

## EXERCISE-16

### PROCEDURES AND FUNCTIONS

#### PROCEDURES

##### DEFINITION

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 its 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 its 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||');
'|| 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 VARCHAR(100),
    author_name VARCHAR(100),
    Price NUMBER);

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

Create OR Replace PROCEDURE get_book_info(
    P_book_id IN NUMBER,
    P_book_title OUT VARCHAR,
    P_author_name OUT VARCHAR,
    P_Price IN OUT NUMBER)

IS BEGIN
    SELECT book_title, VARCHAR
    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	TB 11111