

Assignment : 06

Title: Stored procedures and functions in PL/SQL

AIM: Write PLSQL Procedures and Functions for given problem statement.

Objective:

- To get basic understanding of stored procedures and functions
- To implement logic necessary for the given task.
- To get understand error handling.

Problem Statement:

Write functions and procedures for the given requirements.

Theory:

PL/SQL Procedures and Functions

↳ PL/SQL (Procedural Language / Structured Query language) is Oracle Corporation's procedural extensions for SQL and the Oracle relational database. It enables programmers to write code in a procedural format and manage data with high efficiency and security.

→ 1. Procedures:

A procedure is a subprogram that performs a specific action but does not return a value directly to the calling environment. It may, however, return values via OUT parameter.

Syntax:

```
CREATE OR REPLACE PROCEDURE procedure_name (  
    parameter1 IN datatype,  
    parameter2 OUT datatype  
)
```

IS

BEGIN

-- Executable Statements

END;

key points:

- Can take IN, OUT and IN OUT parameter.
- Can be called from another PL/SQL block, trigger, or application.
- Mainly used for executing business logic and performing operation like inserting, updating or deleting records.

→ 2. Functions

↳ A Function is a subprogram that performs a computation and returns a single value to the calling environment. Unlike procedures, functions are mainly for calculations and data retrieval.

Syntax:

```
CREATE OR REPLACE FUNCTION function-name(  
    parameter1 IN datatype  
)  
RETURN return-datatype  
IS  
BEGIN  
    -- Executable statement  
    RETURN value;  
END;
```

Key points:

- Must return a value using the RETURN keyword.
- Can be used in SQL statements (SELECT, WHERE, etc) unlike procedures.
- Ideal for encapsulating calculations or value transformations

Input: Database as per the batch wise

Output: Data as per request

Platform: mysql on windows

Conclusion: Thus, we have learned Functions and Procedure in PL/SQL.

FAQs:

1. What is difference between function and procedure.

→

Function

Procedure

1. Purpose

Used to perform calculation and return a value

Used to perform an action or operation

2. Return value

Returns a single value using the RETURN keyword

Does not return a value directly.

3. Use in SQL

Can be called from SQL statement like select

Cannot be directly used in SQL statements.

4. Call Syntax

Can be called as part of an expression

Called as a standalone PL/SQL statement

5. Best Use case

for computations and value retrieval

for performing DML operation (INSERT, UPDATE)

2. Explain IN, OUT and IN OUT types of parameters.
→ PL/SQL allows parameters to be passed to procedure and functions using three modes:

i) IN Parameter:

- The default mode.
- Used to pass a value into the subprogram.
- The actual value is ready ~~only~~ within the subprogram.

Examples:

Procedure show_salary(emp_id IN Number)

ii) OUT Parameter.

- Used to return a value to the caller.
- The value is set inside the subprogram.

Example:

PROCEDURE get_bonus(emp_id IN Number, bonus OUT number)

iii) INOUT Parameter.

- Passes a value into the subprogram and return the modify value back to the caller.
- The parameter can be read and modified.

3. What are Continue and EXIT error handlers?

→ Within Loops, CONTINUE & EXIT statements are used for control flow, often in combination with exception handlers.

1) CONTINUE:

↳ Skips the remaining statements in the current iteration and proceeds to the next iteration of the loops.

Examples:

BEGIN

FOR i IN 1..5 LOOP

IF i = 3 THEN

CONTINUE;

END IF;

DBMS_OUTPUT.PUT_LINE('Value: ' || i);

END LOOP;

END;

2) EXIT: Immediately exits the loop and control moves to the statement after the loops.

BEGIN

FOR i IN 1..5 LOOP

IF i = 3 THEN

EXIT;

END IF;

.....