READING MATERIAL 3

The Oracle table 'DUAL'

DUAL is a dummy table available to all users in the database. It has one column and one row. Besides arithmetic calculations, it also supports data retrieval and its formatting can be retrieved with following query.

Example:

SQL> *SELECT * FROM dual;*

OUTPUT:

D
X

We observe that column D is varchar2 (1) and X is a character data.

There is no meaningful data actually in DUAL; it simply exists as a SQL construct. The DUAL table contains only one column called DUMMY and one row with a value, "X." Often a simple calculation needs to be done, for example 2*2. The only SQL verb to get the output is SELECT. However a SELECT must have a table name in its FROM clause, otherwise the SELECT fails. When an arithmetic exercise is to be performed such as 2*2 or 4/2 etc, there really no table being referenced; only numeric literals are being used.

To facilitate such calculations via a SELECT, Oracle provides a dummy table called DUAL, against which SELECT statements that are required to manipulate numeric literals can be fired and output is obtained.

Example:

SQL> *SELECT 2*2 FROM dual;*

OUTPUT:

2*2
4

The current date can be obtained from the table DUAL in the required format as shown below.

Sysdate is a pseudo column that contains the current date and time. It required no arguments when selected from the table DUAL and returns the current date.

Example:

SQL> *SELECT sysdate FROM dual;*

OUTPUT:

SYSDATE
23-JUL-03

LIMITING ROWS

While viewing the data from the table it is not necessary that we want to see all the data from the columns selected but we want that there should be some restriction on the selected data. We can restrict the rows returned from the query by using the WHERE clause. When there is where clause in the statement, it checks each row of the table to determine whether the condition is met or not. The WHERE clause contains the condition which consists of any arithmetic expression, column values or functions etc. Moreover, it is not necessary that the columns used in the condition should be present in the SELECT statement.

Note: It is important to provide character and date values in single quotes in WHERE condition and character values which we supply in single quotes are case sensitive.

We can use column names or expressions in the WHERE clause but not column alias names. How do you list the employee information for department 10? This example shows how to use a WHERE clause to limit the query only to the records belonging to department 10.

Example: Retrieve the empno, ename, sal of deptno 10

SQL> *SELECT empno,ename,sal FROM emp WHERE deptno = 10;*

OUTPUT:

EMPNO	ENAME	SAL
7782	CLARK	2450
7839	KING	5000
7934	MILLER	1300

Example: List the empno, ename, job, manager number of the employees who do the job of MANAGER and belong to the department 20.

SQL> *SELECT empno,ename,job,mgr FROM emp WHERE job = 'MANAGER' and deptno = 20;*

OUTPUT:

EMPNO	ENAME	JOB	MGR
7566	JONES	MANAGER	7839

Example: List the employee number of employees who earn greater than 2000.

SQL> *SELECT empno,sal FROM emp WHERE sal>2000;*

OUTPUT:

EMPNO	SAL
7566	2975
7698	2850
7782	2450
7788	3000
7839	5000
7902	3000

Example: List the name of the employees who do the job of clerk or salesman.

SQL> *SELECT ename, job FROM emp WHERE job = 'CLERK' or job = 'SALESMAN'.*

OUTPUT:

ENAME	JOB
SMITH	CLERK
ALLEN	SALESMAN
WARD	SALESMAN
MARTIN	SALESMAN
TURNER	SALESMAN
ADAMS	CLERK
JAMES	CLERK
MILLER	CLERK

Example: List all the department names in BOSTAN from the dept table.

SQL> *SELECT dname FROM dept WHERE loc = 'BOSTON';*

OUTPUT:

DNAME
OPERATIONS

SPECIAL OPERATORS

There are following special operators used in SELECT statement:

Special Operators	
LIKE	Pattern matching from a column
IN	To check a value within a set
BETWEEN	To check a value within a range

Example: List the empno, ename and salary of the employees, whose salary is between 1500 and 2000.

SQL> *SELECT empno, ename, sal FROM emp WHERE sal between 1500 and 2000;*

OUTPUT:

EMPNO	ENAME	SAL
7499	ALLEN	1600
7844	TURNER	1500

** While using the between operator it must be remembered that both the values will be included in the range.

Example: List employee number and name of the employees who belong to department 10, 20.

SQL> *SELECT empno, ename FROM emp WHERE deptno in (10, 20);*

OUTPUT:

EMPNO	ENAME
7369	SMITH
7566	JONES
7782	CLARK
7788	SCOTT
7839	KING
7876	ADAMS
7902	FORD
7934	MILLER

Example: List employee number of the employees, whose name is not 'FORD', 'JAMES 'or 'JONES';

SQL> *SELECT empno FROM emp WHERE ename not in ('FORD','JAMES','JONES');*

OUTPUT:

EMPNO
7369
7499
7521
7654
7698
7782
7788
7839
7844
7876
7934

Importance of parentheses

While writing queries care should be taken to use the parentheses carefully so as not to change the meaning of the query.

SQL> *SELECT ename, job, comm FROM emp WHERE comm IS NULL and job ='CLERK ' or job = 'SALESMAN';*

OUTPUT:

ENAME	JOB	COMM
ALLEN	SALESMAN	300
WARD	SALESMAN	500
MARTIN	SALESMAN	1400
TURNER	SALESMAN	0

In this example the query becomes list the name of the employees, job and commission of those employees who get no commission and do the job of clerk or those employees who do the job of salesman only. Similarly if we write the query as:

SQL> *SELECT ename, job, comm FROM emp WHERE comm IS NULL and (job =’CLERK ‘ or job = ‘SALESMAN’);*

OUTPUT:

ENAME	JOB	COMM
SMITH	CLERK	
ADAMS	CLERK	
JAMES	CLERK	
MILLER	CLERK	

In this example the query becomes list the name of the employees, job and commission of those employees who do the job of either clerk or salesman and get no commission. So only those names will be displayed who is clerk or salesman but both of them should not be getting any commission.