Lab 3 - SQL

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

SELECT d.department\_name , l.city

FROM departments d, locations l

where d.location\_id = l.location\_id;

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

SELECT emp\_e.employee\_id, emp\_e.first\_name, emp\_e.last\_name, emp\_e.manager\_id, concat(mng\_e.first\_name," " ,mng\_e.last\_name) as manager\_name

FROM employees emp\_e, employees mng\_e

where emp\_e.manager\_id= mng\_e.employee\_id;

1. Display the department ID, department name, manager ID, and the name of the manager.

SELECT d.department\_id, d.department\_name, d.manager\_id, concat(e.first\_name," " ,e.last\_name) as department\_manager

FROM employees e inner join departments d on d.manager\_id = e.employee\_id;

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 employees

where department\_id = 30

union

select last\_name, job\_id, department\_id

FROM employees

where department\_id = 60;

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

SELECT d.department\_id, d.department\_name, d.location\_id , l.city

from locations l left outer join departments d on d.location\_id = l.location\_id

where l.city in ('Roma' , 'Toronto');

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

SELECT \*

from departments d inner join employees e on d.department\_id = e.department\_id

where e.first\_name like 'a%';

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

SELECT \*

from departments d inner join employees e on d.department\_id = e.department\_id

where d.department\_id = 30

having e.salary between 7000 and 15000;

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

SELECT emp\_e.first\_name, emp\_e.last\_name, emp\_e.manager\_id, concat(mng\_e.first\_name," " ,mng\_e.last\_name) as manager\_name

FROM employees emp\_e join employees mng\_e on emp\_e.manager\_id= mng\_e.employee\_id

WHERE mng\_e.employee\_id = (SELECT employee\_id FROM employees WHERE last\_name = 'King' AND first\_name = 'Steven');

1. 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 total\_salary

from departments d join employees e where d.department\_id = e.department\_id

group by d.department\_name;

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

SELECT e.first\_name, e.last\_name , d.department\_name

from departments d join employees e where d.department\_id = e.department\_id

order by d.department\_name;

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

SELECT dep.\*

FROM departments dep

JOIN employees emp ON dep.department\_id = emp.department\_id

WHERE emp.employee\_id = (SELECT MIN(employee\_id) FROM employees);

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

SELECT d.department\_name,

SUM(e.salary) AS total\_salary,MAX(e.salary) AS max\_salary,MIN(e.salary) AS min\_salary,AVG(e.salary) AS avg\_salary

FROM departments d

JOIN employees e ON d.department\_id = e.department\_id

GROUP BY d.department\_name;

1. 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 departments d

JOIN employees e ON d.department\_id = e.department\_id

GROUP BY d.department\_id, d.department\_name

HAVING AVG(e.salary) < (SELECT AVG(salary) FROM employees);

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 emp.employee\_id, emp.first\_name, emp.last\_name, dep.department\_name

FROM employees emp

JOIN departments dep ON emp.department\_id = dep.department\_id

ORDER BY dep.department\_name, emp.last\_name, emp.first\_name;