EXERCISE-6

Single Row Functions

Evaluation Procedure	Marks awarded
Practice Evaluation (5)	
Viva(5)	
Total (10)	
Faculty Signature	

Objective

After the completion of this exercise, the students will be able to do the following:

- Describe various types of functions available in SQL.
- Use character, number and date functions in SELECT statement.
- Describe the use of conversion functions.

Single row functions:

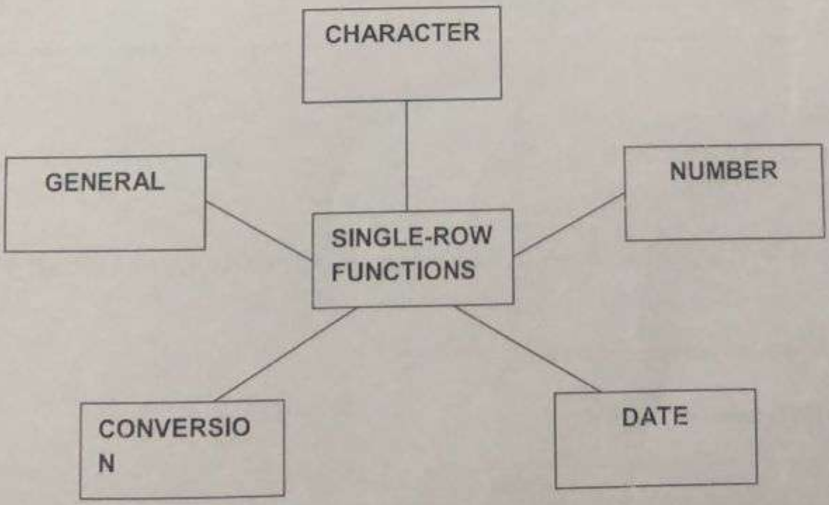
Manipulate data items.
Accept arguments and return one value.
Act on each row returned.
Return one result per row.
May modify the data type.
Can be nested.
Accept arguments which can be a column or an expression

Syntax

Function_name(arg1,…argn)

An argument can be one of the following

- ✓ User-supplied constant
- ✓ Variable value
- ✓ Column name
- ✓ Expression



- Character Functions: Accept character input and can return both character and number values.

- Number functions: Accept numeric input and return numeric values.
- Date Functions: Operate on values of the DATE data type.
- Conversion Functions: Convert a value from one type to another.

Character Functions

Character Functions

Case-manipulation functions

1. Lower
2. Upper
3. Initcap

Character-manipulation functions

1. Concat
2. Substr
3. Length
4. Instr
5. Lpad/Rpad
6. Trim
7. Repalce

Function	**Purpose**
lower(column/expr)	Converts alpha character values to lowercase
upper(column/expr)	Converts alpha character values to uppercase
initcap(column/expr)	Converts alpha character values the to uppercase for the first letter of each word, all other letters in lowercase
concat(column1/expr1, column2/expr2)	Concatenates the first character to the second character
substr(column/expr,m,n)	Returns specified characters from character value starting at character position m, n characters long
length(column/expr)	Returns the number of characters in the expression
instr(column/expr,'string',m,n)	Returns the numeric position of a named string
lpad(column/expr, n,'string')	Pads the character value right-justified to a total width of n character positions
rpad(column/expr,'string',m,n)	Pads the character value left-justified to a total width of n character positions
trim(leading/trailing/both, trim_character FROM trim_source)	Enables you to trim heading or string. trailing or both from a character
replace(text, search_string, replacement_string)	

Example:

lower('SQL Course')sql course
upper('SQL Course')SQL COURSE
initcap('SQL Course')Sql Course

SELECT 'The job id for'|| upper(last_name||'is'||lower(job_id) AS "EMPLOYEE DETAILS"
FROM employees;

SELECT employee_id, last_name, department_id
FROM employees
WHERE LOWER(last_name)='higgins';

Function	**Result**
CONCAT('hello', 'world')	helloworld
Substr('helloworld',1,5)	Hello
Length('helloworld')	10

Instr('helloworld','w')	6
Lpad(salary,10,'*')	*****24000
Rpad(salary,10,'*')	24000*****
Trim('h' FROM 'helloworld')	elloworld

Command	Query	Output
initcap(char);	*select initcap("hello") from dual;*	Hello

lower (char);
upper (char);
	select lower ('HELLO') from dual;
	select upper ('hello') from dual;
		Hello
		HELLO

ltrim (char,[set]);	*select ltrim ('cseit', 'cse') from dual;*	IT
rtrim (char,[set]);	*select rtrim ('cseit', 'it') from dual;*	CSE
replace (char,search string, replace string);	*select replace ('jack and jue', 'j', 'bl') from dual;*	black and blue
substr (char,m,n);	*select substr ('information', 3, 4) from dual;*	form

Example:

```
SELECT employee_id, CONCAT (first_name,last_name) NAME , job_id,LENGTH(last_name),
INSTR(last_name,'a') "contains'a'?"
FROM employees WHERE SUBSTR(job_id,4)='ERP';
```

NUMBER FUNCTIONS

Function	Purpose
round(column/expr, n)	Rounds the value to specified decimal
trunc(column/expr,n)	Truncates value to specified decimal
mod(m,n)	Returns remainder of division

Example

Function	Result
round(45.926,2)	45.93
trunc(45.926,2)	45.92
mod(1600,300)	100

```
SELECT ROUND(45.923,2), ROUND(45.923,0), ROUND(45.923,-1) FROM dual;
```

NOTE: Dual is a dummy table you can use to view results from functions and calculations.

```
SELECT TRUNC(45.923,2), TRUNC(45.923), TRUNC(45.923,-2) FROM dual;
```

```
SELECT last_name,salary,MOD(salary,5000) FROM employees WHERE job_id='sa_rep';
```

Working with Dates

The Oracle database stores dates in an internal numeric format: century, year, month, day, hours, minutes, and seconds.

- The default date display format is DD-MON-RR.

– Enables you to store 21st-century dates in the 20th century by specifying only the last two digits of the year

– Enables you to store 20th-century dates in the 21st century in the same way

Example

Find the Solution for the following:

1. Write a query to display the current date. Label the column Date.

An Select . current _ date as date from dual ;

2. The HR department needs a report to display the employee number, last name, salary, and increased by 15.5% (expressed as a whole number) for each employee. Label the column New Salary.

An select employee - id , last _ name , salary , round (salary * 1.155) as "New salary" from employees ;

3. Modify your query lab_03_02.sql to add a column that subtracts the old salary from the new salary. Label the column Increase.

An Select employee _id , last _ name , Salary , Round as a New Salary" Round (Salary * 1.155) (salary * 1.155) - salary as Increase Now employees ;

4. Write a query that displays the last name (with the first letter uppercase and all other letters lowercase) and the length of the last name for all employees whose name starts with the letters J, A, or M. Give each column an appropriate label. Sort the results by the employees' last names.

An Select initcap (last - name) as "Last Name", length (last _name) as "length" from employees where upper (sub last_name) in ('J', 'A', 'M') order by last _ name ;

5. Rewrite the query so that the user is prompted to enter a letter that starts the last name. For example, if the user enters H when prompted for a letter, then the output should show all employees whose last name starts with the letter H.

An Select employee _id . last _ name , Salary from employee where upper (substr (last_name 1,1)) = upper ('&letter') ;

6. The HR department wants to find the length of employment for each employee. For each employee, display the last name and calculate the number of months between today and the date on which the employee was hired. Label the column MONTHS_WORKED. Order your results by the number of months employed. Round the number of months up to the closest whole number.

A: Select last _ name , Round (Months _BETWEEN (CURRENT _ date , hire - date)) As months - worked . from employees order by months - worked

Note: Your results will differ.

7. Create a report that produces the following for each employee:
<employee last name> earns <salary> monthly but wants <3 times salary>. Label the column Dream Salaries.

An Select Content (last - name , 'earn', Salary', monthly
but wants' , Salary * 3) as 'Dream salaries''
from employees'

8. Create a query to display the last name and salary for all employees. Format the salary to be 15 characters long, left-padded with the $ symbol. Label the column SALARY.

An Select last - name , LPAD (CONCAT ('$', salary) . 15 , '')
as Salary from employees.

9. Display each employee's last name, hire date, and salary review date, which is the first Monday after six months of service. Label the column REVIEW. Format the dates to appear in the format similar to "Monday, the Thirty-First of July, 2000."

res Select last - name , Given h to char. (NEXT DAY (ADD MONTHS)
given - late 6), (MonDay'), finDay "The" DDth 'od' 'month yy
as view from employees;

10. Display the last name, hire date, and day of the week on which the employee started. Label the column DAY. Order the results by the day of the week, starting with Monday.

An Select ~~last~~ last _ name , hire _ late , to_Char (hire - lat, 'Day'
as Day from employee order by to - char
(Chire _ late 'D');

Evaluation Procedure	Marks awarded
Query(5)	5
Execution (5)	5
Viva(5)	5
Total (15)	15
Faculty Signature	