Task No: 7
Date: 23/09/25

PL/SQL procedures, Functions and loops.

Aim: To implement PL/SQL procedures, Functions and loops on Number theory and business scenarios.

Procedure:

PL/SQL is a combination of SQL along with the procedural features of programming languages. It was developed by Oracle Corporation in the early 90s to enhance the capabilities of SQL. PL/SQL is one ;three key programming languages embedded in oracle database, along with SQL itself and Java

Simple program to print a sentence:

Syntax:

```
DECLARE
    <declaration section>
BEGIN
    <executable section>
EXCEPTION
    <exception handling>
END;
```

Program:

```
DECLARE
   message varchar2(20) := 'booking closed';
BEGIN
   dbms_output.put_line(message);
END;
```

Output:- booking closed

Dynamic Input:

```
set serveroutput on;
declare
    x number(5);
    y number(5);
    z number(9);
begin
  x:=10;
  y:=12;
  z:=x+y;
  dbms_output.put_line('sum is '||z);
end;
/
```

output: sum is 22

```
declare
var1 integer;
var2 integer;
var3 integer;
begin
 var1:=&var1;
 var2:=&var2;
 var3:=var1+var2;
  dbms_output.put_line(var3);
end;
/
```

```
Enter value for var1: 20
old 6: var1:=&var1;
new 6: var1:=20;
Enter value for var2: 30
old 7: var2:=&var2;
new 7: var2:=30;
50
```

```
Declare
    hid Number (3) := 100;
Begin
   if (hid = 10) then
      dbms_output.put_line ('Value of hid is 10');
   else if (hid = 20) then
      dbms_output.put_line ('Value of hid is 20');
   else if (hid = 30) then
      dbms_output.put_line ('Value of hid is 30');
   else
      dbms_output.put_line ('None of the values is matching');
   End if;
   dbms_output.put_line ('Exact value of hid is :' || hid);
End;
/
```

Output:

```
None of the values is matching
Exact value of hid is :100
```

```
Declare
    hid number(1);
    oid number(1);
Begin
    <<outer_loop>>
     For hid in 1..3 loop
          <<inner_loop>>
        For oid in 1..3 loop
           dbms_output.put_line ('hid is :' || hid || 'and oid is :' || oid);
     END loop inner_loop;
   END loop outer_loop;
END;
/
```

```
hid is : 1 and oid is : 1
hid is : 1 and oid is : 2
hid is : 1 and oid is : 3
hid is : 2 and Oid is : 1
hid is : 2 and Oid is : 2
hid is : 2 and oid is : 3
hid is : 3 and Oid is : 1
hid is : 3 and Oid is : 2
hid is : 3 and oid is : 3
```

program for only procedure:

```
create or replace procedure csinformation
<C_id in number, C_name in varchar2>
is
begin
dbms_output.put_line('ID:' || C_id);
dbms_output.put_line('Name:' || C_name);
end;
/
```

Procedure created

```
exec csinformation(101, 'raam');
```

PL/SQL procedure successfully completed.

```
Set serveroutput on;
exec csinformation(101, 'raam');
ID:101
Name:raam.
```

Program for only functions

```
Create or replace function csinformation
(h_id in number, C_name in varchar2)
Return Varchar2
IS
Begin
if C_id>200 then
Return('no booking available');
Else
Return('booking open');
End if;
End;
```

Function created

```
declare
mesg varchar2(200);
begin
mesg := csinformation2(102,'roam');
dbms_output.put_line(mesg);
end;
/
```

Vehicle available
output:- booking open.

```
declare
mesg varchar2(200);
begin
mesg:=csinformation2(206,'roam');
dbms_output.put_line(mesg);
end;
/
```

No vehicle available.

output:- no booking available

PL/SQL Loops

procedure :-

1. Start a PL/SQL block or procedure.
2. Use a cursor (if required) to fetch customerIDs from a table.
3. For each ID, check whether it is a prime number using a loop.
4. Use For loop/while loop to demonstrate prime number checking
5. Print the result using dbms_output.put_line.
6. End the block

Using while loop with cursor.

```
create or replace procedure print_prime_customers IS
    cursor cust_cur is
      select customer_id from customers;
    v_id Number;
    v_is_prime Boolean;
    v_i Number;
Begin
    open cust_cur;
    loop
      Fetch cust_cur into v_id;
      Exit when cust_cur%NOTFound;
      If v_id<2 then
         v_is_prime := False;
      Else
         v_is_prime := True;
         v_i := 2;
         while v_i <= Trunc(sqrt(v_id)) LOOP
            IF MOD(v_id, v_i)=0 THEN
               v_is_prime := FALSE;
               EXIT;
            END IF;
            v_i := v_i+1;
         END LOOP;
      END IF;
```

```
    If v_is_prime THEN
      DBMS_OUTPUT.PUT_LINE('prime customer ID: '||v_id);
    END IF;
  END LOOP;
  CLOSE cust_cur;
END;
```

Procedure created

Using For loop for First N prime Numbers.

```
create or Replace procedure print_first_n_primes(n NUMBER)IS
  v_num NUMBER:=2;
  v_count Number:=0;
  v_is_prime Boolean;
Begin
    while v_count<n LOOP
      v_is_prime:=TRUE;
      FOR i IN 2..TRUNC(SQRT(v_num)) LOOP
        IF MOD(v_num,i)=0 THEN
          v_is_prime:=FALSE
          EXIT;
        END IF;
      END LOOP;
      IF v_is_prime THEN
        DBMS_OUTPUT.PUT_LINE('prime :'||v_num);
        v_count:=v_count+1;
      END IF;
      v_num:=v_num+1;
  END LOOP;
END;
```

Procedure Created.

Exi
```
Begin
    print_first_n_primes(10);
end;
```

VELTECH	
EX No.	7
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (20)	15
SIGN WITH DATE	3/9/25

Result: The PL/SQL procedures, functions and loops were successfully implemented.

output:-

Prime: 2
Prime: 3
Prime: 5
Prime: 7
Prime: 11
Prime: 13
Prime: 17
Prime: 19
Prime: 23
Prime: 29