



Faculty of Technology and Engineering

Chandubhai S. Patel Institute of Technology (CSPIT)

Department of Computer Science & Engineering

Date: / /

Laboratory Manual

Academic Year	:	2024-25	Semester	:	4
Course code	:	CSE206	Course name	:	DATABASE MANAGEMENT SYSTEM

Practical - 3

Aim: Global Trust Bank is expanding its operations and requires a robust database management system to efficiently manage its employees, job profiles, customers' accounts, and loan information. The bank has laid out specific requirements and constraints to ensure data integrity, uniqueness, and completeness. Perform Data Definition Language (DDL) commands and change the existing schema as per given information.

Constraints –

- Not Null Constraints: Ensure critical fields are not null.
- Unique Constraints: Ensure data integrity by limiting column values.
- Check Constraints: Ensure columns like Account Number have unique values.

Tasks:-

- 1) Retrieve all data from employee, jobs and deposit.

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists several database connections, including '23CS046'. The main window displays a SQL worksheet with the following query:

```
SELECT * FROM JOB
SELECT * FROM DEPOSIT
SELECT * FROM EMPLOYEE
```

The 'Query Result' pane at the bottom shows the output of the query, displaying 6 rows of employee data:

EMP_NO	EMP_NAME	EMP_SAL	EMP_COMM	DEPT_NO
1	101 Smith	800	455	20
2	102 Snehal	1600	0	25
3	103 Adama	1100	425	20
4	104 Aman	3000	(null)	15
5	105 Anita	5000	425	10
6	106 Anamika	2975	(null)	30

2) Display job title and maximum salary of all jobs.

The screenshot shows the SQL Developer interface with the following SQL queries in the worksheet:

```
SELECT JOB_TITLE, MAX_SAL FROM JOB; --2
SELECT DISTINCT B_NAME FROM DEPOSIT; --3
SELECT A_NO FROM DEPOSIT WHERE A_DATE BETWEEN '01-jan-06' AND '27-jul-06'; -- 4
```

The 'Query Result' tab displays the results of the first query:

JOB_TITLE	MAX_SAL
1 Programmer	10000
2 Marketing Manager	15000
3 Finance Manager	12000
4 Accountant	9000
5 Lecturer	17000
6 Computer Operator	13000

3) Write a query to find out all the branches.

The screenshot shows the SQL Developer interface with the same SQL queries as above. The 'Query Result' tab displays the results of the second query:

B_NAME
1 anderi
2 dadar
3 villeparle
4 virar
5 borivali

4) Display all the account no. into which rupees are between dates 01-01-06 and 25-07-06.

The screenshot shows the SQL Developer interface with the same SQL queries as above. The 'Query Result' tab displays the results of the third query:

A_NO
1 101
2 102
3 103

- 5) Display names of all customers whose account is deposited after 09-oct-06.

The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left lists several database connections. The main window displays a SQL worksheet with the following queries:

```
SELECT C_NAME FROM DEPOSIT
WHERE A_DATE > '09-OCT-2006'; --5
```

```
SELECT EMP_NAME AS "NAME", EMP_SAL FROM EMPLOYEE
WHERE DEPT_NO=20; --6
```

The 'Script Output' pane at the bottom shows the results of the first query:

C_NAME
1 keyur
2 mayur

- 6) Display name and salary of employee whose department no is 20. Give alias name to name of employee.

The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left lists several database connections. The main window displays a SQL worksheet with the following queries:

```
SELECT C_NAME FROM DEPOSIT
WHERE A_DATE > '09-OCT-2006'; --5
```

```
SELECT EMP_NAME AS "NAME", EMP_SAL FROM EMPLOYEE
WHERE DEPT_NO=20; --6
```

The 'Script Output' pane at the bottom shows the results of the second query:

NAME	EMP_SAL
1 Smith	800
2 Adama	1100

- 7) Display employee no, name and department details of those employee whose department lies in(10,20).

The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left lists several database connections. The main window displays a SQL worksheet with the following queries:

```
SELECT EMP_NAME AS "NAME", EMP_SAL FROM EMPLOYEE
WHERE DEPT_NO=20; --6
```

```
SELECT EMP_NO, EMP_NAME, DEPT_NO FROM EMPLOYEE
WHERE DEPT_NO IN(10,20); --7
```

The 'Script Output' pane at the bottom shows the results of the third query:

EMP_NO	EMP_NAME	DEPT_NO
1	101 Smith	20
2	103 Adama	20
3	105 Anita	10

- 8) Display employee no, name and department details of those employee whose department not in(15,30) except 25 .

The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left lists several database connections, including 'C23CS046'. The 'SQL Worksheet' on the right contains the following SQL query:

```
WHERE DEPT_NO IN(10,20); --7

SELECT EMP_NO, EMP_NAME,DEPT_NO FROM EMPLOYEE
WHERE DEPT_NO NOT IN(15,30); --8
```

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

EMP_NO	EMP_NAME	DEPT_NO
1	101 Smith	20
2	102 Snehal	25
3	103 Adama	20
4	105 Anita	10

- 9) Display employee no, name and department details of those employee whose department no is between 15 and 25.

The screenshot shows the Oracle SQL Developer interface. The 'SQL Worksheet' on the right contains the following SQL query:

```
SELECT EMP_NO, EMP_NAME,DEPT_NO FROM EMPLOYEE
WHERE DEPT_NO BETWEEN 15 AND 25; --9

SELECT * FROM EMPLOYEE
WHERE EMP_COMM IS NOT NULL; --10
```

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

EMP_NO	EMP_NAME	DEPT_NO
1	101 Smith	20
2	102 Snehal	25
3	103 Adama	20
4	104 Aman	15

- 10) Display name of all employee whose emp_comm contains the non-null values.

The screenshot shows the Oracle SQL Developer interface. The 'SQL Worksheet' on the right contains the following SQL query:

```
SELECT EMP_NO, EMP_NAME,DEPT_NO FROM EMPLOYEE
WHERE DEPT_NO BETWEEN 15 AND 25; --9

SELECT * FROM EMPLOYEE
WHERE EMP_COMM IS NOT NULL; --10
```

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

EMP_NO	EMP_NAME	EMP_SAL	EMP_COMM	DEPT_NO
1	101 Smith	800	455	20
2	102 Snehal	1600	0	25
3	103 Adama	1100	425	20
4	105 Anita	5000	425	10

11) Combine min_sal and max_sal into a single column.

The screenshot shows the SQL Developer interface with the following SQL script in the worksheet:

```
SELECT * FROM EMPLOYEE
WHERE EMP_COMM IS NOT NULL; --10

SELECT CONCAT(MIN_SAL,MAX_SAL) AS SALARY FROM JOB;--11

INSERT INTO SUPPLIER SELECT * FROM EMPLOYEE;
```

The Script Output pane shows the results of the third query:

SALARY
1 400010000
2 900015000
3 820012000
4 42009000
5 600017000
6 150013000

12) Insert the data into sup2 from employee.

The screenshot shows the SQL Developer interface with the following SQL script in the worksheet:

```
SELECT CONCAT(MIN_SAL,MAX_SAL) AS SALARY FROM JOB;--11

INSERT INTO SUPPLIER2 SELECT EMP_NO,EMP_NAME,EMP_SAL,EMP_COMM,DEPT_NO FROM EMPLOYEE;
SELECT * FROM SUPPLIER2; --12
```

The Script Output pane shows the results of the second query:

EMP_NO	EMP_NAME	EMP_SAL	EMP_COMM	DEPT_NO
1	101 Smith	800	455	20
2	102 Snehal	1600	0	25
3	103 Adama	1100	425	20
4	104 Aman	3000	(null)	15
5	105 Anita	5000	425	10
6	106 Anamika	2975	(null)	30

13) Delete all the rows from sup1 as sup.

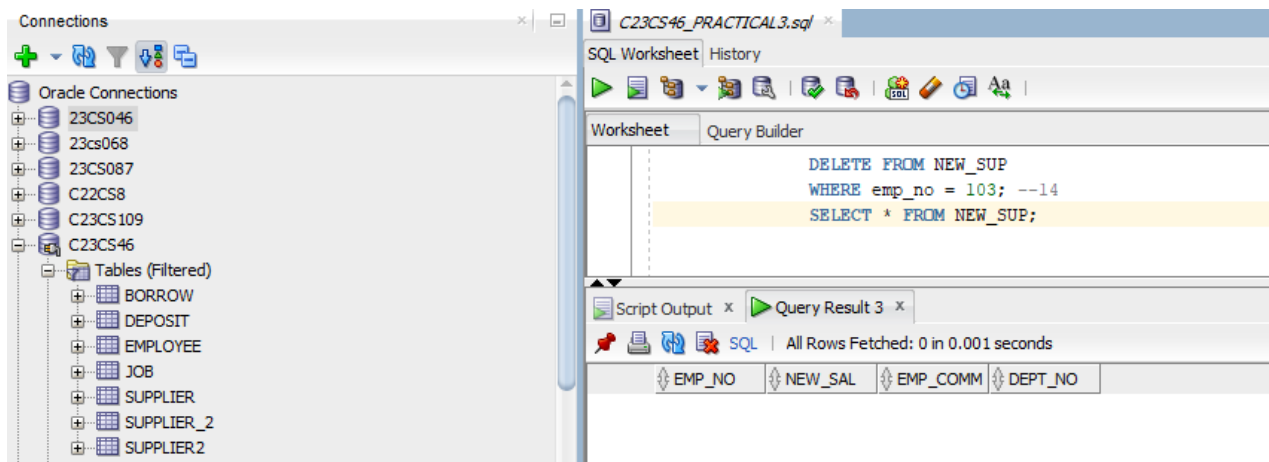
The screenshot shows the SQL Developer interface with the following SQL script in the worksheet:

```
DELETE FROM SUPPLIER2;
ALTER TABLE SUPPLIER2 RENAME TO NEW_SUP;
SELECT * FROM NEW_SUP; --13
```

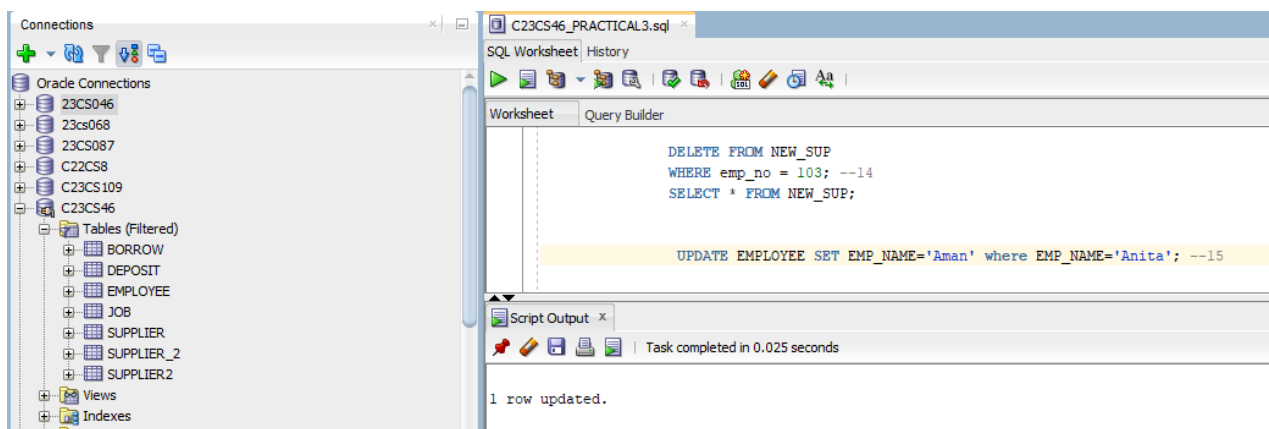
The Script Output pane shows the results of the third query:

EMP_NO	NEW_SAL	EMP_COMM	DEPT_NO
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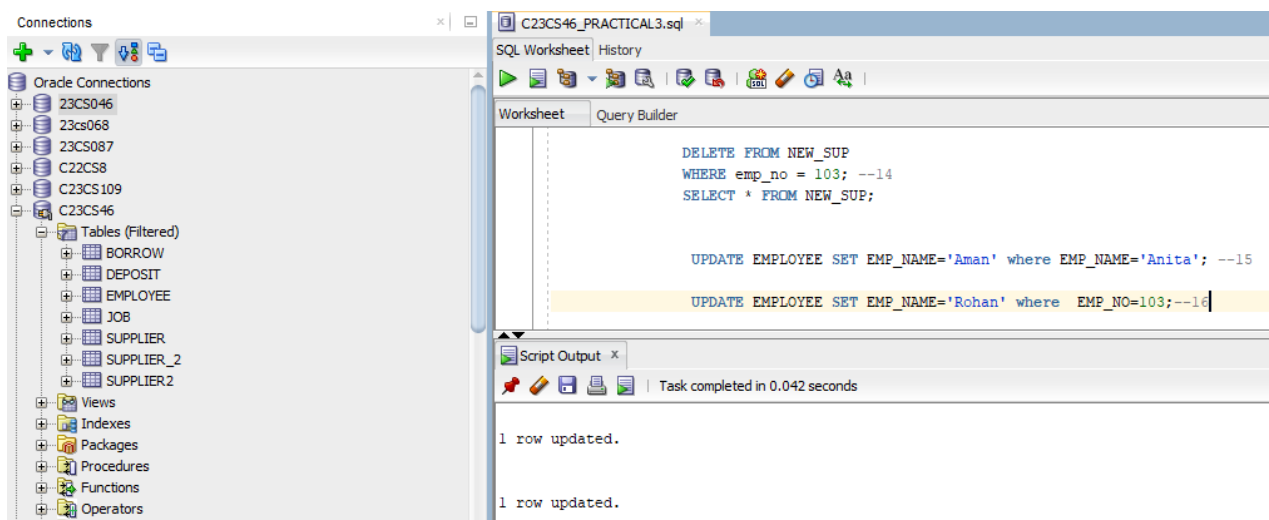
14) Delete the detail of supplier whose emp_no is 103.



15) Update the name of employee to 'Aman' name whose emp_name is 'Anita'.



16) Update the value of employee name whose employee number is 103.



17) Find out the maximum and minimum salary form job table.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema for 'C23CS046', including tables like BORROW, DEPOSIT, EMPLOYEE, JOB, SUPPLIER, and SUPPLIER_2. The main window shows a SQL worksheet with the following queries:

```

DELETE FROM NEW_SUP
WHERE emp_no = 103; --14
SELECT * FROM NEW_SUP;

UPDATE EMPLOYEE SET EMP_NAME='Aman' where EMP_NAME='Anita'; --15

UPDATE EMPLOYEE SET EMP_NAME='Rohan' where EMP_NO=103;--16

SELECT * FROM JOB
WHERE MIN_SAL = (SELECT MIN(MIN_SAL) FROM JOB);--17

```

The 'Script Output' pane shows the execution results for the last query:

JOB_ID	JOB_TITLE	MIN_SAL	MAX_SAL
1	COMP OP Computer Operator	1500	13000

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema for 'C23CS046'. The main window shows a SQL worksheet with the following queries:

```

UPDATE EMPLOYEE SET EMP_NAME='Aman' where EMP_NAME='Anita'; --15

UPDATE EMPLOYEE SET EMP_NAME='Rohan' where EMP_NO=103;--16

SELECT * FROM JOB
WHERE MIN_SAL = (SELECT MIN(MIN_SAL) FROM JOB);--17

SELECT * FROM JOB
WHERE MAX_SAL = (SELECT MAX(MAX_SAL) FROM JOB); --17

SELECT AVG(EMP_SAL) FROM EMPLOYEE;--18

SELECT DISTINCT DEPT_NO FROM EMPLOYEE WHERE EMP_SAL >1000;--19

```

The 'Script Output' pane shows the execution results for the last query:

JOB_ID	JOB_TITLE	MIN_SAL	MAX_SAL
1	LEC Lecturer	6000	17000

18) Find out the average salary of employee.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema for 'C23CS046'. The main window shows a SQL worksheet with the following queries:

```

SELECT * FROM JOB
WHERE MAX_SAL = (SELECT MAX(MAX_SAL) FROM JOB); --17

SELECT AVG(EMP_SAL) FROM EMPLOYEE;--18

```

The 'Script Output' pane shows the execution results for the last query:

AVG(EMP_SAL)
1 2412.5

- 19) Count the total no as well as distinct rows in dept_no column with a condition of salary greater than 1000 of employee.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema with tables like BORROW, DEPOSIT, EMPLOYEE, JOB, SUPPLIER, and SUPPLIER2. The main window shows a SQL worksheet with the following queries:

```

SELECT AVG(EMP_SAL) FROM EMPLOYEE;--18
SELECT DISTINCT DEPT_NO FROM EMPLOYEE WHERE EMP_SAL >1000;--19
SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO ASC;--20

```

The 'Query Result 3' pane shows the output of the third query:

DEPT_NO
1
2
3
4
5

- 20) Display the detail of all employees in ascending order, descending order of their name and no.

The screenshot shows the Oracle SQL Developer interface. The main window shows a SQL worksheet with the following queries:

```

SELECT AVG(EMP_SAL) FROM EMPLOYEE;--18
SELECT DISTINCT DEPT_NO FROM EMPLOYEE WHERE EMP_SAL >1000;--19
SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO ASC;--20
SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO DESC;--20

```

The 'Query Result' pane shows the output of the third query:

EMP_NO	EMP_NAME
1	101 Smith
2	102 Snehal
3	103 Rohan
4	104 Aman
5	105 Aman
6	106 Anamika

The screenshot shows the Oracle SQL Developer interface. The main window shows a SQL worksheet with the following queries:

```

SELECT AVG(EMP_SAL) FROM EMPLOYEE;--18
SELECT DISTINCT DEPT_NO FROM EMPLOYEE WHERE EMP_SAL >1000;--19
SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO ASC;--20
SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO DESC;--20

```

The 'Query Result 1' pane shows the output of the fourth query:

EMP_NO	EMP_NAME
1	106 Anamika
2	105 Aman
3	104 Aman
4	103 Rohan
5	102 Snehal
6	101 Smith

21) Display the dept_no in ascending order and accordingly display emp_comm in descending order.

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists several database connections, with 'C23CS46' selected. The 'Tables (Filtered)' pane shows the 'EMPLOYEE' table. The main window displays a SQL worksheet with the following queries:

```

SELECT AVG(EMP_SAL) FROM EMPLOYEE;--18

SELECT DISTINCT DEPT_NO FROM EMPLOYEE WHERE EMP_SAL >1000;--19

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO ASC;--20

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO DESC;--20

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY DEPT_NO ASC;--21

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_COMM DESC;--21

```

The 'Query Result' pane shows the results of the last query (SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_COMM DESC;--21):

EMP_NO	EMP_NAME
1	105 Aman
2	104 Aman
3	101 Smith
4	103 Rohan
5	102 Snehal
6	106 Anamika

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists several database connections, with 'C23CS46' selected. The 'Tables (Filtered)' pane shows the 'EMPLOYEE' table. The main window displays a SQL worksheet with the following queries:

```

SELECT AVG(EMP_SAL) FROM EMPLOYEE;--18

SELECT DISTINCT DEPT_NO FROM EMPLOYEE WHERE EMP_SAL >1000;--19

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO ASC;--20

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO DESC;--20

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY DEPT_NO ASC;--21

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_COMM DESC;--21

```

The 'Query Result' pane shows the results of the last query (SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_COMM DESC;--21):

EMP_NO	EMP_NAME
1	104 Aman
2	106 Anamika
3	101 Smith
4	103 Rohan
5	105 Aman
6	102 Snehal

22) Update the value of emp_comm to 500 where dept_no is 20.

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists several database connections, with 'C23CS46' selected. The 'Tables (Filtered)' pane shows the 'EMPLOYEE' table. The main window displays a SQL worksheet with the following queries:

```

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO ASC;--20

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_NO DESC;--20

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY DEPT_NO ASC;--21

SELECT EMP_NO,EMP_NAME FROM EMPLOYEE ORDER BY EMP_COMM DESC;--21

UPDATE EMPLOYEE SET EMP_COMM=500 WHERE DEPT_NO=20; --22

SELECT EMP_SAL,EMP_COMM FROM EMPLOYEE ORDER BY EMP_COMM ASC NULLS FIRST; --23

SELECT EMP_NO, EMP_NAME, EMP_SAL, EMP_COMM, DEPT_NO FROM EMPLOYEE
ORDER BY EMP_COMM ASC NULLS FIRST, EMP_NO DESC; --24

```

The 'Query Result' pane shows the results of the last query (UPDATE EMPLOYEE SET EMP_COMM=500 WHERE DEPT_NO=20; --22):

1 row updated.

1 row updated.

2 rows updated.

- 23) Display the emp_comm in ascending order with null value first and accordingly sort employee salary in descending order.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema with tables like BORROW, DEPOSIT, EMPLOYEE, JOB, SUPPLIER, and SUPPLIER_2. The main pane shows a SQL worksheet with the following queries:

```

SELECT EMP_NO, EMP_NAME FROM EMPLOYEE ORDER BY EMP_COMM DESC; --21

UPDATE EMPLOYEE SET EMP_COMM=500 WHERE DEPT_NO=20; --22

SELECT EMP_SAL, EMP_COMM FROM EMPLOYEE ORDER BY EMP_COMM ASC NULLS FIRST; --23

```

The Query Results pane shows the output of the third query, displaying EMP_SAL and EMP_COMM for 6 rows:

	EMP_SAL	EMP_COMM
1	2975	(null)
2	3000	(null)
3	1600	0
4	5000	425
5	800	500
6	1100	500

- 24) Display the emp_comm in ascending order with null value last and accordingly sort emp_no in descending order.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema. The main pane shows a SQL worksheet with the following queries:

```

SELECT EMP_NO, EMP_NAME FROM EMPLOYEE ORDER BY EMP_COMM DESC; --21

UPDATE EMPLOYEE SET EMP_COMM=500 WHERE DEPT_NO=20; --22

SELECT EMP_SAL, EMP_COMM FROM EMPLOYEE ORDER BY EMP_COMM ASC NULLS FIRST; --23

SELECT EMP_NO, EMP_NAME, EMP_SAL, EMP_COMM, DEPT_NO FROM EMPLOYEE
ORDER BY EMP_COMM ASC NULLS LAST, EMP_NO DESC; --24

```

The Query Results pane shows the output of the fourth query, displaying EMP_NO, EMP_NAME, EMP_SAL, EMP_COMM, and DEPT_NO for 6 rows:

	EMP_NO	EMP_NAME	EMP_SAL	EMP_COMM	DEPT_NO
1	102	Snehal	1600	0	25
2	105	Aman	5000	425	10
3	103	Rohan	1100	500	20
4	101	Smith	800	500	20
5	106	Anamika	2975	(null)	30
6	104	Aman	3000	(null)	15