DBMS Lab-4

ROUND - Results:
(write output for any one example)

i) ROUND(15.193,1)

```
----------------------
 15.2
```

ii) ROUND(15.193,3)

```
------------------------
 15.193
```

iii) ROUND(126.45,-1)

```
------------------------
 130
```

iv) ROUND(15.193)

```
-------------
 15
```

TRUNC - Results:

Follow the same format for results of Trunc and Power functions

BUILT-IN Functions in SQL

Formats data without affecting the physical data

Number Functions:

1) **ROUND(m[,n])** : m rounded to the n^{th} place

Examples:

i. Select round(15.193, 1) from dual;
ii. Select round(15.193, 3) from dual;
iii. Select round(126.45,-1) from dual;
iv. Select round(15.193) from dual;

2) **TRUNC(m[,n])** : m truncated to the n^{th} decimal place

Examples:

i. Select trunc(15.193, 1) from dual;
ii. Select trunc(15.193, 3) from dual;
iii. Select trunc(126.45,-1) from dual;
iv. Select trunc(123.45,-2) from dual;

3) **POWER(m,n) :** m raised to the n^{th} power

Examples:

i. Select power(2,4) from dual;

Note: Dual is a special one-row, one-column table present by default in Oracle. It has a column called DUMMY of type VARCHAR2(1), and has a value 'X' as its row. It is suitable for use in selecting a pseudo column

MOD - Result:

```
 MOD(5,2)
----------------
       1
```

SQRT - Result:

```
 SQRT(25)
--------------
       5
```

ABS - Result:

```
 ABS(-5)
-----------
      5
```

SIGN – Results:

i) SIGN(15)

```
----------
 1
```

ii) SIGN(-15)

```
---------
 -1
```

Follow the same result format for ceil and floor functions

4)MOD(m,n) : Remainder of m divided by n

Example: Select mod(5,2) from dual;

5)SQRT(n) : positive square root of n

Example: Select sqrt(25) from dual;

6)ABS(m) : Absolute value of m

Example: Select abs(-5) from dual;

7) SIGN(n) : Returns: -1 for n<0, 0 for n=0, 1 for n>0

Examples:

i. Select sign(15) from dual;

ii. Select sign(-15) from dual;

8) CEIL(n) : Returns the smallest integer >=n

Example: Select ceil(14.6) from dual;

9) FLOOR(n) : Returns the greatest number <=n

Example: Select floor(14.7) from dual;

LOWER – Results:

i) LOWER(SNAME)

---

dustin

ii) LOWER('ORACLE')

---

oracle

UPPER – Results:

i) UPPER(SNAME)

DUSTIN

HORATIO

ii) UPPER('oracle')

ORACLE

Follow the same Result format for rest of the character/string functions

Character/String Functions:

1) LOWER(string/column) : All letters are changed to lowercase.

Examples:

i. Select lower(sname) from sailors where sid=22;

ii. Select lower('ORACLE') from dual;

2) UPPER(string/column) : All letters are changed to uppercase.

Examples:

i. Select upper(sname) from sailors where rating=7;

ii. Select upper('oracle') from dual;

3) INITCAP(string/column): First letter of each word is changed to uppercase and all other letters are in lower case.

Examples:

i. Select initcap(color) from boats;

ii. Select initcap('read') from dual;

4) LENGTH(string/column): Returns the number of characters in the string

Examples:

i. Select length('oracle') from dual;

ii. Select sname,length(sname) from sailors;

Follow the same Result format as the previous character/string functions

5)**CONCAT(string1/column1,string2/column2):**

Concatenation of strings

Examples:

i. Select concat(sid,sname) from sailors;

ii. Select concat('oracle', 'corp') from dual;

Concatenation operator : ||

Examples:

i. Select sid || sname as details from sailors; //column alias

ii. Select 'oracle'||'corp' from dual;

iii. Select sname||' has the rating '||rating from sailors;

6) LPAD(string/column,n[,char(s)]) : Right justifies the String

n= length of the output

char – default is space

Example: Select lpad(sname,10,'*') from sailors;

7) RPAD(string/column,n[,char(s)]) : Left justifies the String

Example: Select rpad(sname,10,'*') from sailors;

Follow the same Result format as the previous character/string functions

8) LTRIM(string/column) : trims spaces on left side.

Example: Select ltrim(‘ oracle ‘) from dual;

9) RTRIM(string/column) : trims spaces on right side.

Example: Select rtrim(‘ oracle ‘) from sailors;

10) TRIM( ) – by default trims spaces

Examples:

i. Select trim(‘S’ from ‘MTHSS’) FROM DUAL;

ii. Select trim(‘S’ from ‘SMITHS’) FROM DUAL;

11) ASCII(char) – returns ascii codes of only the first letter in the string.

Example: Select sname,ascii(sname) from sailors;

12) CHR(ascii code) - returns the character equivalent of the ascii code

Example: Select chr(65) from dual;

Follow the same Result format as the previous character/string functions

13) SUBSTR(string/column, m[,n]) : Returns a substring from the string

m= position of the char from beginning of string

n= number of characters to be read from the position m

Examples:

i. Select substr('computer',4,3) from dual;

ii. Select substr('computer',4) from dual;

iii. Select substr('computer',-3) from dual;

14) INSTR(string/column,char[,m][,n]) : Returns the position of a char in the string

m : indicates position from which place you want to Start finding the occurrence

n: indicate the number of occurrence.

Default value for m and n is 1

Examples:

i. Select sname,instr(sname,'b') from sailors;

ii. Select sname,instr(sname,'b',4) from sailors;

iii. Select sname,instr(sname,'b',3) from sailors;

iv. Select sname,instr(sname,'b',3,2) from sailors;

v. Select sname,instr(sname,'b',4,2) from sailors;

vi. Select sname,instr(sname,'b',1,2) from sailors;

Follow the same Result format as the previous character/string functions

15) TRANSLATE(string/column, search_char(s),replace_char(s))

Examples:

i. Select translate(sname, 'a' ,'*') from sailors;
ii. Select translate('corporation','aro','123') from dual;
iii. Select translate('corporation','aro','12') from dual; //o =null
iv. Select translate('corporation', 'aro', null) from dual; // entire string is null
v. Select translate('corporation', 'aro', '') from dual;
vi. Select translate('corporation', 'aro', '1234') from dual; // 4 is ignored.

16) REPLACE(string/column, search_char(s)[,replace_str])

Default value for replace_str is null.

Examples:

i. Select replace('corporation','aro','123') from dual;
ii. Select replace('corporation','ora,'123') from dual;
iii. Select replace('corporation', 'ora') from dual;

SYSDATE – Result:

SYSDATE

15-AUG-15

LAST_DAY – Results:

i) LAST_DAY(

31-AUG-15

ii) LAST_DAY(

31-JUL-15

Follow the same Result format for rest date functions

Date and Time Functions:

1) SYSDATE : returns current system date and time

Example: Select sysdate from dual;

2) LAST_DAY(date/column) : returns last day of the Month

Examples:

i. Select last_day(sysdate) from dual;
ii. Select last_day(sysdate-15) from dual;

3) NEXT_DAY(date/column, day) : returns next "day" Date

Examples:

i. Select next_day(sysdate,'sunday') from dual;
ii. Select next_day(sysdate,'sun') from dual;
iii. Select next_day(sysdate,1) from dual;

4) ADD_MONTHS(date/column, n) : returns date+ n months

Example: Select add_months(sysdate,5) from dual;

5) MONTHS_BETWEEN(date1/col1, date2/col2): returns number of months by which date2 precedes date1

Example: Select months_between(sysdate,'01-DEC-2012') from dual;

Result:

i. ROUND(SYS

01-AUG-15

ii. ROUND(SYS

01-SEP-15

Follow the same Result format for the rest

Using ROUND or TRUNC with DATE data type:

Examples:

i. Select round(sysdate,'month') from dual;
ii. Select round(sysdate+10,'month') from dual;
iii. Select trunc(sysdate,'month') from dual;
iv. Select trunc(sysdate+10,'month') from dual;
v. Select round(sysdate,'year') from dual;
vi. Select round(add_months(sysdate,5),'year') from dual;
vii. Select trunc(sysdate,'year') from dual;
viii. Select trunc(add_months(sysdate,5),'year') from dual;

Note: The second parameter in the function can take only month or year as values.

Follow the same Result format as the previous functions

Miscellaneous Functions:

1) **ROWID**: stored value (hexadecimal), represents the physical location of the row in a database
Example: Select rowid, s.* from sailors s;

2) ROWNUM: not stored value(an integer +ve value),rownum is a pseudo column like sysdate. It is generated when records are fetched from database.

i. Select rownum,sname,rating from sailors where rownum<5;
ii. Select rownum,sname,rating from sailors where rownum>5; //fetches no rows, because rownum is assigned only to the data that is fetched.

Therefore, with rownum, <,<=,=1 and >=1 are valid,
>,=2 are not valid.

3) NVL(column,val): is a function used to compensate for null values.

4) GREATEST(Val1,val2,..) : at row level, can be used with any data type

Example: Select ename,sal,comm,greatest(sal,nvl(comm,0)) from emp**;**

5) **LEAST**(Val1,val2,..) : at row level, can be used with any data type
Example: Select ename,sal,comm,least(sal,nvl(comm,0)) from emp**;**

Follow the same Result format as the previous functions

6)**DECODE(string/column,search1,replace1[,search2,replace2,…][default_value])**

default_value is null by default.

Examples:

i. Select sname, rating,decode(rating,10,'High',7,'Medium',3,'Low') as rating_level from sailors;

ii. Select sname, rating,decode(rating,10,'High',7,'Medium',3,'Low','Others') "rating_level" from sailors;

7) CASE

Examples:

```
i) Select rating, case rating  when 10 then 'High'
                               when 7 then 'Medium'
                               when 3 then 'low'
                               else 'others'
                               end
   from sailors;

ii) Select rating, case when rating >=7  then 'High'
                        when rating <7 then 'low'
                       else 'others'
                       end
    from sailors;
```

To_char(number, format) – result:

TO_CHAR(1000

$10,0000.00

To_number(string, format) – result:

'100'+TO_NUMBER('2,000','9,999')

2100

To_date(string, format) – result:

i. TO_DATE('

01-JAN-15

ii. TO_DATE('

01-JAN-15

String/Number/Date Conversion Functions:

1) TO_CHAR(number, FORMAT): Number is converted to string as specified by the format

Formats for Numbers:

. Prints the Decimal Point

, Prints the comma to represent thousands

9 Each 9 represents one digit in the result

0 Represents a leading zero to be displayed

$ dollar sign printed to the left of number

Example:

```
select to_char(100000,'$99,9999.99') from dual;
```

2) TO_NUMBER(string[,format]): string is converted to a number as specified by the format

Example:

i. Select '100' + '2,000' from dual; //gives an error

ii. Select '100' + to_number('2,000','9,999') from dual;

3) TO_DATE(string[,format]): String is converted to a date value as specified by the format

i. Select to_date('01-JAN-2015') from dual;

ii. Select to_date('01/01/2015','dd/mm/yyyy') from dual;

Result:

TO_CHAR(SYS

04:08:51 pm

4) TO_CHAR (date, FORMAT) : The date is converted to a string in the given format

Formats for date:

D	- day of week
DD	- day of the month
DY	– day of the week in 3 characters (SUN…SAT)
DDD	- day of the week in 3 characters (SUN…SAT)
DAY	– day of the week in full
MM	- months in digits
MON	-months in 3 characters
MONTH	- month in full form
FM	- Prefix to DAY or MONTH or YEAR to suppress padding
YY	-year in 2 digits
YYYY	- year in 4 digits
CC	-century
W	– week of the month
WW	– week of the year
HH/HH12	– hours in 12 hour format
HH24	– hours in 24 hour format
MI	– minutes
SS	- seconds
AM or PM	- Meridian indicator
RM	- Roman numeral for the month

Examples:

```
Select to_char(sysdate, 'hh:mm:ss pm') from dual;
```

Exercise

1. Retrieve even rows from sailors table
2. Write a query to retrieve Nth row where N is entered at runtime.
3. Find details of the reservations made by sailor 22 in the month of AUG and OCT.
4. Find sailors details (do not use wildcards)
    a. Whose name contains ‘S’ as a 3rd character.
    b. Whose name contains ‘E’ as a 2nd character from end of the string.
    c. Whose name contains the letter ‘A’.
    d. Whose name contains the letter ‘O’ only once.
    5. Write a query to display today's date in dd-month yyyy hh:mi:ss format
6. Write a query to display today's date in the given format: Monday 3rd August 2015
7. Write a query to display reservation sorted by month
8. Write a query to display : Today the date is: 03.08.2015

Viva Questions

1) Give the syntax's of any 4 character built-in functions
2) Give the syntax's and purpose of any 6 built-in number functions
3) Give the syntax's for any two in-built date functions on SQL
4) Give the syntax and formats for string conversion function in SQL (to_char)
5) What is the difference between the functions translate and replace.
6) Write the syntax for the decode function in SQL
7) Give the syntax and formats for number conversion function in SQL (to_number)
8) What is the difference between the NVL and the NVL2 functions?
9) What is basic purpose of dual in oracle?
10)Differentiate LPAD and RPAD?

References

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