

## Practical 5

### Joins

#### Inner Join:

The INNER JOIN keyword selects records that have matching values in both tables

```

Select Run SQL Command Line
SQL> set line size 10000
SP2-0268: linesize option not a valid number
SQL> set linesize 10000
SQL> set pagesize 10000
SQL> select jovial_emp.emp_no
2  from jovial_emp
3  inner join emp on jovial_emp.emp_no = emp.emp_no;

EMP_NO
-----
7369
7499
7521
7566
7654
7698
7782
7788
7839
7844
7876
7900
7902
7934

14 rows selected.

SQL>

```

#### Natural join:

The SQL NATURAL JOIN is a type of EQUI JOIN and is structured in such a way that, columns with the same name of associated tables will appear once only.

```

Run SQL Command Line
SQL> select * from emp natural join dept;

DEPT_NO  EMP_NO  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

14 rows selected.

SQL>

```

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Outer Join:

Left Join:

The LEFT JOIN keyword returns all records from the left table (table1), and the matched records from the right table (table2). The result is NULL from the right side, if there is no match.

```
Run SQL Command Line
SQL> select jovial_emp.emp_no,jovial_emp.Ename
2  from jovial_emp
3  RIGHT JOIN emp on jovial_emp.emp_no = emp.emp_no
4  order by jovial_emp.emp_no;

  EMP_NO  ENAME
-----
    7369  SMITH
    7499  ALLEN
    7521  WARD
    7566  JONES
    7654  MARTIN
    7698  BLAKE
    7782  CLARK
    7788  SCOTT
    7839  KING
    7844  TURNER
    7876  ADAMS
    7900  JAMES
    7902  FORD
    7934  MILLER

14 rows selected.
SQL>
```

Right: The RIGHT JOIN keyword returns all records from the right table (table2), and the matched records from the left table (table1). The result is NULL from the left side, when there is no match.

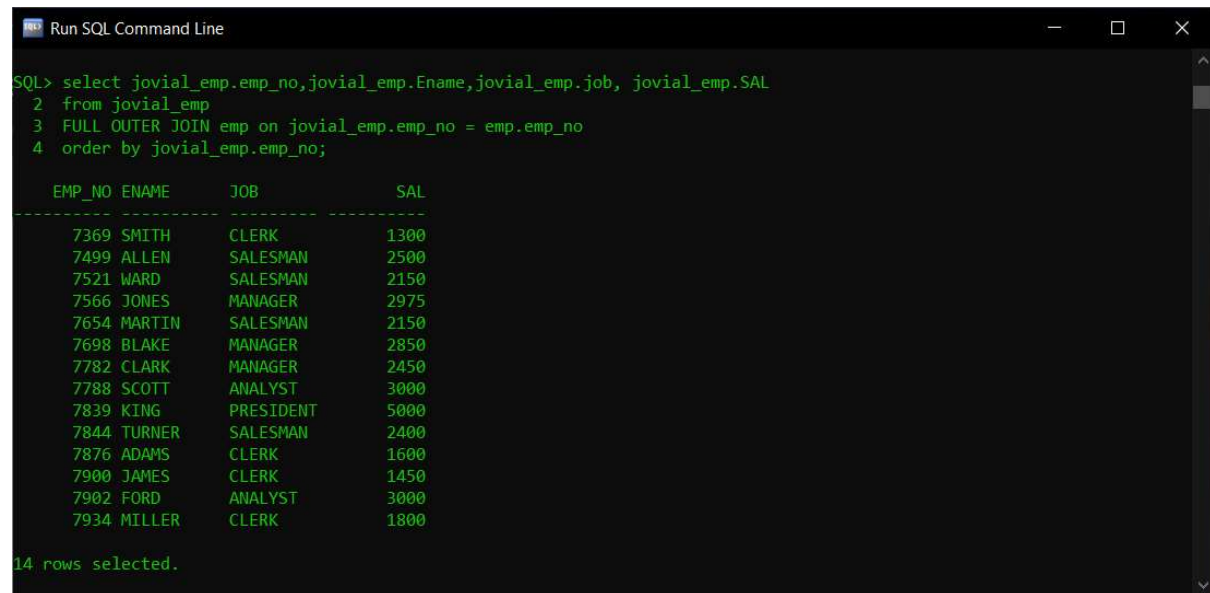
```
Run SQL Command Line
SQL> select jovial_emp.emp_no,jovial_emp.Ename,jovial_emp.job
2  from jovial_emp
3  LEFT JOIN emp on jovial_emp.emp_no = emp.emp_no
4  order by jovial_emp.emp_no;

  EMP_NO  ENAME      JOB
-----
    7369  SMITH      CLERK
    7499  ALLEN     SALESMAN
    7521  WARD     SALESMAN
    7566  JONES    MANAGER
    7654  MARTIN   SALESMAN
    7698  BLAKE    MANAGER
    7782  CLARK    MANAGER
    7788  SCOTT    ANALYST
    7839  KING     PRESIDENT
    7844  TURNER   SALESMAN
    7876  ADAMS    CLERK
    7900  JAMES    CLERK
    7902  FORD     ANALYST
    7934  MILLER   CLERK

14 rows selected.
SQL>
```

Full:

The FULL OUTER JOIN keyword returns all records when there is a match in left (table1) or right (table2) table records.



The screenshot shows a 'Run SQL Command Line' window with a dark background. The SQL query entered is:

```
SQL> select jovial_emp.emp_no,jovial_emp.ename,jovial_emp.job, jovial_emp.SAL
2  from jovial_emp
3  FULL OUTER JOIN emp on jovial_emp.emp_no = emp.emp_no
4  order by jovial_emp.emp_no;
```

The results are displayed in a table with the following columns: EMP\_NO, ENAME, JOB, and SAL. The data is as follows:

EMP_NO	ENAME	JOB	SAL
7369	SMITH	CLERK	1300
7499	ALLEN	SALESMAN	2500
7521	WARD	SALESMAN	2150
7566	JONES	MANAGER	2975
7654	MARTIN	SALESMAN	2150
7698	BLAKE	MANAGER	2850
7782	CLARK	MANAGER	2450
7788	SCOTT	ANALYST	3000
7839	KING	PRESIDENT	5000
7844	TURNER	SALESMAN	2400
7876	ADAMS	CLERK	1600
7900	JAMES	CLERK	1450
7902	FORD	ANALYST	3000
7934	MILLER	CLERK	1800

At the bottom of the window, it says '14 rows selected.'

### CROSS Join:

The SQL CROSS JOIN produces a result set which is the number of rows in the first table multiplied by the number of rows in the second table if no WHERE clause is used along with CROSS JOIN. This kind of result is called as Cartesian Product.

If WHERE clause is used with CROSS JOIN, it functions like an INNER JOIN.

An alternative way of achieving the same result is to use column names separated by commas after SELECT and mentioning the table names involved, after a FROM clause.

Run SQL Command Line

```
SQL> select * from jovial_emp
2 cross join emp;
```

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

### Self Join:

A SELF JOIN is a regular join, but the table is joined with itself – this is extremely useful for comparisons within a table.

Select Run SQL Command Line

```
SQL> select b.ename employee,a.ename manager
2 from emp a,emp b
3 where a.emp_no=b.mgr;
```

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

13 rows selected.

SQL>