4-9-25

Lab-7: PL/SQL procedure for Loops

Aim:- To write PL/SQL programs using loops for printing prime number customer IDs and for demonstrating loop control in different scenarios.

Procedure:-

1. Start a PL/SQL block or Procedure
2. Use a cursor to fetch customer IDs 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

Ex:- Using WHILE Loop with cursor / Prime check using while loop

```
CREATE OR REPLACE print_prime_customers IS
 CURSOR cust_cur IS
    Select customer_id From Customers; -- Table with Customer IDs
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% Not found;
 -- Prime check using while loop --
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;
```

```
SQL*Plus: Release 11.2.0.2.0 Production on Wed Oct 15 21:34:44 2025

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SQL> connect
Enter user-name: system
Enter password:
Connected.
SQL> CREATE OR REPLACE PROCEDURE print_prime_customers IS
  2   CURSOR cust_cur IS
  3    SELECT customer_id FROM customers;
  4
  5   v_id       NUMBER;
  6   v_is_prime  BOOLEAN;
  7   v_i        NUMBER;
  8  BEGIN
  9   OPEN cust_cur;
 10   LOOP
 11    FETCH cust_cur INTO v_id;
 12    EXIT WHEN cust_cur%NOTFOUND;
 13
 14    -- Prime check
 15    IF v_id < 2 THEN
 16     v_is_prime := FALSE;
 17    ELSE
```

```
18      v_is_prime := TRUE;
19      v_i := 2;
20
21      WHILE v_i <= FLOOR(SQRT(v_id)) LOOP
22       IF MOD(v_id, v_i) = 0 THEN
23        v_is_prime := FALSE;
24        EXIT;
25       END IF;
26       v_i := v_i + 1;
27      END LOOP;
28     END IF;
29
30     IF v_is_prime THEN
31      DBMS_OUTPUT.PUT_LINE('Prime customer ID: ' || v_id);
32     END IF;
33
34    END LOOP;
35    CLOSE cust_cur;
36  END;
37  /
```

Warning: Procedure created with compilation errors.

```
SQL> CREATE OR REPLACE PROCEDURE print_first_n_primes(n NUMBER) IS
 2   v_num      NUMBER := 2;
 3   v_count    NUMBER := 0;
```

```
4  v_is_prime  BOOLEAN;
5 BEGIN
6  WHILE v_count < n LOOP
7   v_is_prime := TRUE;
8
9   -- Prime check using FOR loop
10   FOR i IN 2 .. TRUNC(SQRT(v_num)) LOOP
11    IF MOD(v_num, i) = 0 THEN
12     v_is_prime := FALSE;
13     EXIT;
14    END IF;
15   END LOOP;
16
17   IF v_is_prime THEN
18    DBMS_OUTPUT.PUT_LINE('Prime: ' || v_num);
19    v_count := v_count + 1;
20   END IF;
21
22   v_num := v_num + 1;
23  END LOOP;
24 END;
25 /
```

Procedure created.

```
SQL> declare
 2 lo number(3);
 3 hi number(3);
 4 n number(2);
 5 m number(2);
 6 c number(20);
 7 begin
 8 dbms_output.put_line('enter the customer id from to limit:');
 9 lo:=&lo;
10 hi:=&hi;
11 for n in lo.. hi
12 loop
13 c:=0;
14 for m in 1..n
15 loop
16 if mod(n,m)=0 then
17 c:=c+1;
18 end if;
19 end loop;
20 if c<=2 then
21 dbms_output.put_line(n || '\n');
22 end if;
23 end loop;
24 end;
```

```
25 /
Enter value for lo: 101
old  9: lo:=&lo;
new  9: lo:=101;
Enter value for hi: 120
old 10: hi:=&hi;
new 10: hi:=120;

PL/SQL procedure successfully completed.
```

```
SQL> declare
 2  bk number(5);
 3  s number:=0;
 4  r number;
 5  len number;
 6  m number;
 7  begin
 8  bk:=&bk;
 9  m:=bk;
10  len:=length(to_char(bk));
11  while bk>0
12  loop
13  r:=mod (bk,10);
14  s:=s+power(r,len);
```

```
15  bk:=trunc(bk/10);
16  end loop;
17  if
18  m=s
19  then
20  dbms_output.put_line('given number is armstrong');
21  else
22  dbms_output.put_line('given number is not an armstrong');
23  end if;
24  end;
25  /
Enter value for bk: 234
old   8: bk:=&bk;
new   8: bk:=234;

PL/SQL procedure successfully completed.

SQL>
```

VEL TECH	
EX NO.	7
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	4
TOTAL (20)	19
SIGN WITH DATE	

```
If v_is_prime Then
DBMS_output.Putline("prime customer ID: "||v_id);
End if;
End loop;
Close cust_cur;
End;
```

This Procedure checks all cust ID's in the table & Prints the Prime ones using a while loop.

Using For Loop:

```
Create or Replace Procedure Print_first_n_Primes(n Number);is
v_num number:=0; 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;
```

This Procedure Prints the first N prime members using for loop

Ex: BEGIN
Print_first_n_Primes(10);
End;

Result: Thus the program using for loop has been executed Successfully

VEL TECH	
EX NO.	7
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (20)	19
SIGN WITH DATE	