Ex.No.: 12		WORKING WITH CURSOR, PROCEDURES AND FUNCTIONS
Date:	27/9/2024	

AIM:

Create PL/SQL Blocks to perform the Item Transaction Operations using CURSOR, FUNCTION and PROCEDUERE.

ALGORITHM:

STEP-1: Start.

STEP-2: Create two tables Item Master and Item Trans.

itemmaster(itemid , itemname, stockonhand)

itemtrans(itemid ,itemname ,dateofpurchase ,quantity)

STEP-3: Create a PROCEDURE with id, name and quantity as parameters which make a call to the FUNCTION by passing id, name, dop, and quantity as parameters dop is set as sysdate.

STEP-4: Using FUNCTION fetch each record from the table Item Master using CURSOR inside a Loop statement,

If Item Master's ItemId is equal to the entered ID value then exit the loop otherwise fetch the next record.

```
loop
        fetch master into masterrec
        exit when master%notfound
        if masterrec.itemid=id then
    exit;
  end if;
end loop;
```

STEP-5: If Itemmaster's itemid = id then,

Add the Itemmaster's stockonhand with the given quantity and update the ItemMaster table and insert the Item information into the ItemTrans table.

STEP-6: Else, if the inputed item is not present in the ItemMaster table then insert the

new Item in both the tables.

STEP-7: Call the Procedure by passing the Item informations which calls the Function.

STEP-8: Exit.

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;
constant declaration;
begin
PL/SQL subprogram body;
exception
exception PL/SQL block;
end;
```

CREATING THE TABLE 'ITITEMS' AND DISPLAYING THE CONTENTS

```
SQL> create table ititems(itemid number(3), actualprice number(5), ordid number(4), prodid
number(4));
Table created.

SQL> insert into ititems values(101, 2000, 500, 201);
1 row created.
```

```
SQL> insert into ititems values(102, 3000, 1600, 202);
1 row created.

SQL> insert into ititems values(103, 4000, 600, 202);
1 row created.

SQL> select * from ititems;
ITEMID ACTUALPRICE    ORDID    PRODID
--------- ----------- -------- ---------
   101      2000        500     201
   102      3000       1600     202
   103      4000        600     202
```

PROGRAM FOR GENERAL PROCEDURE – SELECTED RECORD'S PRICE IS INCREMENTED BY 500 , EXECUTING THE PROCEDURE CREATED AND DISPLAYING THE UPDATED TABLE

```
SQL> create procedure itsum(identity number, total number) is price number;
 2  null_price exception;
 3  begin
 4  select actualprice into price from ititems where itemid=identity;
 5  if price is null then
 6  raise null_price;
 7  else
 8  update ititems set actualprice=actualprice+total where itemid=identity;
 9  end if;
10  exception
11  when null_price then
12  dbms_output.put_line('price is null');
13  end;
14  /
Procedure created.

SQL> exec itsum(101, 500);
PL/SQL procedure successfully completed.

SQL> select * from ititems;
 ITEMID ACTUALPRICE    ORDID    PRODID
--------- ----------- --------- ---------
   101      2500        500     201
   102      3000       1600     202
   103      4000        600     202
```

PROCEDURE FOR 'IN' PARAMETER – CREATION, EXECUTION

```
SQL> set serveroutput on;
```

```
SQL> create procedure yyy (a IN number) is price number;
  2  begin
  3  select actualprice into price from ititems where itemid=a;
  4  dbms_output.put_line('Actual price is ' || price);
  5  if price is null then
  6  dbms_output.put_line('price is null');
  7  end if;
  8  end;
  9  /
Procedure created.

SQL> exec yyy(103);
Actual price is 4000
PL/SQL procedure successfully completed.
```

PROCEDURE FOR 'OUT' PARAMETER – CREATION, EXECUTION

```
SQL> set serveroutput on;

SQL> create procedure zzz (a in number, b out number) is identity number;
  2  begin
  3  select ordid into identity from ititems where itemid=a;
  4  if identity<1000 then
  5   b:=100:
  6  end if;
  7  end;
  8  /
Procedure created.

SQL> declare
  2  a number;
  3  b number;
  4  begin
  5  zzz(101,b);
  6  dbms_output.put_line('The value of b is '|| b);
  7  end;
  8  /
The value of b is 100
PL/SQL procedure successfully completed.
```

PROCEDURE FOR 'INOUT' PARAMETER – CREATION, EXECUTION

```
SQL> create procedure itit ( a in out number) is
  2  begin
  3  a:=a+1;
```

```
4 end;
5 /
Procedure created.

SQL> declare
 2 a number:=7;
 3 begin
 4 itit(a);
 5 dbms_output.put_line('The updated value is '||a);
 6 end;
 7 /
The updated value is 8
PL/SQL procedure successfully completed.
```

CREATE THE TABLE 'ITTRAIN' TO BE USED FOR FUNCTIONS

```
SQL>create table ittrain ( tno number(10), tfare number(10));
Table created.

SQL>insert into ittrain values (1001, 550);
1 row created.

SQL>insert into ittrain values (1002, 600);
1 row created.

SQL>select * from ittrain;
   TNO      TFARE
---------  ----------
  1001       550
  1002       600
```

PROGRAM FOR FUNCTION AND IT'S EXECUTION

```
SQL> create function aaa (trainnumber number) return number
 2 trainfunction ittrain.tfare % type;
 3 begin
 4 select tfare into trainfunction from ittrain where tno=trainnu
 5 return(trainfunction);
 6 end;
 7 /

Function created.

SQL> set serveroutput on;
```

```
SQL> declare
 2  total number;
 3  begin
 4  total:=aaa (1001);
 5  dbms_output.put_line('Train fare is Rs. '||total);
 6  end;
 7  /
```

Train fare is Rs.550

PL/SQL procedure successfully completed.

FACTORIAL OF A NUMBER USING FUNCTION — PROGRAM AND EXECUTION

```
SQL>  create function itfact (a number) return number is
 2   fact number:=1;
 3   b number;
 4   begin
 5   b:=a;
 6   while b>0
 7   loop
 8   fact:=fact*b;
 9   b:=b-1;
10   end loop;
11   return(fact);
12   end;
13   /
```

Function created.

```
SQL> set serveroutput on;

SQL> declare
 2  a number:=7;
 3  f number(10);
 4  begin
 5  f:=itfact(a);
 6  dbms_output.put_line('The factorial of the given number is'||f);
 7 end;
 8  /
```

The factorial of the given number is 5040

PL/SQL procedure successfully completed.

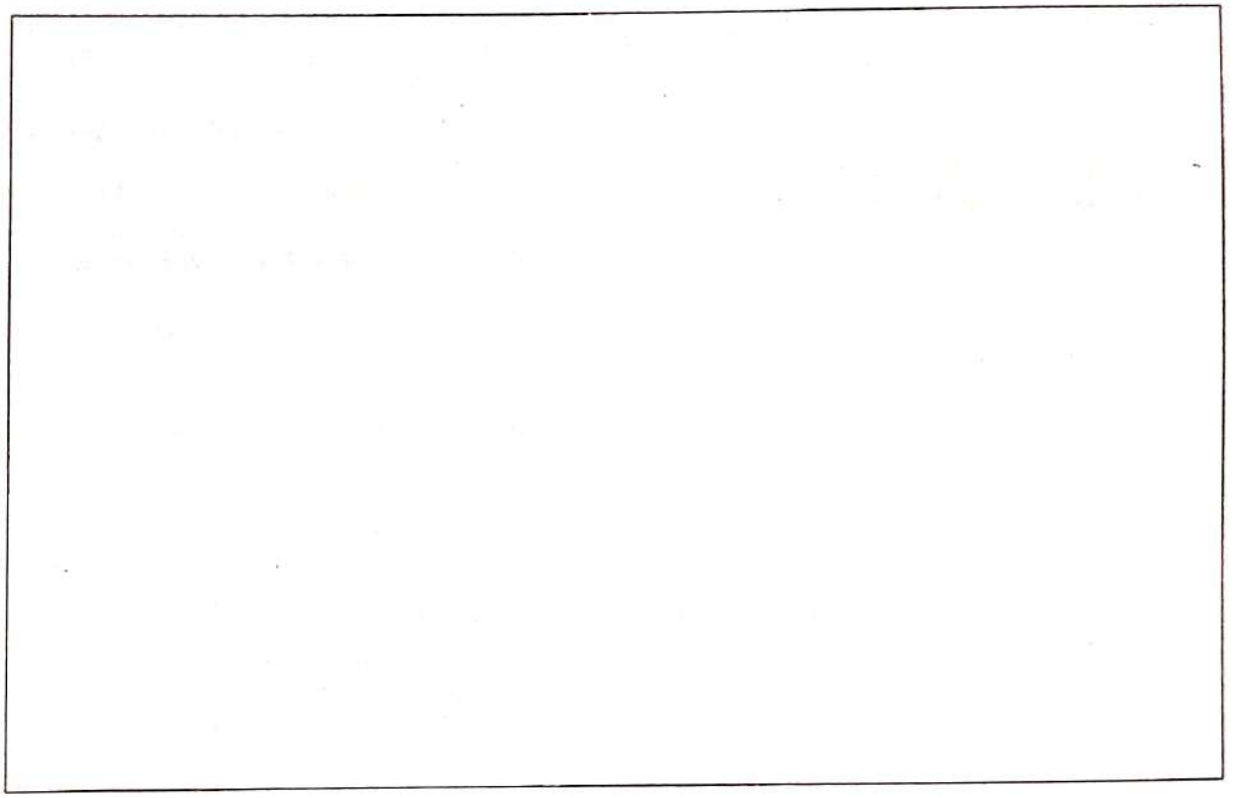
Program 1

FACTORIAL OF A NUMBER USING FUNCTION

```
CREATE OR REPLACE FUNCTION Factorial (n IN number) RETURN NUMBER IS
 result NUMBER := 1;
 BEGIN
    IF n < 0 Then
      RETURN NULL;
 ELSEIF n=0 or n=1 THEN
     RETURN 1;
  ELSE
    FOR i IN 2 .. n LOOP
      RESULT := result * i;
    END LOOP;
    ENDIF;
RETURN RESULT;
EXCEPTION
      WHEN OTHERS THEN
DBMS_OUTPUT.PUT_LINE('AN ERROR OCCURED' ||SQLERRM);
    RETURN NULL;
END Factorial;
  SET SERVER OUTPUT ON;
  DECLARE num NUMBER := 5;
          Fact number;
END;
```

Program 2

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



TO WRITE A PL/SQL BLOCK TO DISPLAY THE EMPLOYEE ID AND EMPLOYEE NAME WHERE DEPARTMENT NUMBER IS 11 USING EXPLICIT CURSORS

```
1  declare
2  cursor cenl is select eid,sal from ssempp where dno=11;
3  ecode ssempp.eid%type;
4  esal empp.sal%type;
5  begin
6  open cenl;
7  loop
8  fetch cenl into ecode,esal;
9  exit when cenl%notfound;
10 dbms_output.put_line(' Employee code and employee salary are' || ecode 'and'|| esal);
```

Program 2:

```
CREATE TABLE BOOKS (
   book_id NUMBER (5) PRIMARY KEY,
   title VARCHAR2 (100), author VARCHAR (100),
   Publications_ Year NUMBER(4), available_ COPIES NUMBER(5)
);

INSERT INTO BOOKS VALUES (1, '1984', 'Orwell', 1949, 4);
INSERT INTO BOOKS VALUES (2, 'Mocking bird', 'Lee', 1960, 2);
INSERT INTO BOOKS VALUES (3, 'Gratsby, 'Fitzbald', 1925, 5);
COMMIT;
CREATE OR REPLACE PROCEDORE GretBOOK Info By Id (P_book_id IN
NUMBER, P_title OUT VARCHAR2, P_author OUT VARCHAR2) IS
BEGIN
   SELECT title, author INTO p_title, P_author FROM BOOKS WHERE_id =
END;
   SET SERVER OUTPUT ON',
   DECLARE
     V_title VARCHAR(100);, V_author VARCHAR2 (100);
   BEGIN
     Get book Into my Id (1, V_title, v_author);
   DBMS_ OUTPUT. PUT_LINE ('Book:'|| V_title ||', Author:' || V_author);
   END;
```

```
11  end loop;
12  close cenl;
13* end;

SQL> /
Employee code and employee salary are 1 and 39000
Employee code and employee salary are 5 and 35000
Employee code and employee salary are 6 and 23000

PL/SQL procedure successfully completed.
```

TO WRITE A PL/SQL BLOCK TO UPDATE THE SALARY BY 5000 WHERE THE JOB IS LECTURER , TO CHECK IF UPDATES ARE MADE USING IMPLICIT CURSORS AND TO DISPLAY THE UPDATED TABLE

```
SQL> declare
  2  county number;
  3  begin
  4  update ssempp set sal=sal+10000 where job='lecturer';
  5  county:= sql%rowcount;
  6  if county > 0 then
  7  dbms_output.put_line('The number of rows are '|| county);
  8  end if;
  9  if sql %found then
 10  dbms_output.put_line('Employee record modification successful');
 11  else if sql%notfound then
 12  dbms_output.put_line('Employee record is not found');
 13  end if;
 14  end if;
 15  end;
 16  /
The number of rows are 3

Employee record modification successful

PL/SQL procedure successfully completed.

SQL> select * from ssempp;
```

EID	ENAME	JOB	SAL	DNO
1	nala	lecturer	44000	11
2	kala	seniorlecturer	20000	12
5	ajay	lecturer	40000	11
6	vijay	lecturer	28000	11
3	nila	professor	60000	12

Evaluation Procedure	Marks awarded
PL/SQL Procedure(5)	5
Program/Execution (5)	5
Viva(5)	5
Total (15)	15
Faculty Signature	