# DBMS LAB 5

TITLE:
Procedures and Functions

Aim: Write PLSQL Procedures and Function for given problem statements

Objective: To study PLSQL procedures and functions

Theory/FAQ/Conclusion:

(3.) Explain various input parameter in PLSQL.
Ans. In PLSQL, we can input parameter in 3 ways.

1) IN type parameter →
This type of parameter is a read only parameter.
We can assign the value of IN type parameter to a
variable but we cannot change its value inside procedure.

2) Out type parameter →
This type of parameter are used to send the
output from procedure or a fⁿ. This is a write only parameter

3) IN OUT type parameter →
This parameter help us to pass values into a procedure
and get output values from procedure.

(4.) What is an exception? Comment on exception handling in PLSQL.
Ans. An exception is an error which disrupts the normal
flow of program instruction. PLSQL provides us the
exception block which raises the exception thus helping
the programmer to find out the fault and resolve it.

INPUT : Database

OUTPUT : Data as per the queries.

Platform : MYSQL command line prompt.

Conclusion : Thus we have learned PLSQL database programming

FAQ's.

(1) What is PLSQL? Applications of PLSQL.

Ans. PLSQL is a block structured language that enables developers to combine the power of SQL with procedural statements.

Applications include extensive error checking, procedures/functions/triggers are created that are reusable.

(2) Explain PLSQL Blocks.

Ans. In PLSQL, all statements are classified into units that is called Blocks.

Typically, each block performs a logical action in program.

Structure :
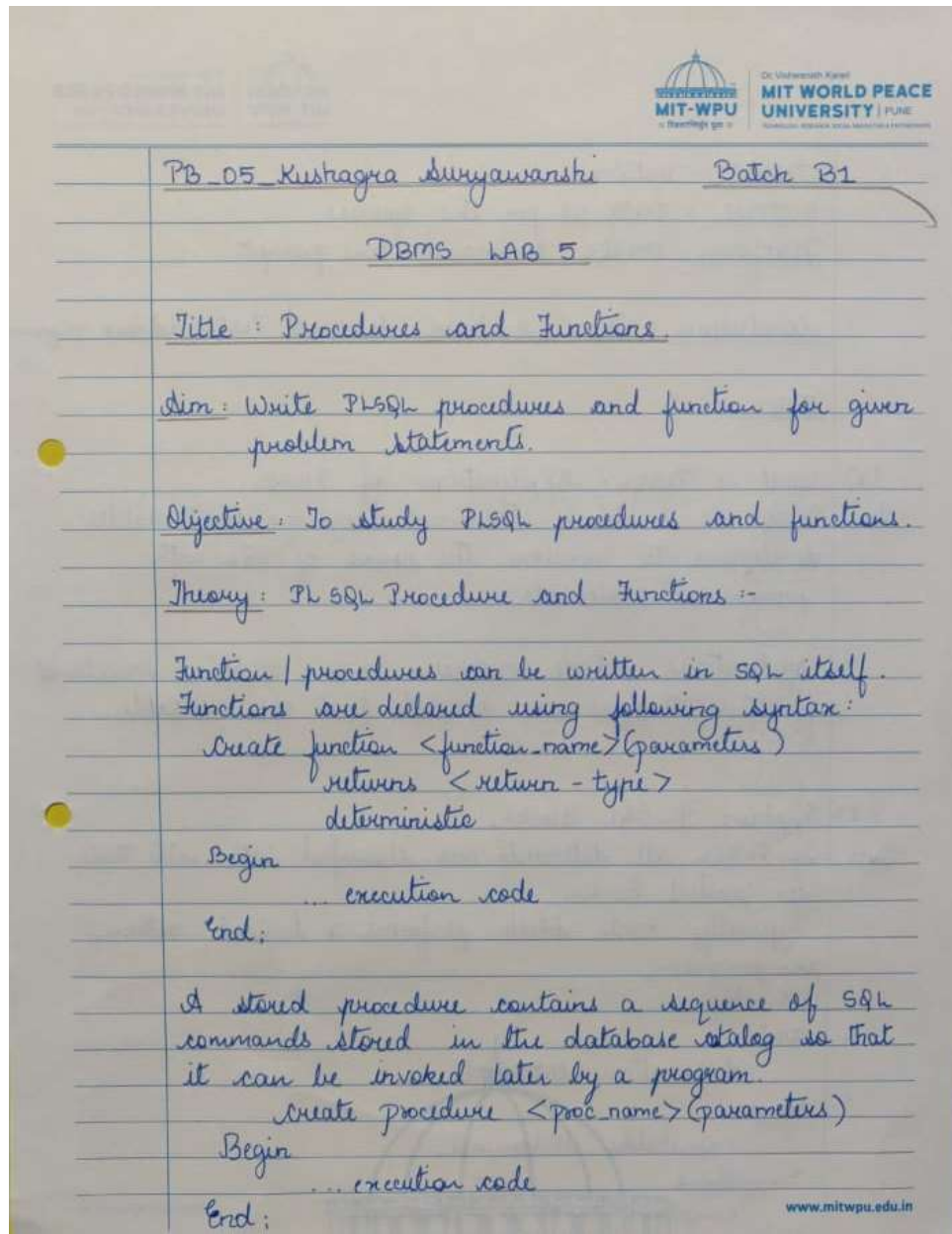
Declare

    declaration statements;

Begin

    executable statements;

Exceptions

    exception handling statements;

END;

PB_05_Kushagra Suryawanshi   Batch B1

DBMS LAB 5

Title : Procedures and Functions.

Aim : Write PLSQL procedures and function for given problem statements.

Objective : To study PLSQL procedures and functions.

Theory : PL SQL Procedure and Functions :-

Function / procedures can be written in SQL itself.
Functions are declared using following syntax:
  Create function <function_name>(parameters)
    returns <return - type>
    deterministic
Begin
    ... execution code
End;

A stored procedure contains a sequence of SQL commands stored in the database catalog so that it can be invoked later by a program.
        create procedure <proc_name>(parameters)
Begin
    ... execution code
End;

Procedures and Functions:

Q1.

mysql> ALTER TABLE album MODIFY COLUMN year_creation BIGINT;

    ->

    -> DESC album;

    ->

    ->

    -> UPDATE album SET year_creation = 2021 - year_creation;

```
    ->

    ->

    ->

    -> CREATE PROCEDURE setprice1(IN inalbumid INT)

    -> BEGIN

    ->     IF ((SELECT year_creation from album WHERE Album_id = inalbumid) < 2)

    ->        THEN

    ->        UPDATE tracks SET track_price = track_price * 1.05 WHERE Album_id =
inalbumid;

    ->     ELSEIF ((SELECT year_creation from album WHERE Album_id = inalbumid) < 5)

    ->        THEN

    ->        UPDATE tracks SET track_price = track_price * 1.07 WHERE Album_id =
inalbumid;

    ->     ELSE

    ->        UPDATE tracks SET track_price = track_price * 1.1 WHERE Album_id =
inalbumid;

    ->     end if;

    -> END;

    -> //
Query OK, 0 rows affected (0.26 sec)

Records: 0  Duplicates: 0  Warnings: 0
```

```
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| Album_id      | int         | NO   | PRI | NULL    |       |
| album_name    | varchar(20) | NO   |     | NULL    |       |
| collection_id | int         | YES  | MUL | NULL    |       |
| artist_id     | int         | YES  | MUL | NULL    |       |
| year_creation | bigint      | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
```

5 rows in set (0.26 sec)

Query OK, 6 rows affected (0.39 sec)

Rows matched: 6 Changed: 6 Warnings: 0

Query OK, 0 rows affected (0.55 sec)

mysql> call setprice1//

ERROR 1318 (42000): Incorrect number of arguments for PROCEDURE music_library2.setprice1; expected 1, got 0

mysql> select * from tracks//

```
+----------+--------------+----------+-------------+-------------+-------+
| Track_id | Track_name   | album_id | track_price | time_length | price |
+----------+--------------+----------+-------------+-------------+-------+
|     1001 | Attention    |      101 |         100 |         300 | NULL  |
|     1002 | Tum Hi Ho    |      102 |         200 |        2000 | NULL  |
|     1003 | Mocking Bird |      103 |        1000 |        5000 | NULL  |
|     1004 | Wakka Wakka  |      104 |         150 |       10000 | NULL  |
|     1005 | Lovely       |      105 |         600 |       10000 | NULL  |
+----------+--------------+----------+-------------+-------------+-------+
```

5 rows in set (0.00 sec)

mysql> call setprice1(101)//

Query OK, 1 row affected (0.19 sec)

mysql> select * from tracks//

```
+----------+--------------+----------+-------------+-------------+-------+
| Track_id | Track_name   | album_id | track_price | time_length | price |
+----------+--------------+----------+-------------+-------------+-------+
|     1001 | Attention    |      101 |         110 |         300 | NULL  |
|     1002 | Tum Hi Ho    |      102 |         200 |        2000 | NULL  |
```

1003	Mocking Bird	103	1000	5000	NULL
1004	Wakka Wakka	104	150	10000	NULL
1005	Lovely	105	600	10000	NULL
+----------+--------------+----------+-------------+-------------+-------+

5 rows in set (0.00 sec)

mysql> call setprice1(102)//
Query OK, 1 row affected (0.10 sec)

mysql> select * from tracks//
+----------+--------------+----------+-------------+-------------+-------+
| Track_id | Track_name | album_id | track_price | time_length | price |
+----------+--------------+----------+-------------+-------------+-------+
1001	Attention	101	110	300	NULL
1002	Tum Hi Ho	102	220	2000	NULL
1003	Mocking Bird	103	1000	5000	NULL
1004	Wakka Wakka	104	150	10000	NULL
1005	Lovely	105	600	10000	NULL
+----------+--------------+----------+-------------+-------------+-------+

5 rows in set (0.01 sec)

mysql> call setprice1(105)//
Query OK, 1 row affected (0.16 sec)

mysql> select * from tracks//
+----------+--------------+----------+-------------+-------------+-------+
| Track_id | Track_name | album_id | track_price | time_length | price |
+----------+--------------+----------+-------------+-------------+-------+
| 1001 | Attention | 101 | 110 | 300 | NULL |
| 1002 | Tum Hi Ho | 102 | 220 | 2000 | NULL |

1003	Mocking Bird	103	1000	5000	NULL
1004	Wakka Wakka	104	150	10000	NULL
1005	Lovely	105	660	10000	NULL
+----------+--------------+----------+-------------+-------------+-------+

5 rows in set (0.00 sec)

mysql> call setprice1(104)//
Query OK, 1 row affected (0.09 sec)

mysql> select * from tracks//
+----------+--------------+----------+-------------+-------------+-------+
| Track_id | Track_name | album_id | track_price | time_length | price |
+----------+--------------+----------+-------------+-------------+-------+
1001	Attention	101	110	300	NULL
1002	Tum Hi Ho	102	220	2000	NULL
1003	Mocking Bird	103	1000	5000	NULL
1004	Wakka Wakka	104	157.5	10000	NULL
1005	Lovely	105	660	10000	NULL
+----------+--------------+----------+-------------+-------------+-------+

5 rows in set (0.00 sec)

mysql> call setprice1(103)//
Query OK, 1 row affected (0.14 sec)

mysql> select * from tracks//
+----------+--------------+----------+-------------+-------------+-------+
| Track_id | Track_name | album_id | track_price | time_length | price |
+----------+--------------+----------+-------------+-------------+-------+
| 1001 | Attention | 101 | 110 | 300 | NULL |
| 1002 | Tum Hi Ho | 102 | 220 | 2000 | NULL |

1003	Mocking Bird	103	1100	5000	NULL
1004	Wakka Wakka	104	157.5	10000	NULL
1005	Lovely	105	660	10000	NULL
+----------+--------------+----------+-------------+-------------+-------+

5 rows in set (0.00 sec)

Q2.

```
mysql> CREATE PROCEDURE firstCurs1()
    -> BEGIN
    -> DECLARE d INT DEFAULT 0;
    -> DECLARE albumid INT;
    ->
    -> DECLARE Get_cur CURSOR FOR SELECT Album_id FROM album;
    -> DECLARE CONTINUE HANDLER FOR NOT FOUND SET d = 1;
    ->
    -> OPEN Get_cur;
    ->
    -> lbl: LOOP
    -> IF d = 1 THEN
    -> LEAVE lbl;
    -> END IF;
    -> IF NOT d = 1 THEN
    ->
    -> FETCH Get_cur INTO albumid;
    -> CALL setprice1(albumid);
    -> END IF;
    -> END LOOP;
    ->
    -> CLOSE Get_cur;
    -> END;
```

```
    -> //
Query OK, 0 rows affected (0.27 sec)

mysql> CREATE FUNCTION maxprice1(albumid INT)
    -> RETURNS DECIMAL(6,2)
    -> DETERMINISTIC
    -> BEGIN
    ->    DECLARE maxpr DECIMAL(6,2);
    ->    SELECT MAX(track_price) INTO maxpr FROM tracks WHERE album_id =
albumid;
    ->    RETURN maxpr;
    -> END;
    -> //
Query OK, 0 rows affected (0.12 sec)


mysql> select maxprice1(104) as track_price//
+-------------+
| track_price |
+-------------+
|      182.33 |
+-------------+
1 row in set (0.10 sec)


mysql> select maxprice1(101) as track_price//
+-------------+
| track_price |
+-------------+
|      146.41 |
+-------------+
1 row in set (0.00 sec)


mysql> select maxprice1(102) as track_price//
```

```
+-------------+
| track_price |
+-------------+
|      292.82 |
+-------------+
1 row in set (0.00 sec)

mysql> select maxprice1(103) as track_price//
+-------------+
| track_price |
+-------------+
|     1464.10 |
+-------------+
1 row in set (0.00 sec)

mysql> select maxprice1(105) as track_price//
+-------------+
| track_price |
+-------------+
|     1169.23 |
+-------------+
1 row in set (0.00 sec)

mysql> select * from track//
ERROR 1146 (42S02): Table 'music_library2.track' doesn't exist
mysql> select * from tracks//
+----------+--------------+----------+-------------+-------------+-------+
| Track_id | Track_name   | album_id | track_price | time_length | price |
+----------+--------------+----------+-------------+-------------+-------+
|     1001 | Attention    |      101 |      146.41 |         300 | NULL  |
```

| 1002 | Tum Hi Ho | 102 | 292.82 | 2000 | NULL |

| 1003 | Mocking Bird | 103 | 1464.1 | 5000 | NULL |

| 1004 | Wakka Wakka | 104 | 182.326 | 10000 | NULL |

| 1005 | Lovely | 105 | 1169.23 | 10000 | NULL |

+----------+--------------+----------+-------------+-------------+-------+

5 rows in set (0.00 sec)

```
+-------+
1 row in set (0.00 sec)

mysql> select maxprice(104) as track_price//
+-------------+
| track_price |
+-------------+
|        NULL |
+-------------+
1 row in set (0.00 sec)

mysql> select * from tracks;
    -> //
+----------+-------------+----------+-------------+-------------+-------+
| Track_id | Track_name  | album_id | track_price | time_length | price |
+----------+-------------+----------+-------------+-------------+-------+
|     1001 | Attention   |      101 |       133.1 |         300 | NULL  |
|     1002 | Tum Hi Ho   |      102 |       266.2 |        2000 | NULL  |
|     1003 | Mocking Bird|      103 |        1331 |        5000 | NULL  |
|     1004 | Wakka Wakka |      104 |     173.644 |       10000 | NULL  |
|     1005 | Lovely      |      105 |     966.306 |       10000 | NULL  |
+----------+-------------+----------+-------------+-------------+-------+
5 rows in set (0.00 sec)

mysql> CREATE PROCEDURE firstCurs1()
    -> BEGIN
    -> DECLARE d INT DEFAULT 0;
    -> DECLARE albumid INT;
    ->
    -> DECLARE Get_cur CURSOR FOR SELECT Album_id FROM album;
    -> DECLARE CONTINUE HANDLER FOR NOT FOUND SET d = 1;
    ->
    -> OPEN Get_cur;
    ->
    -> lbl: LOOP
    -> IF d = 1 THEN
    -> LEAVE lbl;
    -> END IF;
    -> IF NOT d = 1 THEN
    ->
    -> FETCH Get_cur INTO albumid;
    -> CALL setprice1(albumid);
    -> END IF;
    -> END LOOP;
    ->
    -> CLOSE Get_cur;
    -> END;
    -> //
Query OK, 0 rows affected (0.27 sec)
```

```
mysql> select maxprice1(104) as track_price//
ERROR 1305 (42000): FUNCTION music_library2.maxprice1 does not exist
mysql> CREATE FUNCTION maxprice1(albumid INT)
    -> RETURNS DECIMAL(6,2)
    -> DETERMINISTIC
    -> BEGIN
    ->    DECLARE maxpr DECIMAL(6,2);
    ->    SELECT MAX(track_price) INTO maxpr FROM tracks WHERE album_id = albumid;
    ->    RETURN maxpr;
    -> END;
    -> //
Query OK, 0 rows affected (0.12 sec)

mysql> select maxprice1(104) as track_price//
+-------------+
| track_price |
+-------------+
|      182.33 |
+-------------+
1 row in set (0.10 sec)

mysql> select maxprice1(101) as track_price//
+-------------+
| track_price |
+-------------+
|      146.41 |
+-------------+
1 row in set (0.00 sec)

mysql> select maxprice1(102) as track_price//
+-------------+
| track_price |
+-------------+
|      292.82 |
+-------------+
1 row in set (0.00 sec)

mysql> select maxprice1(103) as track_price//
+-------------+
| track_price |
+-------------+
|     1464.10 |
+-------------+
1 row in set (0.00 sec)

mysql> select maxprice1(105) as track_price//
+-------------+
| track_price |
+-------------+
```

```
|      182.33 |
+-------------+
1 row in set (0.10 sec)

mysql> select maxprice1(101) as track_price//
+-------------+
| track_price |
+-------------+
|      146.41 |
+-------------+
1 row in set (0.00 sec)

mysql> select maxprice1(102) as track_price//
+-------------+
| track_price |
+-------------+
|      292.82 |
+-------------+
1 row in set (0.00 sec)

mysql> select maxprice1(103) as track_price//
+-------------+
| track_price |
+-------------+
|     1464.10 |
+-------------+
1 row in set (0.00 sec)

mysql> select maxprice1(105) as track_price//
+-------------+
| track_price |
+-------------+
|     1169.23 |
+-------------+
1 row in set (0.00 sec)

mysql> select * from track//
ERROR 1146 (42S02): Table 'music_library2.track' doesn't exist
mysql> select * from tracks//
+----------+-------------+----------+-------------+-------------+-------+
| Track_id | Track_name  | album_id | track_price | time_length | price |
+----------+-------------+----------+-------------+-------------+-------+
|     1001 | Attention   |      101 |      146.41 |         300 | NULL  |
|     1002 | Tum Hi Ho   |      102 |      292.82 |        2000 | NULL  |
|     1003 | Mocking Bird|      103 |      1464.1 |        5000 | NULL  |
|     1004 | Wakka Wakka |      104 |     182.326 |       10000 | NULL  |
|     1005 | Lovely      |      105 |     1169.23 |       10000 | NULL  |
+----------+-------------+----------+-------------+-------------+-------+
5 rows in set (0.00 sec)
```