

EXERCISE-6

Single Row Functions

Objective

After the completion of will be able to do the

- Describe various in SQL.
- Use character, in SELECT statement.
- Describe the use

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

this exercise, the students following:
types of functions available
number and date functions
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.

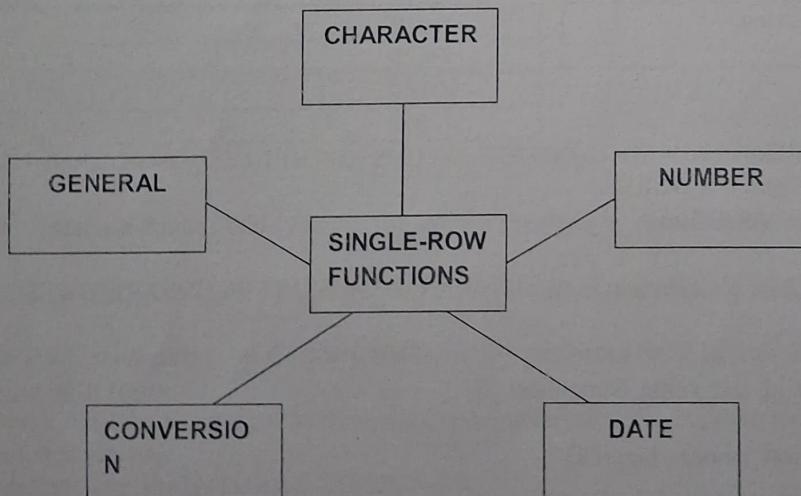
Accept arguments which can be a column or an expression

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.

Find the Solution for the following:

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

Select Sysdate 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.

Select employee-id, last-name, salary, round (salary * 1.5555)
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.

Select employee-id, last-name, salary, round (salary * 1.5555)
as "New salary" round ((salary * 1.5555) - salary) as
"Increase" from 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.

Select init cap (last-name) as 'Last Name', length(last-name)
as "length" from employees where last-name like 'J%'
or last-name like 'M%' or last-name like 'A%' 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.

Select last-name from employees where last-name like
'%start-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.

Select last-name, ceil(months_between(sysdate, hiredate))
as "Months worked" from employees order by months_-
between (sys-date, hire-date) desc;

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.

Select last_name || 'earns' || salary || 'Monthly but wants' ||
 (salary * 3) as "Dream Salaries" from employee;

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.

Select last_name LPAD (TO_CHAR (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."

Select last_name, hire_date, TO_CHAR (NEXT_DAY (ADD_MONTHS (hire_date, 6), 'Monday') Day "the "DDspth "of" Month

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.

Select last_name, hire_date, TO_CHAR (hire_date, 'Day') as
 "Day" from employees order by TO_CHAR (hire_date, 'D');

Evaluation Procedure	Marks awarded
Query(5)	5
Execution (5)	5
Viva(5)	5
Total (15)	15
Faculty Signature	PPrn 8/9/25

Practice Questions

Introduction to Functions

1. For each task, choose whether a single-row or multiple row function would be most appropriate:
 - a. Showing all of the email addresses in upper case letters Single-row (upper)
 - b. Determining the average salary for the employees in the sales department Multiple-row (avg)
 - c. Showing hire dates with the month spelled out (*September 1, 2004*) Single-row (TO-CHAR)
 - d. Finding out the employees in each department that had the most seniority (the earliest hire date) Multiple-row (MAX+GROUP-BY)
 - e. Displaying the employees' salaries rounded to the hundreds place Single-row (round)
 - f. Substituting zeros for null values when displaying employee commissions. Single-row (NULL).

2. The most common multiple-row functions are: AVG, COUNT, MAX, MIN, and SUM. Give your own definition for each of these functions.

AVG → Returns the average value of numeric column.

COUNT → Returns the no. of rows (or non-null values if an

MAX → Returns the highest value in a column expression is given

MIN → Returns the lowest value in a column

SUM → Returns the total numeric values in a column.

3. Test your definitions by substituting each of the multiple-row functions in this query.

SELECT FUNCTION(salary)

FROM employees

Write out each query and its results.

Select avg (salary) as average_salary from employees;

Select count (*) as total_employees from employees;

Select max (salary) as max_salary from employees;

Select min (salary) as min_salary from employees;

Select sum (salary) as sum_salary from employees;

Case and Character Manipulation

1. Using the three separate words "Oracle," "Internet," and "Academy," use one command to produce the following output:
The Best Class Oracle Internet Academy

```
Select 'The best class' || 'Oracle' || ' ' || 'Internet' || ' ' ||  
' Academy' as output from dual;
```

2. Use the string "Oracle Internet Academy" to produce the following output:
The Net net

```
Select 'The' || SUBSTR('Oracle Internet Academy', 8, 3) ||  
' ' || LOWER(SUBSTR('Oracle Internet Academy', 8, 3)) as  
output from dual;
```

3. What is the length of the string "Oracle Internet Academy"?

```
Select LENGTH('Oracle Internet Academy') as  
length from dual;
```

4. What's the position of "I" in "Oracle Internet Academy"?

```
Select INSTR('Oracle Internet Academy', 'I') AS  
position from dual;
```

5. Starting with the string "Oracle Internet Academy", pad the string to create
****Oracle****Internet****Academy****

```
Select '****' || REPLACE('Oracle Internet Academy',  
'****') || '****' as padded from dual.
```

Number Functions

1. Display Oracle database employee last_name and salary for employee_ids between 100 and 102. Include a third column that divides each salary by 1.55 and rounds the result to two decimal places.

Select last_name, salary, round (salary (1.55, 2)) as divided from employee where employee_id between 100 and 102;

2. Display employee last_name and salary for those employees who work in department 80. Give each of them a raise of 5.333% and truncate the result to two decimal places.

Select last-name, salary, TRUNC (salary + 1.05333, 2)
as new-salary from employees where department id = 80;

3. Use a MOD number function to determine whether 38873 is an even number or an odd number.

SELECT MOD(38873,2) as remainder from dual;

4. Use the DUAL table to process the following numbers:

845.553 - round to one decimal place `SELECT ROUND(845.553,1) AS Y1,`
30695.348 - round to two decimal places `SELECT ROUND(30695.348,2) AS Y2,`

30695.348 - round to two decimal places
30695.348 - round to .2 decimal places

2.3454 - truncate the 454 from the decimal place $\text{ROUND}(30695.348, -2)$ as 73.

TRUNC(2.3454, 1) as +1 from 71
from dual;

5. Divide each employee's salary by 3. Display only those employees' last names and salaries who earn a salary that is a multiple of 3.

Select last_name, salary from employees where mod
(salary, 3) = 0;

6. Divide 34 by 8. Show only the remainder of the division. Name the output as EXAMPLE.

Select mod(34,8) as example from dual;

7. How would you like your paycheck – rounded or truncated? What if your paycheck was calculated to be \$565.784 for the week, but you noticed that it was issued for \$565.78. The loss of .004 cent would probably make very little difference to you. However, what if this was done to a thousand people, a 100,000 people, or a million people! Would it make a difference then? How much difference?

Rounded → ROUND (565.784, 2) → 565.78

Truncated \rightarrow TRUNC (565-784, 2) \rightarrow 565-784.

Evaluation Procedure	Marks awarded
Practice Evaluation (5)	5
Viva(5)	5
Total (10)	10
Faculty Signature	Raj 8/9/15