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Lab sheet – 8

PL / SQL
(Basics, control structures loop)

Exercise

1. Check given number is Prime or not.

```
SQL> set serveroutput on;
SQL> Declare
  2  n number;
  3  i number;
  4  flag number;
  5  begin
  6  i:=2;
  7  flag:=1;
  8  n:=&n;
  9
 10  for i in 2..n/2
 11  loop
 12  if mod (n,i)=0
 13  then
 14  flag:=0;
 15
 16  exit;
 17  end if;
 18  end loop;
 19  if flaf=1
 20  then
 21  dbms_output.put_line('prime');
 22  else
 23  dbms_output.put_line(not prime);
 24  end if;
 25  end;
 26  /
Enter value for n: 3
old   8: n:=&n;
new   8: n:=3;
```

2. PL/SQL Program for factorial

```
SQL> set serveroutput on;
SQL> declare
  2  fac number:=1;
  3  n number:=&n;
  4  begin
  5  while n>0 loop
  6  fac:=n*fac;
  7  n:=n-1;
  8  end loop;
  9  dbms_output.put_line(fac);
 10  end;
 11  /
Enter value for n: 3
old   3: n number:=&n;
new   3: n number:=3;
6

PL/SQL procedure successfully completed.
```

3. PL / SQL procedure to find a given number whether it is Palindrome or not

```
SQL> set serveroutput  on;
SQL> declare
  2
  3  -- declare variable n, m, temp
  4  -- and temp of datatype number
  5  n number;
  6  m number;
  7  temp number:=0;
  8  rem number;
  9
 10  begin
 11  n:=5432112345;
 12  m:=n;
 13
 14  -- while loop with condition till n>0
 15  while n>0
 16  loop
 17  rem:=mod(n,10);
 18  temp:=(temp*10)+rem;
 19  n:=trunc(n/10);
 20  end loop; -- end of while loop here
 21
 22  if m = temp
 23  then
 24  dbms_output.put_line('true');
 25  else
 26  dbms_output.put_line('false');
 27  end if;
 28  end;
 29  /
true

PL/SQL procedure successfully completed.
```

4. PL/SQL Program to Convert Celsius to Fahrenheit

```
SQL>  set serveroutput on;
SQL> declare
  2  celsius number;
  3  farenhit number;
  4   a number;
  5  begin
  6   a:=&celsius;
  7  farenhit:=a+273;
  8  dbms_output.put_line('the given celsius value is :'||a);
  9  dbms_output.put_line('the farenhit value for the given celsius degress is:'||farenhit);
 10  end;
 11  /
Enter value for celsius: 2
old   6:  a:=&celsius;
new   6:  a:=2;
the given celsius value is :2
the farenhit value for the given celsius degress is:275

PL/SQL procedure successfully completed.
```

5. PL/SQL Program to Print Table of a Number.

```
SQL> set serveroutput on;
SQL> declare
  2  a number;
  3  i number;
  4  BEGIN
  5  a:=&a;
  6  for i in 1..10
  7  loop
  8  dbms_output.put_line(a||'x'||i||'='||a*i);
  9  end loop;
 10  end;
 11  /
Enter value for a: 5
old   5: a:=&a;
new   5: a:=5;
5x1=5
5x2=10
5x3=15
5x4=20
5x5=25
5x6=30
5x7=35
5x8=40
5x9=45
5x10=50

PL/SQL procedure successfully completed.
```

6. Create the following tables:

   employee(empid,name,salary,designation,deptid)

   department(deptid,name, location, mgrid).

   (i) Write a PL/SQL program to count the number of employees in each department

and check whether the departments having any vacancies or not. Assume that maximum of 45 employees can be placed in each department.

```
SQL> SET SERVEROUTPUT ON
SQL> DECLARE
  2      tot_emp NUMBER;
  3  n number;
  4  begin
  5  n:=select count(*) from employee;
  6  while n>0
  7  loop
  8      SELECT Count(*)
  9      INTO   tot_emp
 10      FROM   employee e
 11             join department d
 12               ON e.deptid = d.deptid;
 13      IF tot_emp >= 45 THEN
 14        dbms_output.Put_line ('There are no vacancies in the department ');
 15      ELSE
 16        dbms_output.Put_line ('There are some vacancies in department');
 17      END IF;
 18  END;
 19  /
```

(ii) Write a PL/SQL procedure to calculate the incentive amount given for each employee if 10% incentive of salary is provided.

```
SQL> set serveroutput on
SQL> declare
  2  begin
  3  update employee
  4  set salary=salary+0.1*salary;
  5  end;
  6  /

PL/SQL procedure successfully completed.

SQL> select * from employee;

     EMPID ENAME                SALARY DESIGNATION             DEPTID
---------- -------------------- ---------- -------------------- ----------
       101 Prashanth             21780 Programmer                    2
       102 Divya                217800 Programming Manager           2
       103 Arvind               108900 HR                            1
       104 Arviya                 1089 Programming Intern            2
       105 Sam                   10890 Part time                      3
       106 Aarya                980100 CEO                           4
       107 Aashna                10890 Part time                      3

7 rows selected.
```

PL / SQL Sample Programs

1. Addition of Two Numbers

```
set serveroutput on;
declare
a integer:=2;
b integer:=5;
```

```
c integer;
begin
c:=a+b;
```

```
dbms_output.put_line('sum='||c);
end;
/
```

2. **Getting input from user**

```
set serveroutput on;
declare
a number;
b number;
begin
b := &a;
dbms_output.put_line('The value of a is '||b);
end;
/
```

3. **Print an integer and float values**

```
set serveroutput on;
declare
a integer := 30;
b integer := 20;
c integer;
f real;
begin
c:=a+b;
f:=100.0/3.0;
dbms_output.put_line('c : '||c);
dbms_output.put_line('f : '||f);
end;
/
```

4. **Constants**

```
set serveroutput on;
declare
area number(15,11);
pi constant number := 3.141592654;
radius number(5,2) := 9.5;
diameter number(5,2);
circumference number(7,2);
begin
diameter:=radius*2;
circumference:=2*pi*radius;
```

```
area := pi*radius*radius;
dbms_output.put_line('radius: '||radius);
dbms_output.put_line('diameter: '||diameter);
dbms_output.put_line('circumference: '||circumference);
dbms_output.put_line('area: '||area);
end;
/
```

5. **If example**

```
set serveroutput on;
declare
a number(3) := 500;
begin
if( a < 20 ) then
dbms_output.put_line('a is less than 20 ' );
else
dbms_output.put_line('a is not less than 20 ' );
end if;
dbms_output.put_line('value of a is : ' || a);
end;
/
```

6. **While loop**

```
set serveroutput on;
declare
i integer := 1;
begin
while i <= 10
loop dbms_output.put_line(i);
i := i+1;
end loop;
end;
/
```