

EXERCISE-16PROCEDURES AND FUNCTIONSPROCEDURESDEFINITION

A procedure or function is a logically grouped set of SQL and PL/SQL statements that perform a specific task. They are essentially sub-programs. Procedures and functions are made up of.

- Declarative part
- Executable part
- Optional exception handling part

These procedures and functions do not show the errors.

KEYWORDS AND THEIR PURPOSES

REPLACE: It recreates the procedure if it already exists.

PROCEDURE: It is the name of the procedure to be created.

ARGUMENT: It is the name of the argument to the procedure. Paranthesis can be omitted if no arguments are present.

IN: Specifies that a value for the argument must be specified when calling the procedure ie. used to pass values to a sub-program. This is the default parameter.

OUT: Specifies that the procedure passes a value for this argument back to it's calling environment after execution ie. used to return values to a caller of the sub-program.

INOUT: Specifies that a value for the argument must be specified when calling the procedure and that procedure passes a value for this argument back to it's calling environment after execution.

RETURN: It is the datatype of the function's return value because every function must return a value, this clause is required.

PROCEDURES – SYNTAX

```
create or replace procedure <procedure name> (argument {in,out,inout} datatype ) {is,as}
variable declaration;
constant declaration;
begin
PL/SQL subprogram body;
exception
exception PL/SQL block;
end;
```

FUNCTIONS – SYNTAX

```
create or replace function <function name> (argument in datatype,.....) return datatype {is,as}
variable declaration;
```

Program 1

FACTORIAL OF A NUMBER USING FUNCTION

```
SET SERVEROUTPUT ON;
CREATE OR REPLACE FUNCTION factorial (in Number)
RETURN NUMBER
IS
    fact NUMBER = 1;
BEGIN
    FOR i IN 1...n LOOP
        fact = fact * i;
    END LOOP;
    RETURN fact;
END; /

DECLARE
    num NUMBER = 5;
    result NUMBER;
BEGIN
    result = factorial(num);
    DBMS_OUTPUT.PUT_LINE ('Factorial of ' || num ||
        ' is ' || result);
END ; /
```

Program 2

Write a PL/SQL program using Procedures IN, INOUT, OUT parameters to retrieve the corresponding book information in library

```

CREATE TABLE library(
    book_id NUMBER PRIMARY KEY,
    book_title VARCHAR2(100),
    author_name VARCHAR2(100),
    Price NUMBER);

INSERT INTO library VALUES (1, 'Database', 'Ramez', 550);
INSERT INTO library VALUES (2, 'DBS', 'Galvin', 600);

Create OR Replace PROCEDURE get-book-info (
    P-book-id IN NUMBER,
    P-book-title OUT VARCHAR2,
    P-author-name OUT VARCHAR2,
    P-Price IN OUT NUMBER)
IS BEGIN
    SELECT book_title, Price
    INTO P-book-title, P-author-name, P-price
    FROM library
    WHERE book_id = P-book-id;
EXCEPTION
    WHEN NO-DATA-FOUND THEN
        P-book-title := 'Book Not Found';
        P-Price = 0;
END;

```

Evaluation Procedure	Marks awarded
PL/SQL Procedure(5)	5
Program/Execution (5)	5
Viva(5)	5
Total (15)	15
Faculty Signature	<i>[Signature]</i>