Experiment No. 6

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Aim :- To study PL/SQL: Procedures and Functions.

Title :-

1) Write a function to square the number taken from the user.
2) Write a procedure to display the records from Manufacturing industry / Hospital/ Company table

Software Required - Oracle Server, SQLite

Theory :-

The PL/SQL stored procedure or simply a procedure is a PL/SQL block which performs one or more specific tasks. It is just like procedures in other programming languages.

The procedure contains a header and a body.

- Header: The header contains the name of the procedure and the parameters or variables passed to the procedure.
- Body: The body contains a declaration section, execution section and exception section similar to a general PL/SQL block.

- How to pass parameters in procedure:

When you want to create a procedure or function, you have to define parameters .There is three ways to pass parameters in procedure:

1. IN parameters: The IN parameter can be referenced by the procedure or function. The value of the parameter cannot be overwritten by the procedure or the function.
2. OUT parameters: The OUT parameter cannot be referenced by the procedure or function, but the value of the parameter can be overwritten by the procedure or function.
3. INOUT parameters: The INOUT parameter can be referenced by the procedure or function and the value of the parameter can be overwritten by the procedure or function.

Syntax for creating procedure:

1. CREATE [OR REPLACE] PROCEDURE procedure_name

```
    [ (parameter [,parameter]) ]
IS
    [declaration_section]
BEGIN
    executable_section
[EXCEPTION
    exception_section]
END [procedure_name];
```

- Below are the characteristics of Procedure subprogram unit in PL/SQL:

1) Procedures are standalone blocks of a program that can be stored in the database.

2) Call to these PL/SQL procedures can be made by referring to their name, to execute the PL/SQL statements.

3) It is mainly used to execute a process in PL/SQL.

4) It can have nested blocks, or it can be defined and nested inside the other blocks or packages.

5) It contains declaration part (optional), execution part, exception handling part (optional).

6) The values can be passed into Oracle procedure or fetched from the procedure through parameters.

7) These parameters should be included in the calling statement.

8) A Procedure in SQL can have a RETURN statement to return the control to the calling block, but it cannot return any values through the RETURN statement.

9) Procedures cannot be called directly from SELECT statements. They can be called from another block or through EXEC keyword.

Example1: Creating Procedure and calling it using EXEC

In this example, we are going to create an Oracle procedure that takes the name as input and prints the welcome message as output. We are going to use EXEC command to call procedure.

CODE:

- **PL/SQL Function** :-

Functions is a standalone PL/SQL subprogram. Like PL/SQL procedure, functions have a unique name by which it can be referred. These are stored as PL/SQL database objects.

Below are some of the characteristics of functions.

1)Functions are a standalone block that is mainly used for calculation purpose.

2)Function use RETURN keyword to return the value, and the datatype of this is defined at the time of creation.

3)It can have nested blocks, or it can be defined and nested inside the other blocks or packages.

4)It contains the declaration part (optional), execution part, exception handling part (optional).

5) The values can be passed into the function or fetched from the procedure through the parameters.

6)These parameters should be included in the calling statement. A PLSQL function can also return the value through OUT parameters other than using RETURN.

Syntax

```
CREATE OR REPLACE FUNCTION
<procedure_name>
(
<parameterl IN/OUT <datatype>
)
RETURN <datatype>
[ IS | AS ]
<declaration_part>
BEGIN
<execution part>
EXCEPTION
<exception handling part>
END;
```

A) Write a function to square the number taken from user

```
use tyaiec;
DELIMITER //
CREATE FUNCTION SquareNumber(userNumber DECIMAL(10, 2)) RETURNS DECIMAL(10, 2) DETERMINISTIC
BEGIN
  DECLARE result DECIMAL(10, 2);
  SET result = userNumber * userNumber;
  RETURN result;
END;
//
DELIMITER ;
select SquareNumber(5);
```

	SquareNumber(5)
▶	25.00

B)Write a procedure to display the records from the Manufacturing industry / Hospital/ Company table.

```
DELIMITER //
CREATE PROCEDURE DisplayRecordsFromTables()
BEGIN
  SELECT * FROM hospital;
END;
//
DELIMITER ;

CALL DisplayRecordsFromTables();
```

	Hospital_Reg_no	Hospital_name	Hospital_location
▶	SAFNVS@WEK1D2	Ambika Nursing Home	Opposite to Ambikanagar Bus stop, Kedgaon, A...
	ABCNVS@WEK1D2	Pandit Hospital	Opposite to Pune bus stand, Ahmednagar

Exercise –

1)Write a PL/SQL program using WHILE loop for calculating the average of the numbers entered by the user. Stop the entry of numbers whenever the user enters the number 0.

2) Write a PL/SQL code to find whether a given string is palindrome or not.

3) Write a PL/SQL program to find the sum of digits of a number.

4) Write a procedure to display the records from the Manufacturing industry table.
5) Write a procedure to display the records from the Hospital table.

FAQ:-

1)Write a PL/SQL program to display the employee IDs, names, job titles, hire dates, and salaries of all employees.

2) Write a PL/SQL program to display the names of all countries.

3) What is the Difference Between Pl SQL and SQL?

4) What is an Alias in SQL Statements?

5) What is a Dual Table?

6) What is Invalid_number, Value_error?

7)Explain Different Methods to Trace the Pl/SQL Code?