

Question 1: Retrieve the names of all employees who work on at least one of the projects. (In other words, look at the list of projects given in the PROJECT table, and retrieve the names of all employees who work on at least one of them.)

The screenshot shows the SQL Worksheet interface with a query entered in the Query Builder. The query is as follows:

```
-- Question-1 Retrieve the names of all employees who work on at least one of the projects.
--(In other words, look at the list of projects given in the PROJECT table, and retrieve the names of all employees
--who work on at least one of them.)

SELECT DISTINCT E.FNAME, E.MINIT, E.LNAME, E.SSN, W.ESSN
FROM EMPLOYEE E, WORKS ON W
WHERE E.SSN=W.ESSN;
```

The Query Result pane shows the following data:

	FNAME	MINIT	LNAME	SSN	ESSN
1	James	E	Borg	888665555	888665555
2	Alicia	J	Zelaya	999887777	999887777
3	Joyce	A	English	453453453	453453453
4	John	B	Smith	123456789	123456789
5	Franklin	T	Wong	333445555	333445555
6	Jennifer	S	Wallace	987654321	987654321
7	Ahmad	V	Jabbar	987987987	987987987

The SQL History pane shows the executed query and its details:

SQL	Connection	TimeStamp	Type	Executed	Duration(se...)
SELECT DISTINCT E.FNAME,E.MINIT, E.LNAME,E.SSN, W.ESSN FROM ...	Dbms	28-09-22 9:...	SQL	2	0.02

Question2: For each department, retrieve the department number, department name, and the average salary of all employees working in that department. Order the output by department number in ascending order

The screenshot shows the SQL Worksheet interface with a query entered in the Query Builder. The query is as follows:

```
--QUESTION-2 For each department, retrieve the department number, department name, and the average salary of all employees
--working in that department. Order the output by department number in ascending order.

SELECT D.DNUMBER, D.DNAME, AVG(E.SALARY)
FROM EMPLOYEE E, DEPARTMENT D
WHERE D.DNUMBER=E.DNO
GROUP BY D.DNUMBER, D.DNAME;
```

The Query Result pane shows the following data:

	DNUMBER	DNAME	AVG(E.SALARY)
1	1	Headquarters	55000
2	4	Administration	28000
3	5	Research	32100

The SQL History pane shows the executed query and its details:

SQL	Connection	TimeStamp	Type	Executed	Duration(se...)
SELECT D.DNUMBER,D.DNAME,AVG(E.SALARY) FROM EMPLOYEE E,DE...	Dbms	28-09-22 9:...	SQL	1	0.027

Question 3:

List the last names of all department managers who have no dependents.

The screenshot shows the SQL Developer interface. The 'Worksheet' tab is active, displaying the following SQL query:

```
--QUESTION 3 List the last names of all department managers who have no dependents.  
SELECT LNAME  
FROM EMPLOYEE  
WHERE SSN IN (SELECT MGR_SSN FROM DEPARTMENT)  
AND SSN NOT IN (SELECT ESSN FROM DEPENDENT);
```

The 'Query Result' tab shows the results of the query:

LNAM
1 Borg

The 'SQL History' tab at the bottom shows the executed query and its details:

SQL	Connection	TimeStamp	Type	Executed	Duration(se...)
SELECT LNAME FROM EMPLOYEE WHERE SSN IN (SELECT MGR_SSN FR...	Dbms	28-09-22 9:...	SQL	1	0.022

Question 4:

Determine the department that has the employee with the lowest salary among all employees.

For this department retrieve the names of all employees. Write one query for this question using subquery.

The screenshot shows the SQL Developer interface. The 'Worksheet' tab is active, displaying the following SQL query:

```
--For this department retrieve the names of all employees. Write one query for this question using subquery.  
SELECT FNAME FROM EMPLOYEE  
WHERE DNO IN (SELECT DNO FROM EMPLOYEE  
WHERE SALARY IN ( SELECT MIN(SALARY) FROM EMPLOYEE )  
GROUP BY DNO );
```

The 'Query Result' tab shows the results of the query:

FNAME
1 Jennifer
2 Alicia
3 Ahmad

The 'SQL History' tab at the bottom shows the executed query and its details:

SQL	Connection	TimeStamp	Type	Executed	Duration(se...)
SELECT FNAME FROM EMPLOYEE WHERE DNO IN (SELECT DNO FROM ...	Dbms	28-09-22 9:...	SQL	1	0.025

Question 5: Find the total number of employees and the total number of dependents for every department (the number of dependents for a department is the sum of the number of dependents for each employee working for that department). Return the result as department name, total number of employees, and total number of dependents

The screenshot shows an SQL Worksheet with a query that calculates the total number of employees and dependents for each department. The query is as follows:

```
--Return the result as department name, total number of employees, and total number of dependents.

SELECT D.DNAME,D.DNUMBER,COUNT(E.SSN),COUNT(DE.ESSN)
FROM DEPARTMENT D,EMPLOYEE E,DEPENDENT DE
WHERE DE.ESSN = E.SSN AND E.DNO = D.DNUMBER
GROUP BY D.DNAME,D.DNUMBER;
```

The Query Result shows the following data:

DNAME	DNUMBER	COUNT(E.SSN)	COUNT(DE.ESSN)
1 Administration	4	2	2
2 Research	5	7	7

The SQL History shows the query was executed on 28-09-22 at 9:00:00, taking 0.067 seconds.

Question 6:

Determine if, in the company, male employees earn more than female employees.

The screenshot shows an SQL Worksheet with a query that determines if male employees earn more than female employees. The query is as follows:

```
--question 6 : Determine if, in the company, male employees earn more than female employees.

SELECT SEX, AVG(SALARY)
FROM EMPLOYEE
GROUP BY SEX;
```

The Query Result shows the following data:

SEX	AVG(SALARY)
1 M	37000
2 F	28625

The SQL History shows the query was executed on 28-09-22 at 9:00:00, taking 0.021 seconds.

Question 7: Retrieve the names of employees whose salary is within \$20,000 of the salary of the employee who is paid the most in the company (e.g., if the highest salary in the company is \$80,000, retrieve the names of all employees that make at least \$60,000).

SQL Worksheet History

Worksheet Query Builder

```
--After observing the output from the query, it is proved that the male employees earn more than female employees
--QUESTION 7
SELECT FNAME
FROM EMPLOYEE
WHERE SALARY >= (SELECT MAX(salary)
FROM EMPLOYEE) - 20000;
```

Query Result x

All Rows Fetched: 4 in 0.037 seconds

FNAME
1 James
2 Jennifer
3 Franklin
4 Ramesh

SQL History

SQL	Connection	TimeStamp	Type	Executed	Duration(se...)
SELECT FNAME FROM EMPLOYEE WHERE SALARY >= (SELECT MAX(sala...	Dbms	28-09-22 9:...	SQL	1	0.037

Question 8: Find the names and addresses of all employees whose departments have no location in Houston (that is, whose departments do not have a Dlocation of Houston) but who work on at least one project that is located in Houston (that is, who work on at least one project that has a Plocation of Houston). Note that the first condition is not equivalent to the employee's department having some Dlocation that is not in Houston the department must not have any Dlocation that is in Houston in order to be included in the result.

SQL Worksheet History

Worksheet Query Builder

```
SELECT FNAME, MINIT, LNAME, ADDRESS FROM EMPLOYEE
WHERE SSN IN (SELECT ESSN
FROM WORKS_ON, PROJECT
WHERE PNO = PNUMBER AND PLOCATION = 'Houston')
AND DNO NOT IN (SELECT DNUMBER
FROM DEPT_LOCATIONS
WHERE DLOCATION = 'Houston');
```

Query Result x

All Rows Fetched: 2 in 0.021 seconds

FNAME	MINIT	LNAME	ADDRESS
1 Jennifer S		Wallace	291 Berry, Bellaire, Tx
2 Franklin T		Wong	638 Voss, Houston, TX

SQL History

SQL	Connection	TimeStamp	Type	Executed	Duration(se...)
SELECT FNAME, MINIT, LNAME, ADDRESS FROM EMPLOYEE WHERE SSN I...	Dbms	28-09-22 9:...	SQL	3	0.021