss
5	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Adam Fripp
6	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Payam Kaufling
7	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Shanta Vollman
8	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Kevin Mourgos
9	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	John Russell
10	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Karen Partners
11	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Alberto Erraz…
12	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Gerald Camb…
13	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Eleni Zlotkey
14	100	Steven	King	SKING	515.123.4567	1987-06-17	AD_PRES	24000.00	NULL	NULL	90	Michael Harts…
15	101	Neena	Kochhar	NKO…	515.123.4568	1989-09-21	AD_VP	17000.00	NULL	100	90	Nancy Green…
16	101	Neena	Kochhar	NKO…	515.123.4568	1989-09-21	AD_VP	17000.00	NULL	100	90	Jennifer Whal…
17	101	Neena	Kochhar	NKO…	515.123.4568	1989-09-21	AD_VP	17000.00	NULL	100	90	Susan Mavris
18	101	Neena	Kochhar	NKO…	515.123.4568	1989-09-21	AD_VP	17000.00	NULL	100	90	Hermann Baer
19	101	Neena	Kochhar	NKO…	515.123.4568	1989-09-21	AD_VP	17000.00	NULL	100	90	Shelley Higgins
20	102	Lex	De Haan	LDE…	515.123.4569	1993-01-13	AD_VP	17000.00	NULL	100	90	Alexander Hu…
21	103	Alexander	Hunold	AHU…	590.423.4567	1990-01-03	IT_PROG	9000.00	NULL	102	60	Bruce Ernst

3- Display the department ID, department name, manager ID, and the name of the manager.

```
select d.department_id, d.department_name, d.manager_id,
    e.first_name AS manager_first_name, e.last_name AS manager_last_name
from iti.departments d,iti.employees e
where d.manager_id=e.employee_id;
#OR
SELECT d.department_id, d.department_name, d.manager_id,
    e.first_name AS manager_first_name, e.last_name AS manager_last_name
FROM iti.departments d
JOIN iti.employees e ON d.manager_id = e.employee_id;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

#	department_id	department_name	manager_id	manager_first_name	manager_last_name
1	10	Administration	200	Jennifer	Whalen
2	20	Marketing	201	Michael	Hartstein
3	30	Purchasing	114	Den	Raphaely
4	40	Human Resources	203	Susan	Mavris
5	50	Shipping	121	Adam	Fripp
6	60	IT	103	Alexander	Hunold
7	70	Public Relations	204	Hermann	Baer
8	80	Sales	145	John	Russell
9	90	Executive	100	Steven	King
10	100	Finance	108	Nancy	Greenberg
11	110	Accounting	205	Shelley	Higgins

4- Display (Using Union Function)

a. The last name and the job id of the employees works in dept 30

b. The last name and the job id of the employees works in dept 60

```
SELECT last_name, job_id,department_id

FROM iti.employees

WHERE department_id = 30

UNION

SELECT last_name, job_id,department_id

FROM iti.employees

WHERE department_id = 60;
```

#	last_name	job_id	department_ic
1	Raphaely	PU_MAN	30
2	Khoo	PU_CLERK	30
3	Baida	PU_CLERK	30
4	Tobias	PU_CLERK	30
5	Himuro	PU_CLERK	30
6	Colmenares	PU_CLERK	30
7	Hunold	IT_PROG	60
8	Ernst	IT_PROG	60
9	Austin	IT_PROG	60
10	Pataballa	IT_PROG	60
11	Lorentz	IT_PROG	60

5- Display the ID, name, and location of the departments in Roma or Toronto city.

```
select d.department_id,d.department_name,d.location_id,city
from iti.departments d ,iti.locations c
where d.location_id=c.location_id
and c.city IN ('Roma', 'Toronto');
```

#	department_ic	department_name	location_ic	city
1	20	Marketing	1800	Toronto

6- Display the full data of the departments with names that start with the letter "a".

 # if he means employee name beguin with a

*select **

from iti.departments ,iti.employees

where iti.departments.department_id=iti.employees.department_id and first_name like 'a%' ;

 # if he means department name beguin with a

*select **

from iti.departments ,iti.employees

where iti.departments.department_id=iti.employees.department_id and department_name like 'a%' ;

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

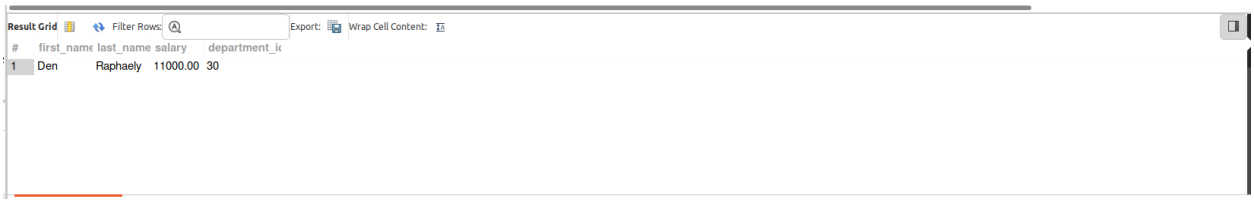
#	department_id	department_name	manager_id	location_id	employee_id	first_name	last_name	email	phone_number	hire_date	job_id	salary	commission_pct	manager_id	department_id
1	60	IT	103	1400	103	Alexander	Hunold	AHUNOLD	590.423.4567	1990-01-03	IT_PROG	9000.00	NULL	102	60
2	30	Purchasing	114	1700	115	Alexander	Khoo	AKHOO	515.127.4562	1995-05-18	PU_CLERK	3100.00	NULL	114	30
3	50	Shipping	121	1500	121	Adam	Fripp	AFRIPP	650.123.2234	1997-04-10	ST_MAN	8200.00	NULL	100	50
4	80	Sales	145	2500	147	Alberto	Errazuriz	AERRAZUR	011.44.1344.429278	1997-03-10	SA_MAN	12000.00	0.30	100	80
5	80	Sales	145	2500	158	Allan	McEwen	AMCEWEN	011.44.1345.829268	1996-08-01	SA_REP	9000.00	0.35	146	80
6	80	Sales	145	2500	167	Amit	Banda	ABANDA	011.44.1346.729268	1996-04-21	SA_REP	6200.00	0.10	147	80
7	80	Sales	145	2500	175	Alyssa	Hutton	AHUTTON	011.44.1644.429266	1997-03-19	SA_REP	8800.00	0.25	149	80
8	50	Shipping	121	1500	185	Alexis	Bull	ABULL	650.509.2876	1998-02-20	SH_CLERK	4100.00	NULL	121	50

7- Display all the employees in department 30 whose salary is between 7000 to 15000.

select first_name,last_name,salary,department_id

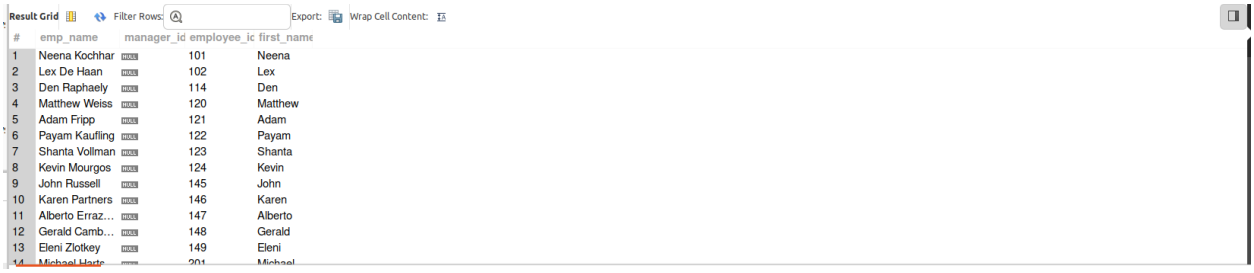
from iti.employees

where department_id =30 and salary between 7000 and 15000;



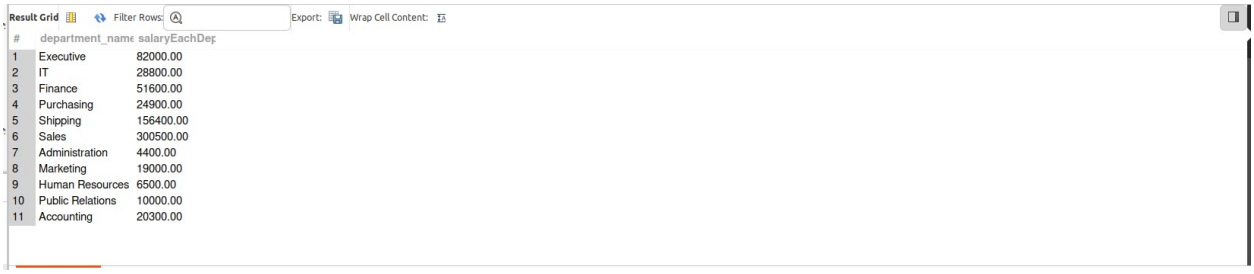
8- Find the names of the employees who directly report to Steven King.

```
select concat(emp.first_name,' ',emp.last_name) as emp_name,m.manager_id,emp.employee_id,emp.first_name

from iti.employees emp ,iti.employees m

where m.employee_id=emp.manager_id and m.first_name='Steven' and m.last_name='King';

#OR

SELECT e.first_name, e.last_name

FROM iti.employees e

WHERE e.manager_id = (SELECT employee_id FROM iti.employees WHERE last_name = 'King' AND first_name = 'Steven');
```



9- For each department, list the department name and the total salary (for all employees) spent on that department.

```
select d.department_name,sum(e.salary) as salaryEachDep
from iti.departments d,iti.employees e
where d.department_id=e.department_id
group by d.department_name;
```

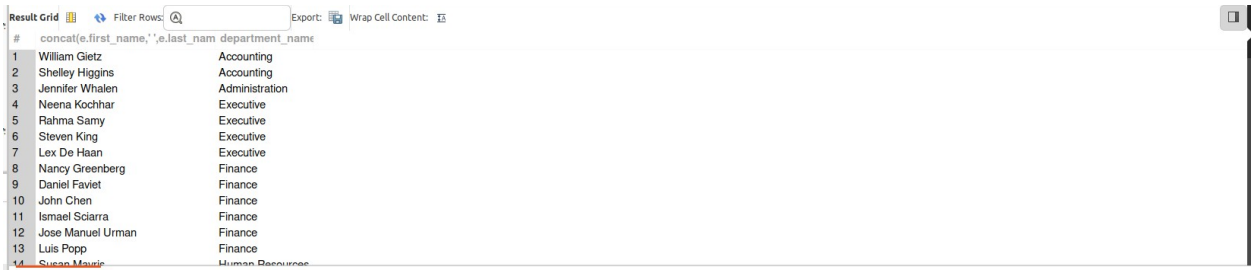


Result Grid | Filter Rows: | Export: | Wrap Cell Content:

#	department_name	salaryEachDep
1	Executive	82000.00
2	IT	28800.00
3	Finance	51600.00
4	Purchasing	24900.00
5	Shipping	156400.00
6	Sales	300500.00
7	Administration	4400.00
8	Marketing	19000.00
9	Human Resources	6500.00
10	Public Relations	10000.00
11	Accounting	20300.00

10- Retrieve the names of all employees and the names of the departments they are working in, sorted by the department name.

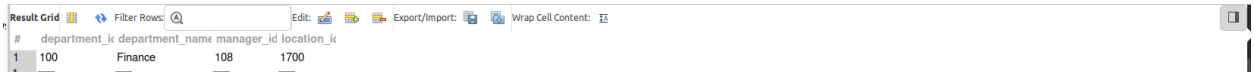
```
select concat(e.first_name,' ',e.last_name),d.department_name
from iti.departments d,iti.employees e
where d.department_id=e.department_id
order by d.department_name;
```



#	concat(e.first_name,' ',e.last_nam	department_name
1	William Gietz	Accounting
2	Shelley Higgins	Accounting
3	Jennifer Whalen	Administration
4	Neena Kochhar	Executive
5	Rahma Samy	Executive
6	Steven King	Executive
7	Lex De Haan	Executive
8	Nancy Greenberg	Finance
9	Daniel Faviet	Finance
10	John Chen	Finance
11	Ismael Sciarra	Finance
12	Jose Manuel Urman	Finance
13	Luis Popp	Finance
14	Susan Mavris	Human Resources

11- Display the data of the department which has the smallest employee ID over all employees' ID.

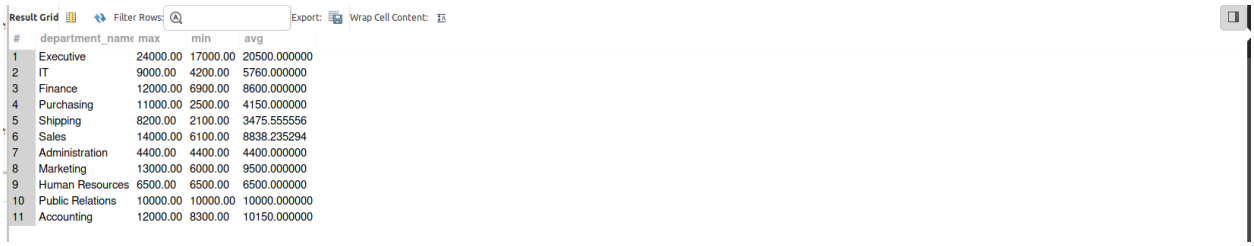
```
select d.*
from iti.departments d
where d.department_id = (select min(e.employee_id)
from iti.employees e )
```



#	department_id	department_name	manager_id	location_id
1	100	Finance	108	1700

12- For each department, retrieve the department name and the maximum, minimum, and average salary of its employees.

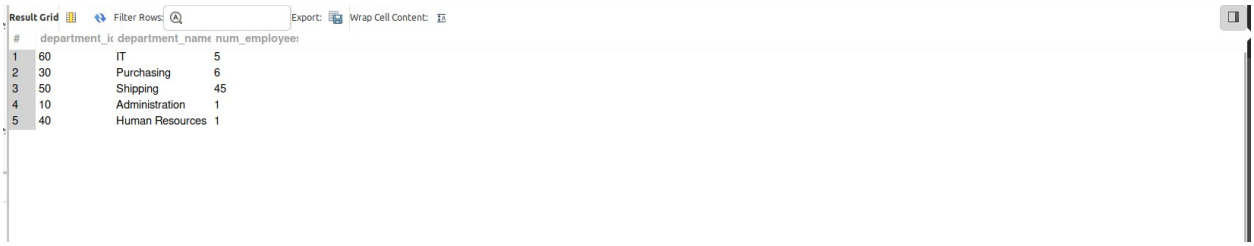
```
select d.department_name,max(e.salary) as max,min(e.salary) as
min ,avg(e.salary) as avg
from iti.employees e, iti.departments d
where e.department_id=d.department_id
group by d.department_name;
```



#	department_name	max	min	avg
1	Executive	24000.00	17000.00	20500.000000
2	IT	9000.00	4200.00	5760.000000
3	Finance	12000.00	6900.00	8600.000000
4	Purchasing	11000.00	2500.00	4150.000000
5	Shipping	8200.00	2100.00	3475.555556
6	Sales	14000.00	6100.00	8838.235294
7	Administration	4400.00	4400.00	4400.000000
8	Marketing	13000.00	6000.00	9500.000000
9	Human Resources	6500.00	6500.00	6500.000000
10	Public Relations	10000.00	10000.00	10000.000000
11	Accounting	12000.00	8300.00	10150.000000

13- For each department, if its average salary is less than the average salary of all employees, display its number, name, and number of its employees.

```
select d.department_id, d.department_name, COUNT(e.employee_id) AS num_employees

from iti.departments d,iti.employees e

where d.department_id=e.department_id

group by d.department_name,d.department_id

having avg(e.salary) < (select avg(salary) from iti.employees ) ;
```

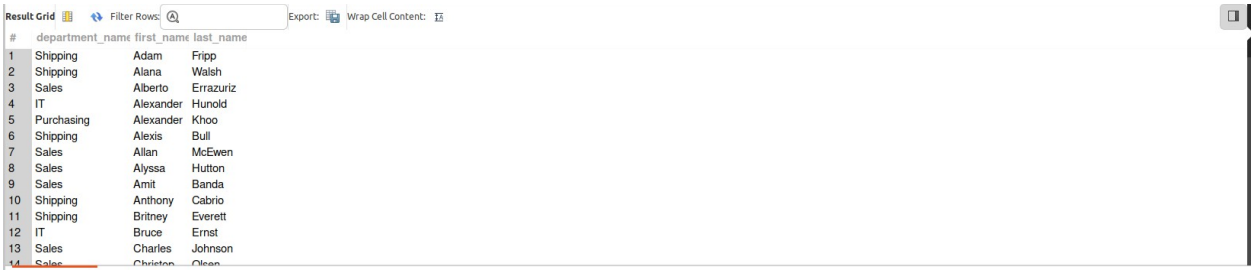


#	department_id	department_name	num_employees
1	60	IT	5
2	30	Purchasing	6
3	50	Shipping	45
4	10	Administration	1
5	40	Human Resources	1

14- Retrieve a list of employees and the departments they are working in, ordered by department and within each department, ordered alphabetically by last name, first name.

```
select d.department_name,e.first_name,e.last_name

from iti.employees e ,iti.departments d
```

```
where e.department_id=d.department_id
group by e.first_name,e.last_name,d.department_name
order by e.first_name,e.last_name;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

#	department_name	first_name	last_name
1	Shipping	Adam	Fripp
2	Shipping	Alana	Walsh
3	Sales	Alberto	Errazuriz
4	IT	Alexander	Hunold
5	Purchasing	Alexander	Khoo
6	Shipping	Alexis	Bull
7	Sales	Allan	McEwen
8	Sales	Alyssa	Hutton
9	Sales	Amit	Banda
10	Shipping	Anthony	Cabrio
11	Shipping	Britney	Everett
12	IT	Bruce	Ernst
13	Sales	Charles	Johnson
14	Sales	Christop	Olsen