

SQL - MLS -Solution

Part A - DDL & DML queries

Execute following basic commands to get started with the session

```
show databases;
```

```
use hr;
```

```
show tables;
```

1. Fetch all the records for the Employees Table. Explain the meaning of “*”.

```
select * from employees;
```

2. Show all the emp_id, first_name, last_name from employee Table.

```
select employee_id,first_name,last_name from employees ;
```

3. Write a query in SQL to display the first_name and last_name, department_id and salary from employees Table who earn more than 20000.('Steven', 'King', '90', '24000.00').

```
select first_name,last_name,department_id,salary from employees where salary > 20000;
```

4. Write a query in SQL to display the first_name and last_name, email, salary and manager_ID for those employees whose managers_ID is 120, 103 or 145.(18 rows)

```
select FIRST_NAME,last_name,email,salary,manager_id FROM employees where manager_id in (120,103,145);
```

5. Write a query in SQL to display the first_name and last_name, department_id and salary from employees Table who earn more than 8000 And whose managers_ID is 120, 103 or 145.(3 rows)

```
select FIRST_NAME,last_name,email,salary, manager_id FROM employees where manager_id in
```

(120,103,145) AND salary > 8000;

6. Write a query to display all the locations (id, city) which do not have any state province mentioned. (6 rows) [NOTE: LOCATION TABLE]

select location_id,city from locations where state_province is null;

7. Write a query to display job_id, job titles, min_salary, max_salary whose maximum salary is greater than 10000. (9 rows) [NOTE: JOBS TABLE]

select JOB_TITLE, job_id, min_salary,max_salary from jobs WHERE MAX_SALARY > 10000;

8. Write a query to display department_id,department_name, Manager_id whose manager_id is greater than 200 and location_id is 2400.(1 row) [NOTE : DEPARTMENTS TABLE]

select department_id,department_name,manager_id from departments where manager_id > 200 and location_id = 2400;

9. Write a query to display the job title whose minimum salary is greater than 8000 and max salary less than 20000 (3 rows).[NOTE : JOBS TABLE]

select job_title from jobs where min_salary >8000 and max_salary < 20000;

10. Write a query to retrieve all the records of departments with managers for the location id 1700. (5 rows) [NOTE : DEPARTMENTS TABLE]

select * from departments where manager_id is not null and location_id=1700;

11. List all departments starting with "P" where there are managers.(2 rows)[NOTE:DEPARTMENT TABLE]

select department_id,department_name,manager_id,location_id from departments where department_name like "p%" and manager_id is not null;

12. Print a bonafide certificate for an employee (say for emp. id 123) as below: # "This is to certify that <full name> with employee id <emp. id> is working as <job id> in dept. <dept ID>. (1 ROW) [NOTE :

EMPLOYEES table].

```
select concat("This is to certify that ",first_name," ",last_name," with employee id
",employee_id," working as ",job_id," in ",dept. ",department_id) from employees
where employee_id=123;
```

13. Write a query to display the employee id, salary & salary range of employees as 'Tier1', 'Tier2' or 'Tier3' as per the range <5000, 5000-10000, >10000 respectively, ordering the output by those tiers.(107 ROWS)[NOTE :EMPLOYEES TABLE]

```
select employee_id,salary,
CASE WHEN salary < 5000 THEN 'tier 1'
WHEN salary between 5000 and 10000 THEN 'teir 2'
ELSE 'teir 3'
END AS Tier
from employees
order by salary;
```

14. Write a query to display the department-wise and job-id-wise total salaries of employees whose salary is more than 25000.(8 rows) [NOTE : EMPLOYEES TABLE]

```
select job_id,department_id,sum(salary) from employees group by department_id, job_id
having sum(salary)>25000;
```

15. Write a query to display names of employees whose first name as well as last name ends with vowels. (vowels : aeiou) (5 rows) [NOTE : EMPLOYEES TABLE]

```
select first_name , last_name from employees where (first_name like '%a' or first_name like
'%e' or first_name like '%i' or first_name like '%o' or first_name like '%u') and (last_name like
'%a' or last_name like '%e' or last_name like '%i' or last_name like '%o' or last_name like '%u');
```

16. What is the average salary range (diff. between min & max salary) of all types 'Manager's and 'Clerk's. (9 rows)[NOTE : JOBS TABLE]

```
select avg(max_salary-min_salary)as diff_avg,job_title,job_id from jobs where job_title like '%
Manager%' or job_title like '% Clerk%' group by job_title;
```

17. Write a query to list the names of all people who report to the same person in department Accounting (i.e.2).

```
select concat( first_name," ", last_name)
from employees e, departments d
where d.department_id=e.department_id and department_name="Accounting"
group by e.manager_id;
```

18. Write a query in SQL to display the first name, last name, department number, and department name for each employee. (106 rows)

```
select * from departments;
select * from employees;
select e.first_name,e.last_name,e.department_id,d.department_name
from employees e ,departments d
where e.department_id=d.department_id;
```

19. Write a query in SQL to display the name of the department, average salary and number of employees working in that department who got commission. (One row)

```
select d.department_name,avg(e.salary),count(e.employee_id)
from employees e, departments d
where e.department_id = d.department_id
and commission_pct>0 and e.department_id is not null
group by e.department_id
```

20. Display the first name where commission percentage is not provided. (72 rows)

```
select first_name from employees where commission_pct is null;
```

21. Display first_name , commission and where commission is null print 'Its Null' otherwise print 'It's not null' (107 Rows)

```
select first_name,case when commission_pct is Null then "It's Null"
else "It is not null"
end Null_or_Not_Null
```

from employees;

Part B - Joins and Subqueries

1. Write a query in SQL to display those employees who contain a letter z to their first name and also display their last name, department, city, and state province. (3 rows)

```
select e.first_name, e.last_name, e.department_id, d.department_name,
l.city,l.state_province
from employees e inner join departments d
on e.department_id=d.department_id
inner join locations l
on d.location_id=l.location_id where e.first_name like "%z%";
```

2. Write a query in SQL to display the job title, department id, full name (first and last name) of employee, starting date and end date for all the jobs which started on or after 1st January, 1993 and ending with on or before 31 August, 2000. (8 rows)

```
select j.job_id,e.department_id,concat(e.first_name,' ',
e.last_name) full_name, j.start_date , j.end_date from
employees e join job_history j
on e.employee_id = j.employee_id
```

3. Display the employee number, name (first name and last name) and job title for all employees whose salary is smaller than the minimum salary of those employees whose job title is Programmer using subquery. (44 rows)

```
select e.employee_id, concat(e.first_name, ' ', e.last_name) as Name, j.job_title from
employees as e left join jobs as j
on e.job_id = j.job_id
where e. salary<
(select min(salary) from employees as k left join jobs as l
on k.job_id=l.job_id
where l.job_title = "Programmer");
```

4. Write a query in SQL to display the country name, city, and number of those departments where at least 2 employees are working. (5 rows)

```
select country_name,city, count(department_id)
from countries
join locations using (country_id)
join departments using (location_id)
where department_id in
(select department_id
from employees
group by department_id
having COUNT(employee_id)>=2)
group by country_name,city;
```

5. Write a query to fetch the employee ID, First Name, Last Name, Salary and Department ID of those employees who draw a salary more than the average salary of their respective department. (38 rows)

```
select employee_id, concat(first_name,' ',last_name) Name,salary,department_id from employees
o
where salary > (select avg(salary) from employees i where o.department_id =
i.department_id);
```

6. Write a query in SQL to display the first and last name, salary, and department ID for those employees who earn less than the average salary, and also work at the department where the employee Laura is working as a first name holder. (41 rows)

```
select * from employees where salary < (select avg(salary) from employees) and department_id
like (select department_id from employees where first_name like "Laura");
```

7. Using HR Schema, write a Query to find the maximum salary of the most recent job that every employee holds.

```
select e.employee_id, e.hire_date,e.job_id,j.max_salary from employees e left join jobs j
on e.job_id= j.job_id;
```

8. Using HR Schema, write a Query to List the old designation and new designation of all the employees in the company where old designation is not null. (10 rows)

```
select distinct e.employee_id,e.first_name,e.last_name,e.job_id as
current_job,j.job_id as old_job,jo.job_title as current
from employees as e inner join job_history as j on e.employee_id=j.employee_id inner join jobs
as jo on jo.job_id=e.job_id;
```