

PRACTICAL : 5

- 1. INNER JOIN :** The Inner Join keyword selects all rows from both the tables as long as the condition satisfies.

Syntax: Select table1.column1,table1.column2,table2.column1,.....

From table1 INNER JOIN table2

ON table.matching_column = table2.matching_column;

Example :

```
SELECT EMP_DHAVAL.DEPTNO,ENAME,SAL,JOB,DNAME,LOC
FROM EMP_DHAVAL INNER JOIN DEPT_DHAVAL
ON EMP_DHAVAL.DEPTNO=DEPT_DHAVAL.DEPTNO;
```

```
26 SELECT * FROM EMP_DHAVAL;
27 SELECT EMP_DHAVAL.DEPTNO,ENAME,SAL,JOB,DNAME,LOC FROM EMP_DHAVAL INNER JOIN DEPT_DHAVAL ON EMP_DHAVAL.DEPTNO=DEPT_DHAVAL.DEPTNO;
```

SQL Worksheet

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14 rows selected.

DEPTNO	ENAME	SAL	JOB	DNAME	LOC
10	KING	5000	PRESIDENT	ACCOUNTING	NEW YORK
30	BLAKE	2850	MANAGER	SALES	CHICAGO
10	CLARK	2450	MANAGER	ACCOUNTING	NEW YORK
20	JONES	2975	MANAGER	RESEARCH	DALLAS
20	SCOTT	3000	ANALYST	RESEARCH	DALLAS
20	FORD	3000	ANALYST	RESEARCH	DALLAS
20	SMITH	800	CLERK	RESEARCH	DALLAS
30	ALLEN	1600	SALESMAN	SALES	CHICAGO
30	WARD	1250	SALESMAN	SALES	CHICAGO
30	MARTIN	1250	SALESMAN	SALES	CHICAGO
30	TURNER	1500	SALESMAN	SALES	CHICAGO
20	ADAMS	1100	CLERK	RESEARCH	DALLAS
30	JAMES	950	CLERK	SALES	CHICAGO
10	MILLER	1300	CLERK	ACCOUNTING	NEW YORK

2. **NATURAL JOIN** : A natural join is a type of equi join which occurs implicitly by comparing all the same names columns in both tables. The join result has only one column for each pair of equally named columns.

SYNTAX : Select * From table1 natural join table2 ;

Example :

Select * from EMP_DHAVAL NATURAL JOIN DEPT_DHAVAL;

```
28 select * from EMP_DHAVAL NATURAL JOIN DEPT_DHAVAL;
```

Oracle Live SQL - SQL Worksheet

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SQL Worksheet

Clear Find Actions Save Run

DEPTNO	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DNAME	LOC
10	7839	KING	PRESIDENT	-	17-NOV-81	5000	-	ACCOUNTING	NEW YORK
30	7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-	SALES	CHICAGO
10	7782	CLARK	MANAGER	7839	09-JUN-81	2450	-	ACCOUNTING	NEW YORK
20	7566	JONES	MANAGER	7839	02-APR-81	2975	-	RESEARCH	DALLAS
20	7788	SCOTT	ANALYST	7566	19-APR-87	3000	-	RESEARCH	DALLAS
20	7902	FORD	ANALYST	7566	03-DEC-81	3000	-	RESEARCH	DALLAS
20	7369	SMITH	CLERK	7902	17-DEC-80	800	-	RESEARCH	DALLAS
30	7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	SALES	CHICAGO
30	7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	SALES	CHICAGO
30	7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	SALES	CHICAGO
30	7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	SALES	CHICAGO
20	7876	ADAMS	CLERK	7788	23-MAY-87	1100	-	RESEARCH	DALLAS
30	7900	JAMES	CLERK	7698	03-DEC-81	950	-	SALES	CHICAGO
10	7934	MILLER	CLERK	7782	23-JAN-82	1300	-	ACCOUNTING	NEW YORK

Download CSV
14 rows selected.

```
28 select * from EMP_DHAVAL NATURAL JOIN DEPT_DHAVAL;
29 select * from EMP_DHAVAL NATURAL JOIN DEPT_DHAVAL ORDER BY DNAME;
```

The screenshot shows a web browser window with the URL 'oracle.com/apex/f?p=590:1:14732760651665:NO:RP:'. The page title is 'SQL Worksheet'. The table displayed has the following columns: DEPTNO, EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DNAME, and LOC. The table contains 14 rows of data.

DEPTNO	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DNAME	LOC
10	7782	CLARK	MANAGER	7839	09-JUN-81	2450	-	ACCOUNTING	NEW YORK
10	7934	MILLER	CLERK	7782	23-JAN-82	1300	-	ACCOUNTING	NEW YORK
10	7839	KING	PRESIDENT	-	17-NOV-81	5000	-	ACCOUNTING	NEW YORK
20	7902	FORD	ANALYST	7566	03-DEC-81	3000	-	RESEARCH	DALLAS
20	7788	SCOTT	ANALYST	7566	19-APR-87	3000	-	RESEARCH	DALLAS
20	7566	JONES	MANAGER	7839	02-APR-81	2975	-	RESEARCH	DALLAS
20	7369	SMITH	CLERK	7902	17-DEC-80	800	-	RESEARCH	DALLAS
20	7876	ADAMS	CLERK	7788	23-MAY-87	1100	-	RESEARCH	DALLAS
30	7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	SALES	CHICAGO
30	7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	SALES	CHICAGO
30	7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	SALES	CHICAGO
30	7900	JAMES	CLERK	7698	03-DEC-81	950	-	SALES	CHICAGO
30	7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	SALES	CHICAGO
30	7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-	SALES	CHICAGO

Download CSV
14 rows selected.

3. **OUTER JOIN** : In an outer join, unmatched rows in one or both tables can be returned.

There are a few types of outer joins :

- LEFT JOIN returns only unmatched rows from the left table.
- RIGHT JOIN returns only unmatched rows from the right table.
- FULL OUTER JOIN returns unmatched rows from both tables.

A. **LEFT OUTER JOIN** : This join returns all the rows of the table on the left side of the join and matching rows for the table on the right side of join.

LEFT JOIN is also known as LEFT OUTER JOIN.

SYNTAX : SELECT table1.column1,table1.column2,table2.column1,....

FROM table1 LEFT [OUTER] JOIN table2

ON table1.matching_column = table2.matching_column;

Example :

Select

EMPNO,ENAME,SAL,EMP_DHAVAL.DEPTNO,DEPT_DHAVAL.DEPTNO,DNAME

FROM DEPT_DHAVAL LEFT OUTER JOIN EMP_DHAVAL

ON EMP_DHAVAL.DEPTNO=DEPT_DHAVAL.DEPTNO;

The screenshot shows the Oracle Live SQL - SQL Worksheet interface. At the top, there are two SQL queries entered in the editor:

```

29 select * from EMP_DHAVAL NATURAL JOIN DEPT_DHAVAL ORDER BY DNAME;
30 select EMPNO,ENAME,SAL,EMP_DHAVAL.DEPTNO,DEPT_DHAVAL.DEPTNO,DNAME FROM DEPT_DHAVAL LEFT OUTER JOIN EMP_DHAVAL ON EMP_DHAVAL.DEPTNO=DEPT_DHAVAL.DEPTNO;

```

Below the editor, the results of the second query are displayed in a table. The table has 6 columns: EMPNO, ENAME, SAL, DEPTNO, DEPTNO, and DNAME. There are 15 rows of data, including a row for PERATIONS with a DEPTNO of 400.

EMPNO	ENAME	SAL	DEPTNO	DEPTNO	DNAME
7839	KING	5000	10	10	ACCOUNTING
7698	BLAKE	2850	30	30	SALES
7782	CLARK	2450	10	10	ACCOUNTING
7566	JONES	2975	20	20	RESEARCH
7788	SCOTT	3000	20	20	RESEARCH
7902	FORD	3000	20	20	RESEARCH
7369	SMITH	800	20	20	RESEARCH
7499	ALLEN	1600	30	30	SALES
7521	WARD	1250	30	30	SALES
7654	MARTIN	1250	30	30	SALES
7844	TURNER	1500	30	30	SALES
7876	ADAMS	1100	20	20	RESEARCH
7900	JAMES	950	30	30	SALES
7934	MILLER	1300	10	10	ACCOUNTING
-	-	-	-	400	PERATIONS

Below the table, there is a link to "Download CSV" and a note "15 rows selected."

B. RIGHT OUTER JOIN : This join returns all the rows of the table on the right side of the join and matching rows for the table on the left side of join. RIGHT JOIN is also known as RIGHT OUTER JOIN.

SYNTAX : SELECT table1.column1,table1.column2,table2.column1,....
 FROM table1 RIGHT [OUTER] JOIN table2
 ON table1.matching_column = table2.matching_column;

Example :

```

Select EMPNO,ENAME,SAL,EMP_DHAVAL.DEPTNO,DEPT_DHAVAL.DEPTNO,
DNAME
FROM DEPT_DHAVAL RIGHT OUTER JOIN EMP_DHAVAL
ON EMP_DHAVAL.DEPTNO=DEPT_DHAVAL.DEPTNO;

```

The screenshot shows a SQL query in the Oracle Live SQL editor:

```

31 select EMPNO,ENAME,SAL,EMP_DHAVAL.DEPTNO,DEPT_DHAVAL.DEPTNO,DNAME FROM DEPT_DHAVAL RIGHT OUTER JOIN EMP_DHAVAL ON EMP_DHAVAL.DEPTNO=DEPT_DHAVAL.DEPTNO;

```

The screenshot shows the Oracle Live SQL - SQL Worksheet interface. The browser address bar displays the URL: oracle.com/apex/f?p=590:1:14732760651665::NO:RP::. The page title is "SQL Worksheet". The interface includes a "Clear" button, a "Find" input field, an "Actions" dropdown menu, a "Save" button, and a "Run" button. The main content area displays a table with the following data:

EMPNO	ENAME	SAL	DEPTNO	DEPTNO	DNAME
7839	KING	5000	10	10	ACCOUNTING
7782	CLARK	2450	10	10	ACCOUNTING
7934	MILLER	1300	10	10	ACCOUNTING
7566	JONES	2975	20	20	RESEARCH
7788	SCOTT	3000	20	20	RESEARCH
7902	FORD	3000	20	20	RESEARCH
7369	SMITH	800	20	20	RESEARCH
7876	ADAMS	1100	20	20	RESEARCH
7698	BLAKE	2850	30	30	SALES
7499	ALLEN	1600	30	30	SALES
7521	WARD	1250	30	30	SALES
7654	MARTIN	1250	30	30	SALES
7844	TURNER	1500	30	30	SALES
7900	JAMES	950	30	30	SALES

Below the table, there is a "Download CSV" link and a message "14 rows selected."

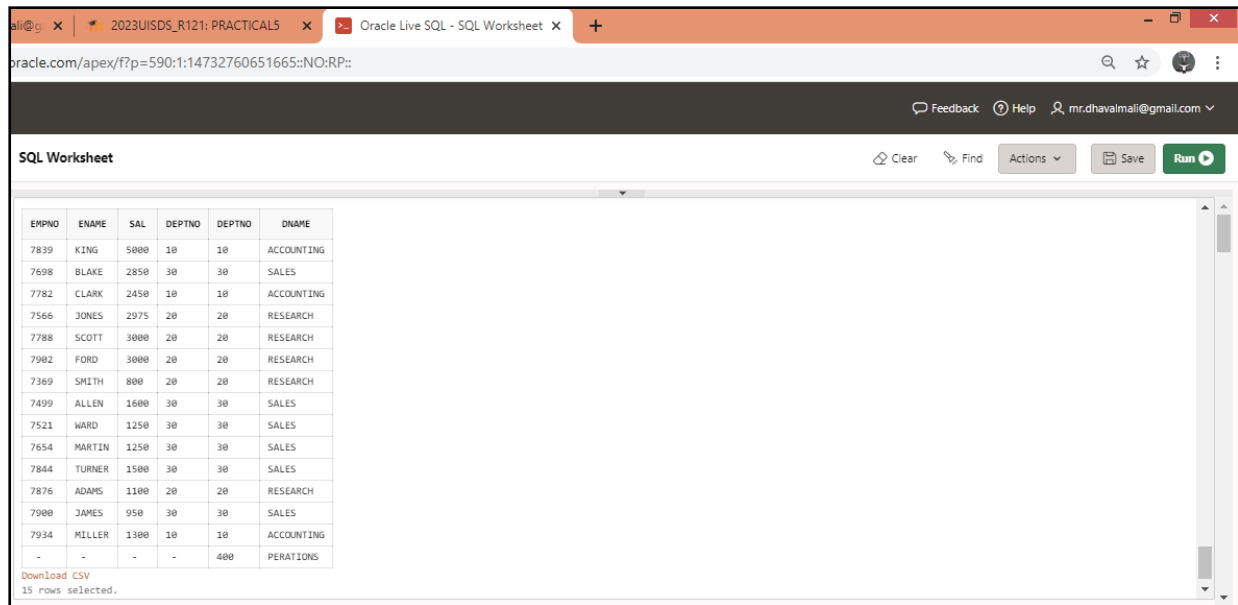
C. FULL OUTER JOIN : FULL JOIN creates the result-set by combining result of both LEFT JOIN and RIGHT JOIN. The result-set will contain all the rows from both the tables.

SYNTAX : SELECT table1.column1,table1.column2,table2.column1,
FROM table1 FULL [OUTER] JOIN table2
ON table1.matching_column = table2.matching_column;

Example :

Select EMPNO,ENAME,SAL,EMP_DHAVAL.DEPTNO,DEPT_DHAVAL.DEPTNO,
DNAME
FROM DEPT_DHAVAL FULL OUTER JOIN EMP_DHAVAL
ON EMP_DHAVAL.DEPTNO=DEPT_DHAVAL.DEPTNO;

```
31 Select EMPNO,ENAME,SAL,EMP_DHAVAL.DEPTNO,DEPT_DHAVAL.DEPTNO,DNAME FROM DEPT_DHAVAL RIGHT OUTER JOIN EMP_DHAVAL ON EMP_DHAVAL.DEPTNO=DEPT_DHAVAL.DEPTNO;
32 Select EMPNO,ENAME,SAL,EMP_DHAVAL.DEPTNO,DEPT_DHAVAL.DEPTNO,DNAME FROM DEPT_DHAVAL FULL OUTER JOIN EMP_DHAVAL ON EMP_DHAVAL.DEPTNO=DEPT_DHAVAL.DEPTNO;
```



The screenshot shows the Oracle Live SQL - SQL Worksheet interface. The table displayed has the following data:

EMPNO	ENAME	SAL	DEPTNO	DEPTNO	DNAME
7839	KING	5000	10	10	ACCOUNTING
7698	BLAKE	2850	30	30	SALES
7782	CLARK	2450	10	10	ACCOUNTING
7566	JONES	2975	20	20	RESEARCH
7788	SCOTT	3000	20	20	RESEARCH
7902	FORD	3000	20	20	RESEARCH
7369	SMITH	800	20	20	RESEARCH
7499	ALLEN	1600	30	30	SALES
7521	WARD	1250	30	30	SALES
7654	MARTIN	1250	30	30	SALES
7844	TURNER	1500	30	30	SALES
7876	ADAMS	1100	20	20	RESEARCH
7900	JAMES	950	30	30	SALES
7934	MILLER	1300	10	10	ACCOUNTING
-	-	-	-	400	PERATIONS

Download CSV
15 rows selected.

4. **CROSS JOIN** : The CROSS JOIN is also known as CARTESIAN JOIN. In a CARTESIAN JOIN there is a join for each row of one table to every row of another table. This usually happens when the matching column or WHERE condition is not specified.

SYNTAX : SELECT * FROM TABLE1 CROSS JOIN TABLE2;

OR

SELECT * FROM TABLE1, TABLE2;

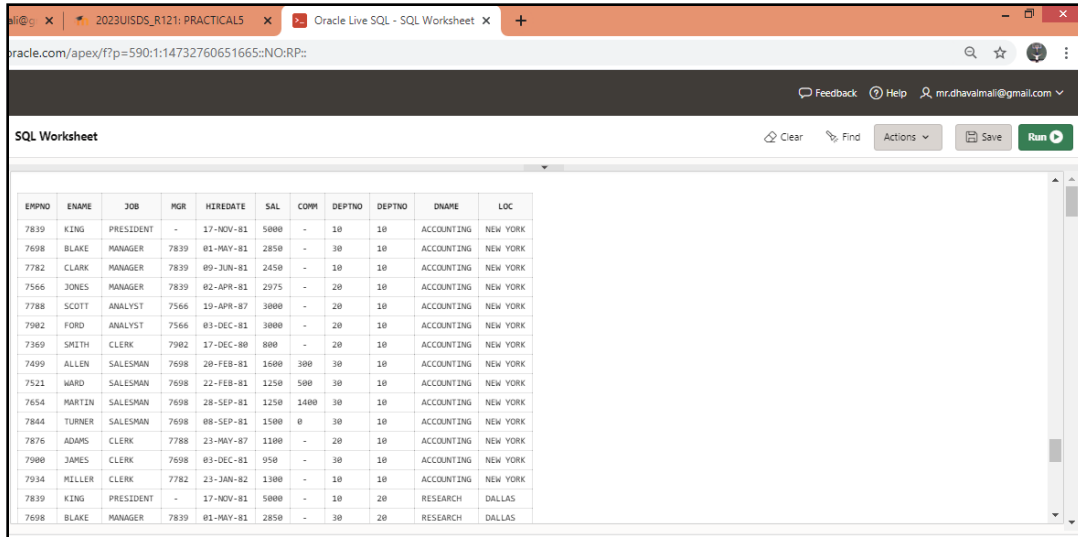
EXAMPLE :

SELECT * FROM EMP_DHAVAL CROSS JOIN DEPT_DHAVAL;

```

32 SELECT EMPNO, ENAME, SAL, EMP_DHAVAL.DEPTNO, DEPT_DHAVAL.DEPTNO, D
33 SELECT * FROM EMP_DHAVAL CROSS JOIN DEPT_DHAVAL;

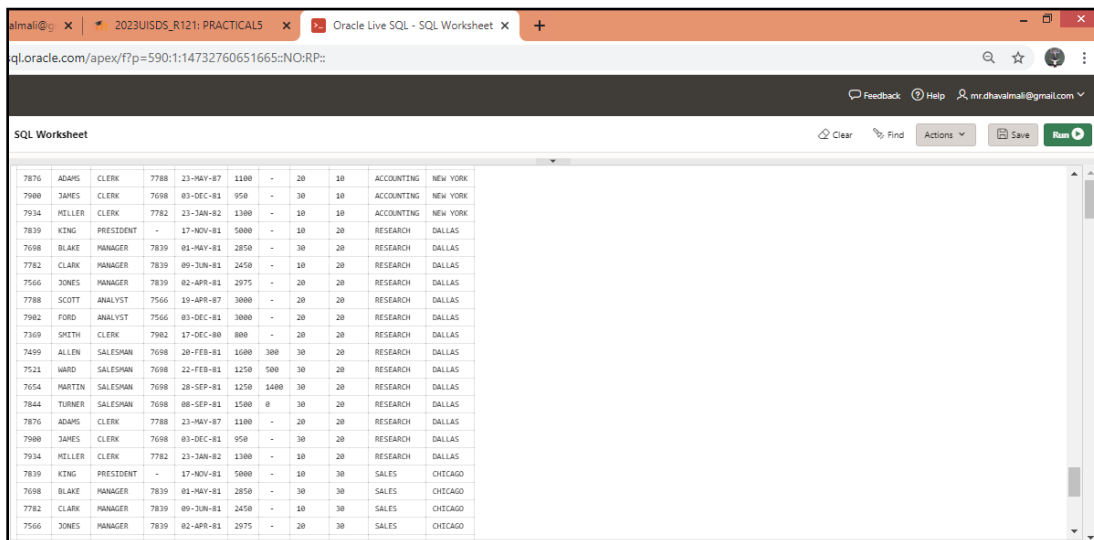
```



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SQL Worksheet

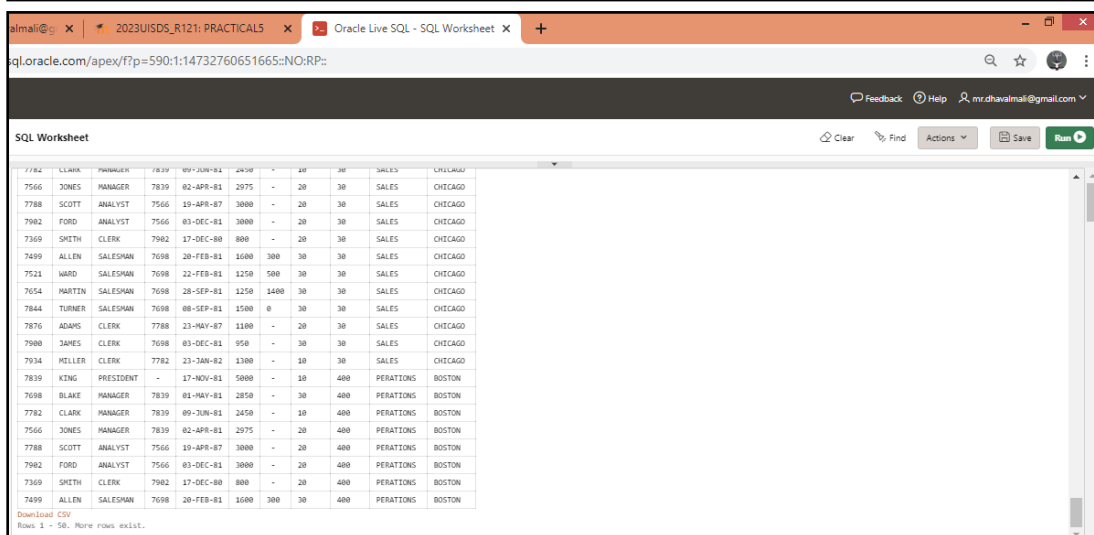
EMPNO	ENAME	JOB	GR	HIREDATE	SAL	COMM	DEPTNO	DEPTNO	DNAME	LOC
7839	KING	PRESIDENT	-	17-NOV-81	5000	-	10	10	ACCOUNTING	NEW YORK
7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-	30	10	ACCOUNTING	NEW YORK
7782	CLARK	MANAGER	7839	09-JUN-81	2450	-	10	10	ACCOUNTING	NEW YORK
7566	JONES	MANAGER	7839	02-APR-81	2975	-	20	10	ACCOUNTING	NEW YORK
7788	SCOTT	ANALYST	7566	19-APR-87	3000	-	20	10	ACCOUNTING	NEW YORK
7902	FORD	ANALYST	7566	03-DEC-81	3000	-	20	10	ACCOUNTING	NEW YORK
7369	SMITH	CLERK	7902	17-DEC-80	800	-	20	10	ACCOUNTING	NEW YORK
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30	10	ACCOUNTING	NEW YORK
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30	10	ACCOUNTING	NEW YORK
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30	10	ACCOUNTING	NEW YORK
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30	10	ACCOUNTING	NEW YORK
7876	ADAMS	CLERK	7788	23-MAY-87	1100	-	20	10	ACCOUNTING	NEW YORK
7900	JAMES	CLERK	7698	03-DEC-81	950	-	30	10	ACCOUNTING	NEW YORK
7934	MILLER	CLERK	7782	23-JAN-82	1300	-	10	10	ACCOUNTING	NEW YORK
7839	KING	PRESIDENT	-	17-NOV-81	5000	-	10	20	RESEARCH	DALLAS
7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-	30	20	RESEARCH	DALLAS



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SQL Worksheet

7876	ADAMS	CLERK	7788	23-MAY-87	1100	-	20	10	ACCOUNTING	NEW YORK
7900	JAMES	CLERK	7698	03-DEC-81	950	-	30	10	ACCOUNTING	NEW YORK
7934	MILLER	CLERK	7782	23-JAN-82	1300	-	10	10	ACCOUNTING	NEW YORK
7839	KING	PRESIDENT	-	17-NOV-81	5000	-	10	20	RESEARCH	DALLAS
7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-	30	20	RESEARCH	DALLAS
7782	CLARK	MANAGER	7839	09-JUN-81	2450	-	10	20	RESEARCH	DALLAS
7566	JONES	MANAGER	7839	02-APR-81	2975	-	20	20	RESEARCH	DALLAS
7788	SCOTT	ANALYST	7566	19-APR-87	3000	-	20	20	RESEARCH	DALLAS
7902	FORD	ANALYST	7566	03-DEC-81	3000	-	20	20	RESEARCH	DALLAS
7369	SMITH	CLERK	7902	17-DEC-80	800	-	20	20	RESEARCH	DALLAS
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30	20	RESEARCH	DALLAS
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30	20	RESEARCH	DALLAS
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30	20	RESEARCH	DALLAS
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30	20	RESEARCH	DALLAS
7876	ADAMS	CLERK	7788	23-MAY-87	1100	-	20	20	RESEARCH	DALLAS
7900	JAMES	CLERK	7698	03-DEC-81	950	-	30	20	RESEARCH	DALLAS
7934	MILLER	CLERK	7782	23-JAN-82	1300	-	10	20	RESEARCH	DALLAS
7839	KING	PRESIDENT	-	17-NOV-81	5000	-	10	30	SALES	CHICAGO
7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-	30	30	SALES	CHICAGO
7782	CLARK	MANAGER	7839	09-JUN-81	2450	-	10	30	SALES	CHICAGO
7566	JONES	MANAGER	7839	02-APR-81	2975	-	20	30	SALES	CHICAGO



ql.oracle.com/apex/f?p=590:1:14732760651665::NO:RP::

SQL Worksheet

7782	CLARK	MANAGER	7839	09-JUN-81	2450	-	20	30	SALES	CHICAGO
7566	JONES	MANAGER	7839	02-APR-81	2975	-	20	30	SALES	CHICAGO
7788	SCOTT	ANALYST	7566	19-APR-87	3000	-	20	30	SALES	CHICAGO
7902	FORD	ANALYST	7566	03-DEC-81	3000	-	20	30	SALES	CHICAGO
7369	SMITH	CLERK	7902	17-DEC-80	800	-	20	30	SALES	CHICAGO
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30	30	SALES	CHICAGO
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30	30	SALES	CHICAGO
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30	30	SALES	CHICAGO
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30	30	SALES	CHICAGO
7876	ADAMS	CLERK	7788	23-MAY-87	1100	-	20	30	SALES	CHICAGO
7900	JAMES	CLERK	7698	03-DEC-81	950	-	30	30	SALES	CHICAGO
7934	MILLER	CLERK	7782	23-JAN-82	1300	-	10	30	SALES	CHICAGO
7839	KING	PRESIDENT	-	17-NOV-81	5000	-	10	400	PERATIONS	BOSTON
7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-	30	400	PERATIONS	BOSTON
7782	CLARK	MANAGER	7839	09-JUN-81	2450	-	10	400	PERATIONS	BOSTON
7566	JONES	MANAGER	7839	02-APR-81	2975	-	20	400	PERATIONS	BOSTON
7788	SCOTT	ANALYST	7566	19-APR-87	3000	-	20	400	PERATIONS	BOSTON
7902	FORD	ANALYST	7566	03-DEC-81	3000	-	20	400	PERATIONS	BOSTON
7369	SMITH	CLERK	7902	17-DEC-80	800	-	20	400	PERATIONS	BOSTON
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30	400	PERATIONS	BOSTON

Download CSV

Rows 1 - 50. More rows exist.

5. **SELF JOIN** : As the name signifies, in SELF JOIN a table is joined to itself. That is, each row of the table is joined with itself and all other rows depending on some conditions.

SYNTAX : SELECT a.coulmn1 , b.column2
FROM table_name a, table_name b
WHERE some_condition;

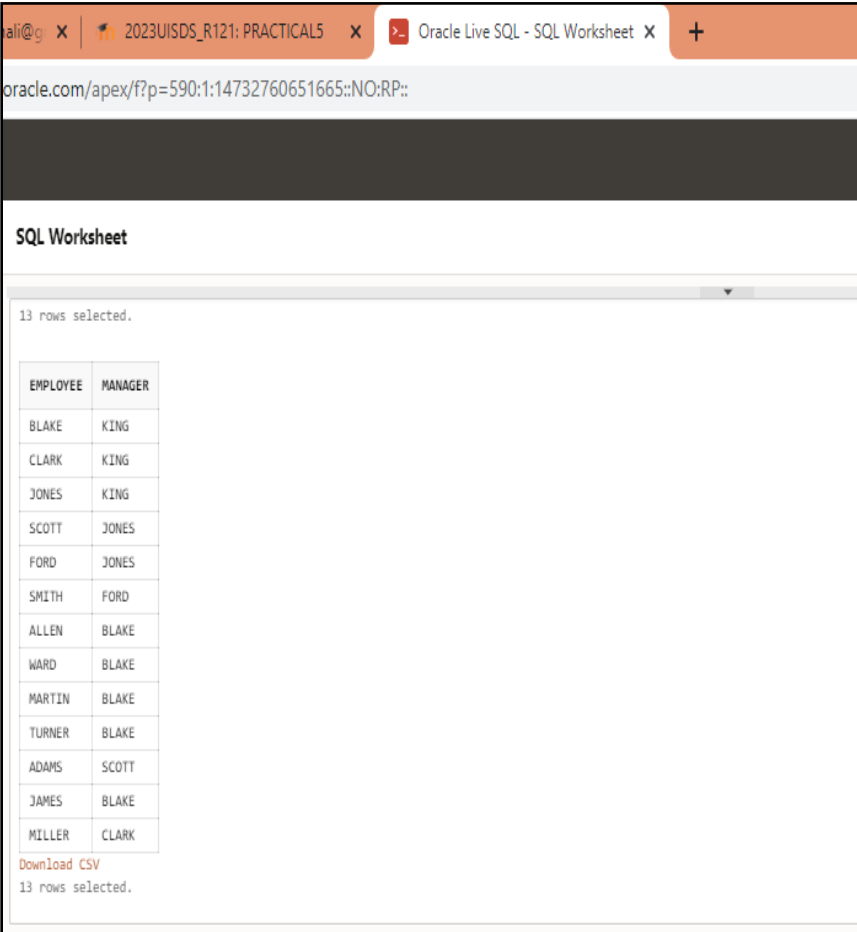
Example : SELECT b.ename,a.ename
FROM EMP_DHAVAL a,EMP_DHAVAL b
where a.empno=b.mgr;

SELECT b.ename employee,a.ename manager
FROM EMP_DHAVAL a,EMP_DHAVAL b
WHERE a.empno=b.mgr;

The screenshot shows the Oracle Live SQL SQL Worksheet interface. At the top, a SQL query is entered in the editor: `SELECT b.ename,a.ename FROM EMP_DHAVAL a,EMP_DHAVAL b where a.empno=b.mgr;`. Below the editor, the results are displayed in a table with two columns: ENAME and ENAME. The table contains 13 rows of data, representing the self-join of the EMP_DHAVAL table. The first 12 rows show employees and their managers, while the 13th row shows an employee without a manager (CLARK). The interface includes a 'Run' button and a 'Download CSV' link.

ENAME	ENAME
BLAKE	KING
CLARK	KING
JONES	KING
SCOTT	JONES
FORD	JONES
SMITH	FORD
ALLEN	BLAKE
WARD	BLAKE
MARTIN	BLAKE
TURNER	BLAKE
ADAMS	SCOTT
JAMES	BLAKE
MILLER	CLARK

```
34 SELECT b.ename,a.ename FROM EMP_DHAVAL a,EMP_DHAVAL b where a.empno=b.mgr;
35 SELECT b.ename employee,a.ename manager FROM EMP_DHAVAL a,EMP_DHAVAL b WHERE a.empno=b.mgr;
```

The screenshot shows a web browser window with three tabs: 'ali@g...', '2023UISDS_R121: PRACTICALS', and 'Oracle Live SQL - SQL Worksheet'. The address bar shows the URL 'oracle.com/apex/f?p=590:1:14732760651665::NO:RP::'. The page title is 'SQL Worksheet'. Below the title, it says '13 rows selected.' and displays a table with two columns: 'EMPLOYEE' and 'MANAGER'. The table contains 13 rows of data. Below the table, there is a link 'Download CSV' and the text '13 rows selected.'.

EMPLOYEE	MANAGER
BLAKE	KING
CLARK	KING
JONES	KING
SCOTT	JONES
FORD	JONES
SMITH	FORD
ALLEN	BLAKE
WARD	BLAKE
MARTIN	BLAKE
TURNER	BLAKE
ADAMS	SCOTT
JAMES	BLAKE
MILLER	CLARK

[Download CSV](#)
13 rows selected.