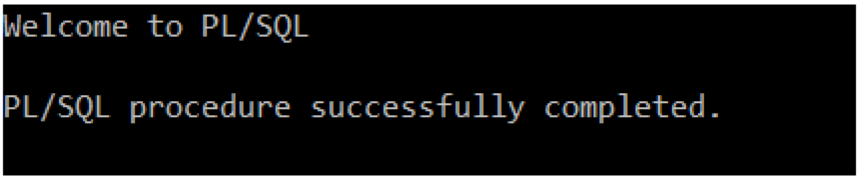
PL/SQL

1. **Write a PL/SQL Program to display message (Welcome to PL/SQL)**

Program:-

```
begin
  dbms_output.put_line('Welcome to PL/SQL');
end;
/
```

Output:-



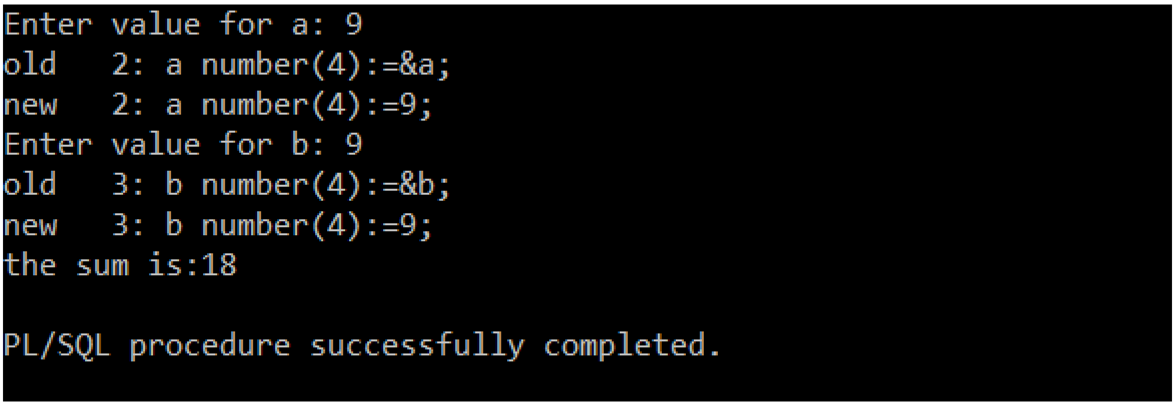
```
Welcome to PL/SQL

PL/SQL procedure successfully completed.
```

2. Write a PL/SQL program to display the addition of two numbers

Program:-

```
declare
        a number(4):=&a;
        b number(4):=&b;
        c number(4);
 begin
        c:=a+b;
        dbms_output.put_line('the sum is:'||c);
 end;
/
```

Output:-



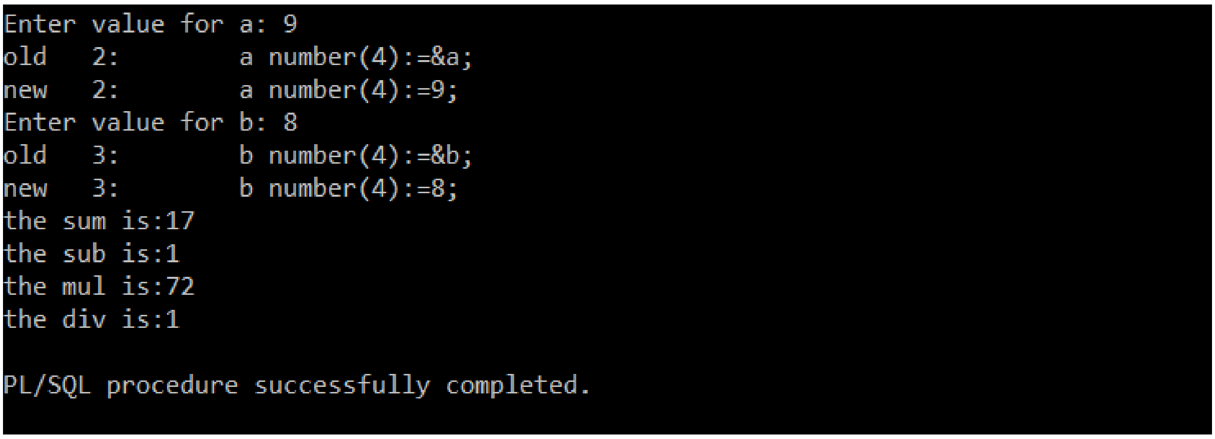
```
Enter value for a: 9
old   2: a number(4):=&a;
new   2: a number(4):=9;
Enter value for b: 9
old   3: b number(4):=&b;
new   3: b number(4):=9;
the sum is:18

PL/SQL procedure successfully completed.
```

3. Write a PL/SQL program to display the Addition, Subtraction, Multiplication and Division

Program:-

```
declare
        a number(4):=&a;
        b number(4):=&b;
        c number(4);
begin
        c:=a+b;
        dbms_output.put_line('the sum is:'||c);
        c:=a-b;
        dbms_output.put_line('the sub is:'||c);
        c:=a*b;
        dbms_output.put_line('the mul is:'||c);
        c:=a/b;
        dbms_output.put_line('the div is:'||c);
end;
/
```

Output:-



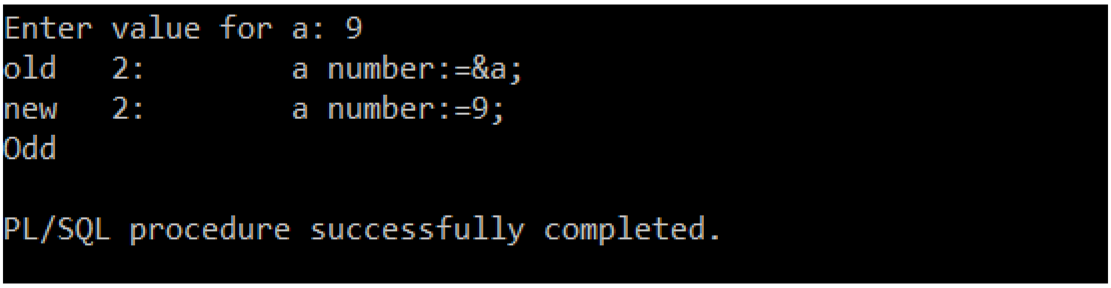
```
Enter value for a: 9
old   2:        a number(4):=&a;
new   2:        a number(4):=9;
Enter value for b: 8
old   3:        b number(4):=&b;
new   3:        b number(4):=8;
the sum is:17
the sub is:1
the mul is:72
the div is:1

PL/SQL procedure successfully completed.
```

4. Write a PL/SQL program to determine the given no is even or odd

Program:-

```
declare
        a number:=&a;
begin
        if(mod(a,2)=0) then
        dbms_output.put_line('even');
        else
        dbms_output.put_line('odd');
        end if;
end;
/
```

Output:-



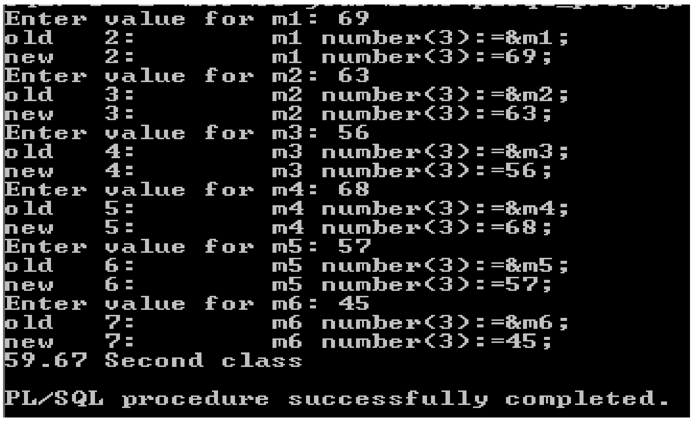
```
Enter value for a: 9
old   2:        a number:=&a;
new   2:        a number:=9;
Odd

PL/SQL procedure successfully completed.
```

5. Write a PL/SQL program to display grade of a student

Program:-

```
declare
        m1 number(3):=&m1;
        m2 number(3):=&m2;
        m3 number(3):=&m3;
        m4 number(3):=&m4;
        m5 number(3):=&m5;
        m6 number(3):=&m6;
        marks number(4);
        percentage number(5,2);

begin
        marks:=m1+m2+m3+m4+m5+m6;
        percentage:=(marks/6);
        if(percentage>=70) then
        dbms_output.put_line(percentage ||' Distinction');
        elsif(percentage>=60 and percentage<=70) then
        dbms_output.put_line(percentage ||' First class');
        elsif(percentage>=50 and percentage<60) then
        dbms_output.put_line(percentage ||' Second class');
        elsif(percentage>=40 and percentage<50) then
        dbms_output.put_line(percentage ||' Third class');
        else
        dbms_output.put_line(percentage ||' Fail');
        end if;
end;
/
```

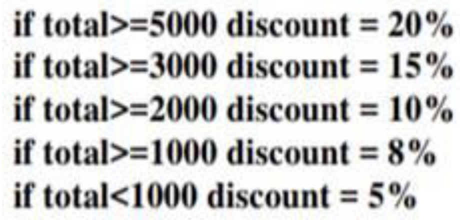
Output:-



```
Enter value for m1: 69
old   2:          m1 number(3):=&m1;
new   2:          m1 number(3):=69;
Enter value for m2: 63
old   3:          m2 number(3):=&m2;
new   3:          m2 number(3):=63;
Enter value for m3: 56
old   4:          m3 number(3):=&m3;
new   4:          m3 number(3):=56;
Enter value for m4: 68
old   5:          m4 number(3):=&m4;
new   5:          m4 number(3):=68;
Enter value for m5: 57
old   6:          m5 number(3):=&m5;
new   6:          m5 number(3):=57;
Enter value for m6: 45
old   7:          m6 number(3):=&m6;
new   7:          m6 number(3):=45;
59.67 Second class

PL/SQL procedure successfully completed.
```

6. Write a PL/SQL program to display product name , total bill and net bill

Conditions:-

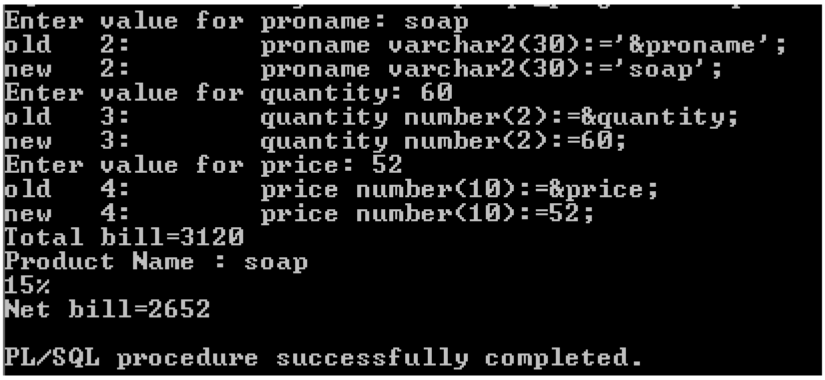


if total>=5000 discount = 20%
if total>=3000 discount = 15%
if total>=2000 discount = 10%
if total>=1000 discount = 8%
if total<1000 discount = 5%

Program:-

```
declare
        proname varchar2(30):='&proname';
        quantity number(2):=&quantity;
        price number(10):=&price;
        totalbill number(25);
        netbill number(25);
        discount number(3);
begin
        totalbill:=quantity*price;
        dbms_output.put_line('Total bill='||totalbill);


        if (totalbill>=5000) then
                dbms_output.put_line('Product Name : '||proname);
                discount:=totalbill*20/100;
                dbms_output.put_line('20%');
                netbill:=totalbill-discount;

        elsif(totalbill>=3000) then
                dbms_output.put_line('Product Name : '||proname);
                discount:=totalbill*15/100;
                dbms_output.put_line('15%');
                netbill:=totalbill-discount;

        elsif(totalbill>=2000) then
                dbms_output.put_line('Product Name : '||proname);
                discount:=totalbill*10/100;
                dbms_output.put_line('10%');
                netbill:=totalbill-discount;
        elsif(totalbill>=1000) then
                dbms_output.put_line('Product Name : '||proname);
                discount:=totalbill*8/100;
                dbms_output.put_line('8%');
                netbill:=totalbill-discount;
        else
                dbms_output.put_line('Product Name : '||proname);
                discount:=totalbill*5/100;
                dbms_output.put_line('5%');
                netbill:=totalbill-discount;

        end if;

                dbms_output.put_line('Net bill='||netbill);
        end;
/
```

Output:-



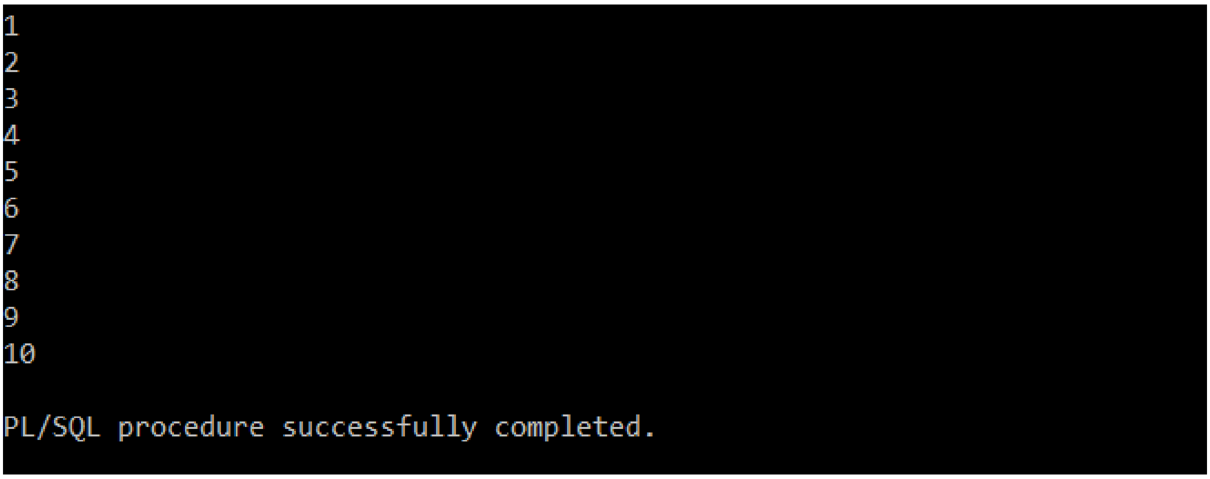
```
Enter value for proname: soap
old   2:        proname varchar2(30):='&proname';
new   2:        proname varchar2(30):='soap';
Enter value for quantity: 60
old   3:        quantity number(2):=&quantity;
new   3:        quantity number(2):=60;
Enter value for price: 52
old   4:        price number(10):=&price;
new   4:        price number(10):=52;
Total bill=3120
Product Name : soap
15%
Net bill=2652

PL/SQL procedure successfully completed.
```

7. Write a PL/SQL program to display numbers from 1 to 10 using simple loop

Program:-

```
declare
            a number(2):=1;
begin
          loop
          dbms_output.put_line(a);
          a:=a+1;
          exit when(a>10);
          end loop;
end;
/
```

Output:-



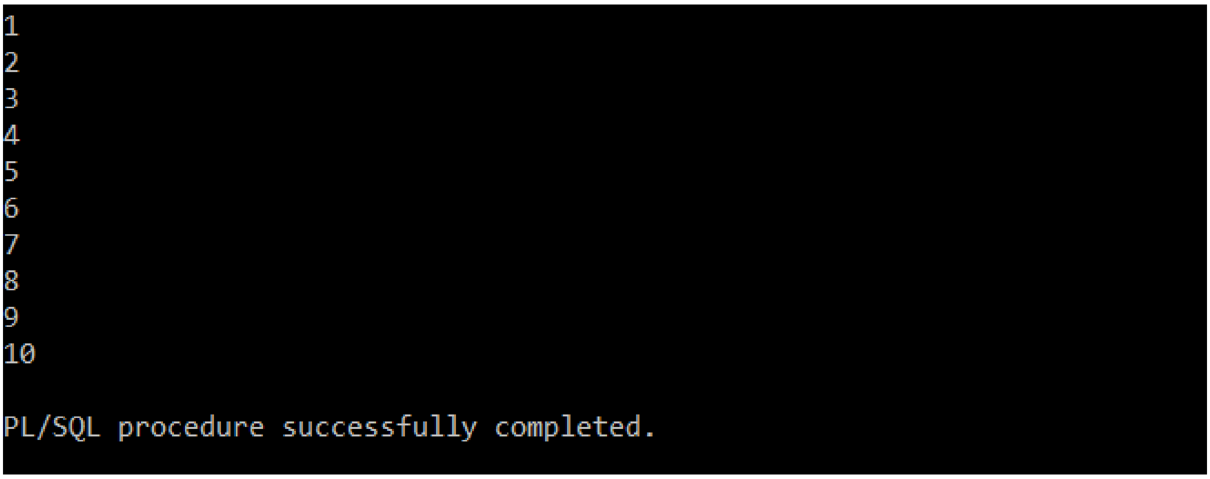
```
1
2
3
4
5
6
7
8
9
10

PL/SQL procedure successfully completed.
```

8. Write a PL/SQL program to display numbers from 1 to 10 using while loop

Program:-

```
declare
        a number(2):=1;
begin
   while(a<=10)
   loop
   dbms_output.put_line(a);
   a:=a+1;
   end loop;
end;
/
```

Output:-



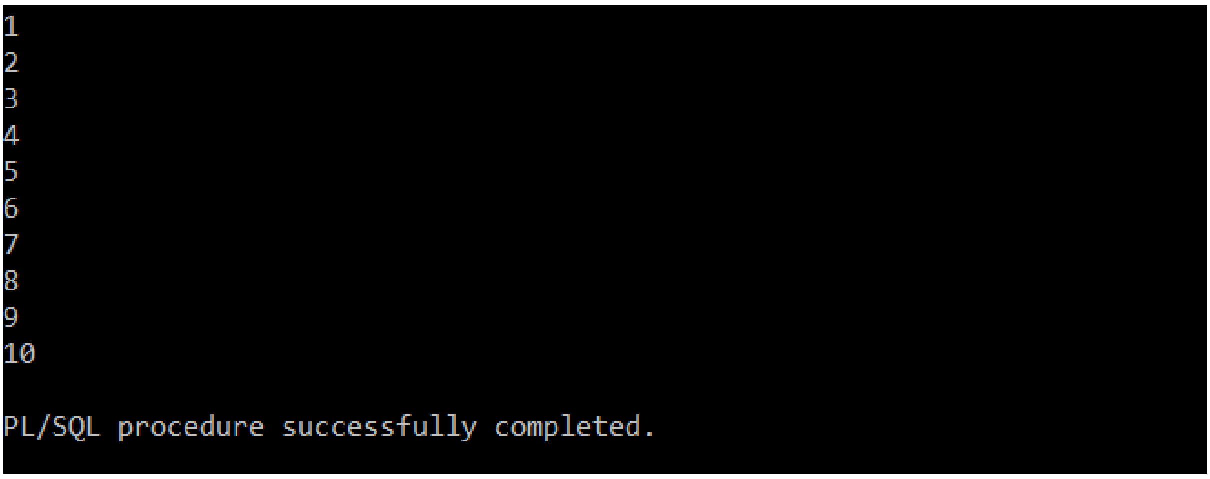
```
1
2
3
4
5
6
7
8
9
10

PL/SQL procedure successfully completed.
```

9. **Write a PL/SQL program to display numbers from 1 to 10 using for loop**

Program:-

```
begin
        for a in 1..10
        loop
                dbms_output.put_line(a);
        end loop;
end;
/
```

Output:-



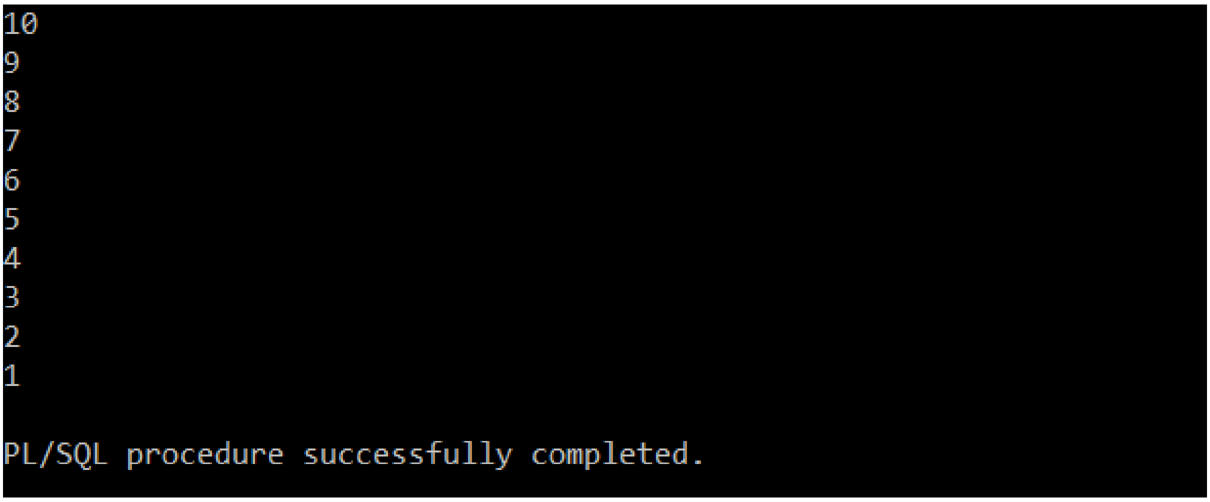
```
1
2
3
4
5
6
7
8
9
10

PL/SQL procedure successfully completed.
```

10. Write a PL/SQL program to display numbers from 1 to 10 reverse using simple loop

Program:-

```
declare
        a number(2):=10;
begin
        loop
        dbms_output.put_line(a);
        a:=a-1;
        exit when(a<=0);
        end loop;
end;
/
```

Output:-



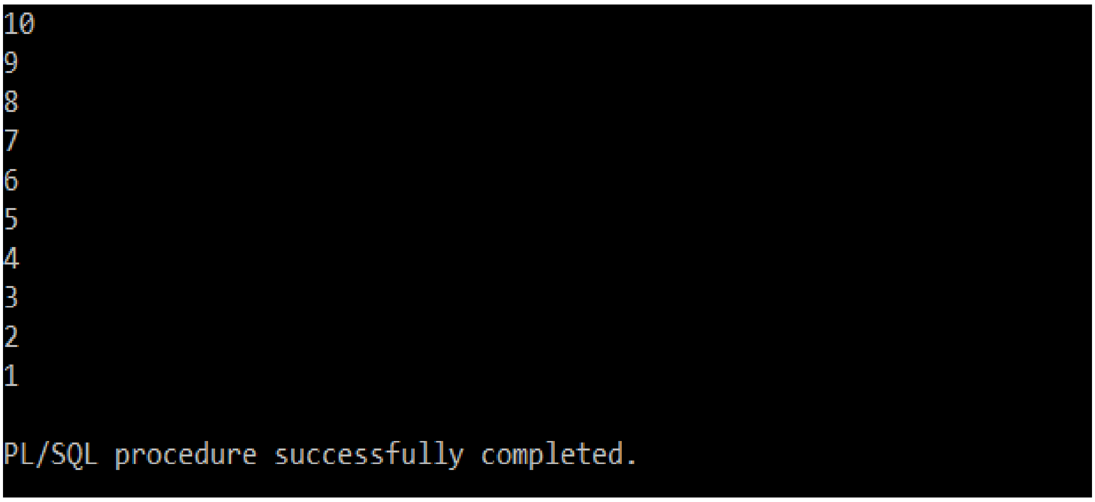
```
10
9
8
7
6
5
4
3
2
1

PL/SQL procedure successfully completed.
```

11. Write a PL/SQL program to display numbers from 1 to 10 reverse using while loop

Program:-

```
declare
            a number(2):=10;
begin
     while(a>=1)
     loop
     dbms_output.put_line(a);
     a:=a-1;
     end loop;
end;
/
```

Output:-



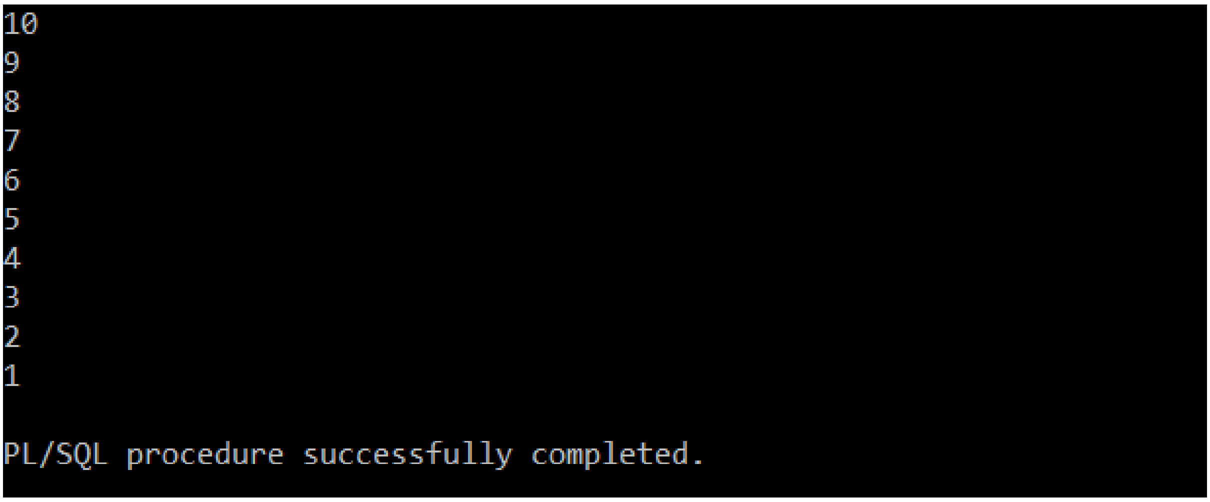
```
10
9
8
7
6
5
4
3
2
1

PL/SQL procedure successfully completed.
```

12. Write a PL/SQL program to display numbers from 1 to 10 reverse using for loop

Program:-

```
begin
    for a in reverse 1..10
    loop
    dbms_output.put_line(a);
    end loop;
end;
/
```

Output:-



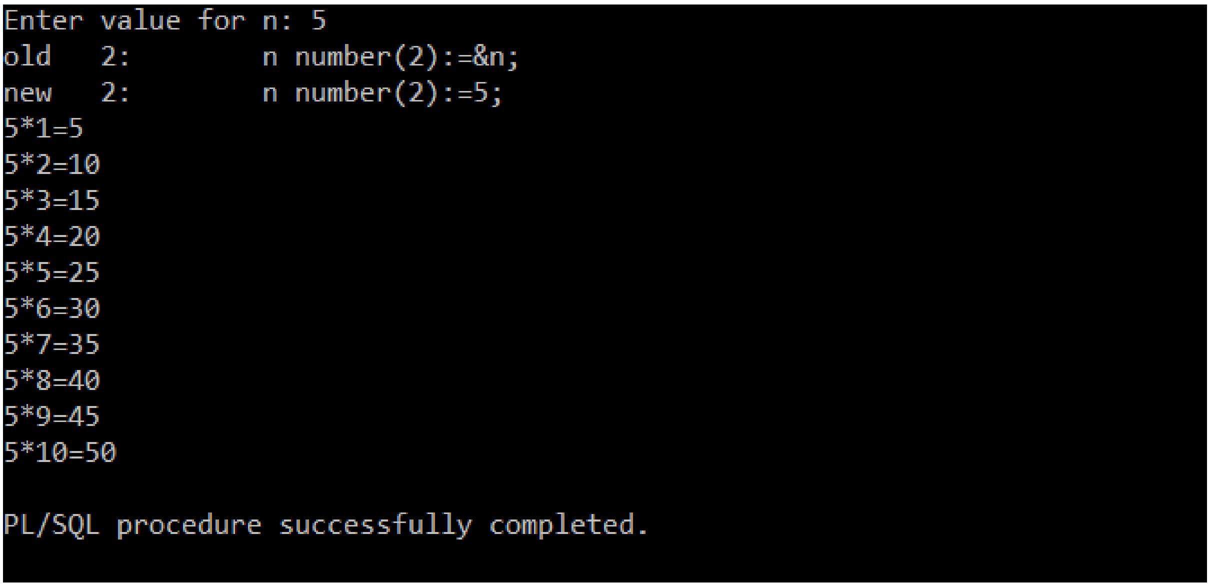
```
10
9
8
7
6
5
4
3
2
1

PL/SQL procedure successfully completed.
```

13. Write a PL/SQL program to print multiplication table for a given number using for loop

Program:-

```
declare
        n number(2):=&n;
begin
        for i in 1..10
        loop
        dbms_output.put_line(n||'*'||i||'='||n*i);
        end loop;
end;
/
```

Output:-



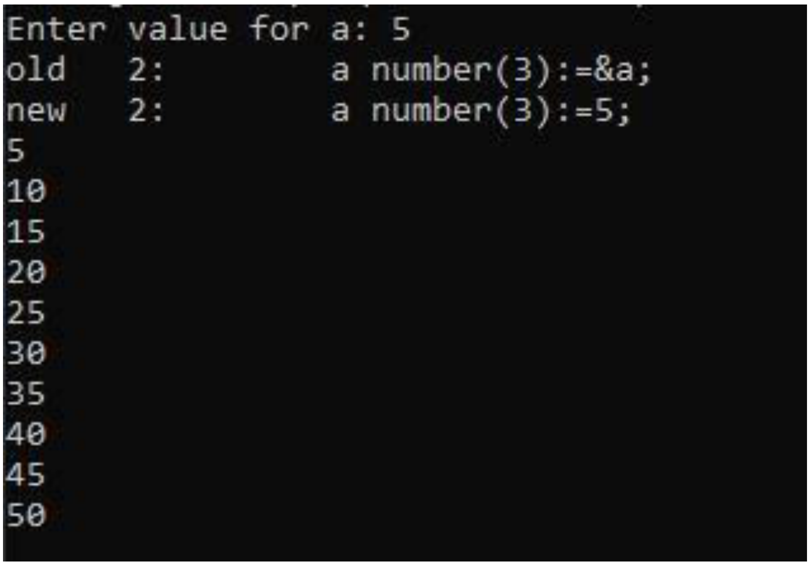
```
Enter value for n: 5
old   2:        n number(2):=&n;
new   2:        n number(2):=5;
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
5*6=30
5*7=35
5*8=40
5*9=45
5*10=50

PL/SQL procedure successfully completed.
```

14. Write a PL/SQL program to print multiplication table for a given number using simple loop

Program:-

```
declare
        a number(3):=&a;
        i number(3):=1;
 begin
        loop
        a:=a*i;
        i:=i+1;
        dbms_output.put_line(a);
        a:=5;
        exit when i>10;
        end loop;
 end;
 /
```

Output:-



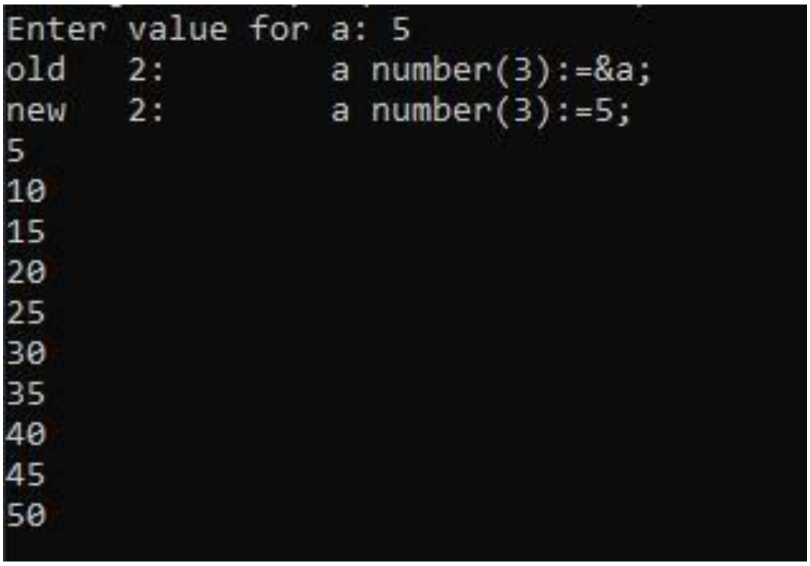
```
Enter value for a: 5
old   2:        a number(3):=&a;
new   2:        a number(3):=5;
5
10
15
20
25
30
35
40
45
50
```

15. Write a PL/SQL program to print multiplication table for a given number using While loop

Program:-

```
declare
        a number(2):=&a;
        i number(2):=1;
begin
         while(i<=10)
         loop
            dbms_output.put_line(i*a);
            i:=i+1;
         end loop;
end;
/
```

Output:-



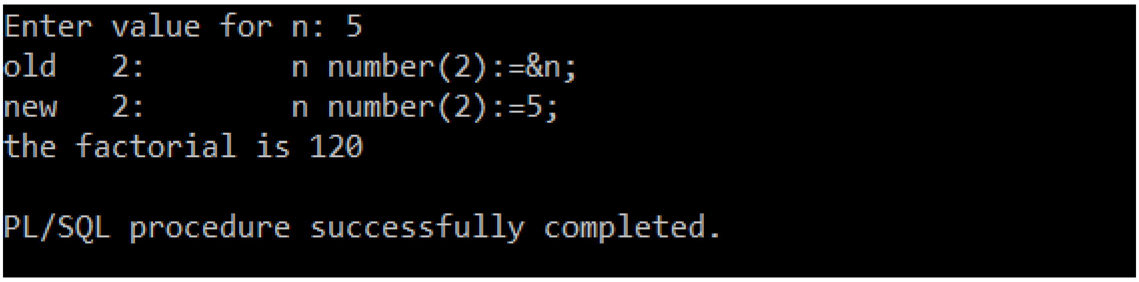
```
Enter value for a: 5
old   2:        a number(3):=&a;
new   2:        a number(3):=5;
5
10
15
20
25
30
35
40
45
50
```

16. Write a PL/SQL program to display factorial of a given number

Program:-

```
declare
      n number(2):=&n;
      f number(5):=1;
begin
      for i in 1..n
      loop
             f:=f*i;
      end loop;
      dbms_output.put_line('the factorial is '||f);
end;
/
```

Output:-



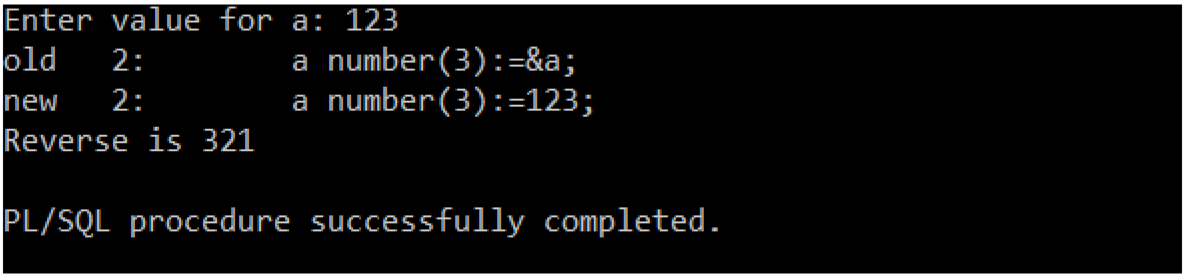
```
Enter value for n: 5
old   2:        n number(2):=&n;
new   2:        n number(2):=5;
the factorial is 120

PL/SQL procedure successfully completed.
```

17. Write a PL/SQL program to display reverse of a given number

Program:-

```
declare
        a number(3):=&a;
        rev number(5):=0;
        rem number(5);
begin
        while(a!=0)
        loop
                rem:=mod(a,10);
                rev:= rev*10+rem;
                a:=floor(a/10);
        end loop;
        dbms_output.put_line('Reverse is ' ||rev);
end;
/
```

Output:-



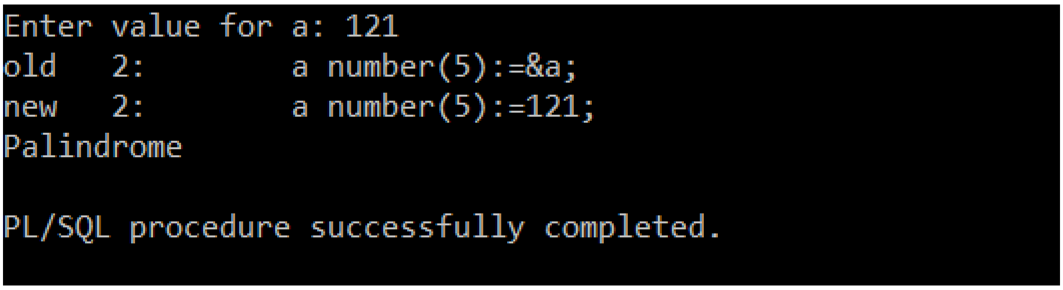
```
Enter value for a: 123
old   2:        a number(3):=&a;
new   2:        a number(3):=123;
Reverse is 321

PL/SQL procedure successfully completed.
```

18. Write a PL/SQL program To display whether the given number is palindrome or not

Program:-

```
declare
    a number(5):=&a;
    rev number(5):=0;
    rem number(5);
    temp number(5);
begin
    temp:=a;
    while(a!=0)
    loop
        rem:=mod(a,10);
        rev:=rev*10+rem;
        a:=floor(a/10);
    end loop;
    if(temp=rev)then
        dbms_output.put_line('Palindrome');
    else
        dbms_output.put_line('Not Palindrome');
    end if;
end;
/
```

Output:-



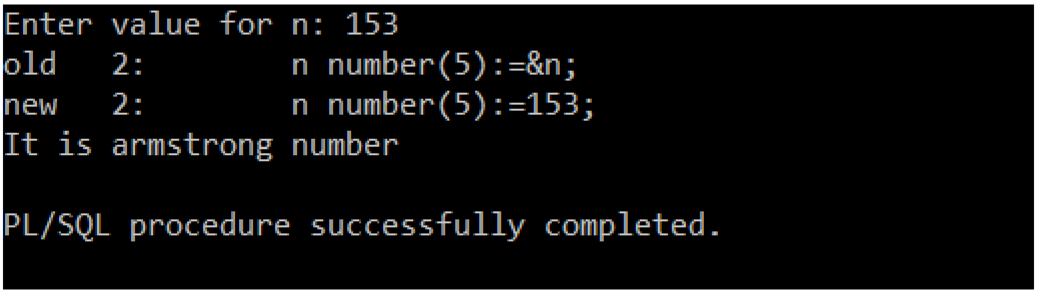
```
Enter value for a: 121
old   2:         a number(5):=&a;
new   2:         a number(5):=121;
Palindrome

PL/SQL procedure successfully completed.
```

19. Write a PL/SQL program to check whether Armstrong number or not

Program:-

```
declare
        n number(5):=&n;
        rem number(3);
        arm number(3):=0;
        temp number(3);
begin
        temp:=n;
        while(n>0)
        loop
                rem:=mod(n,10);
                arm:=arm+(rem*rem*rem);
                n:=floor(n/10);
        end loop;
        if temp=arm then
                dbms_output.put_line('It is armstrong number');
        else
                dbms_output.put_line('Not Armstrong');
        end if;
end;
/
```

Output:-



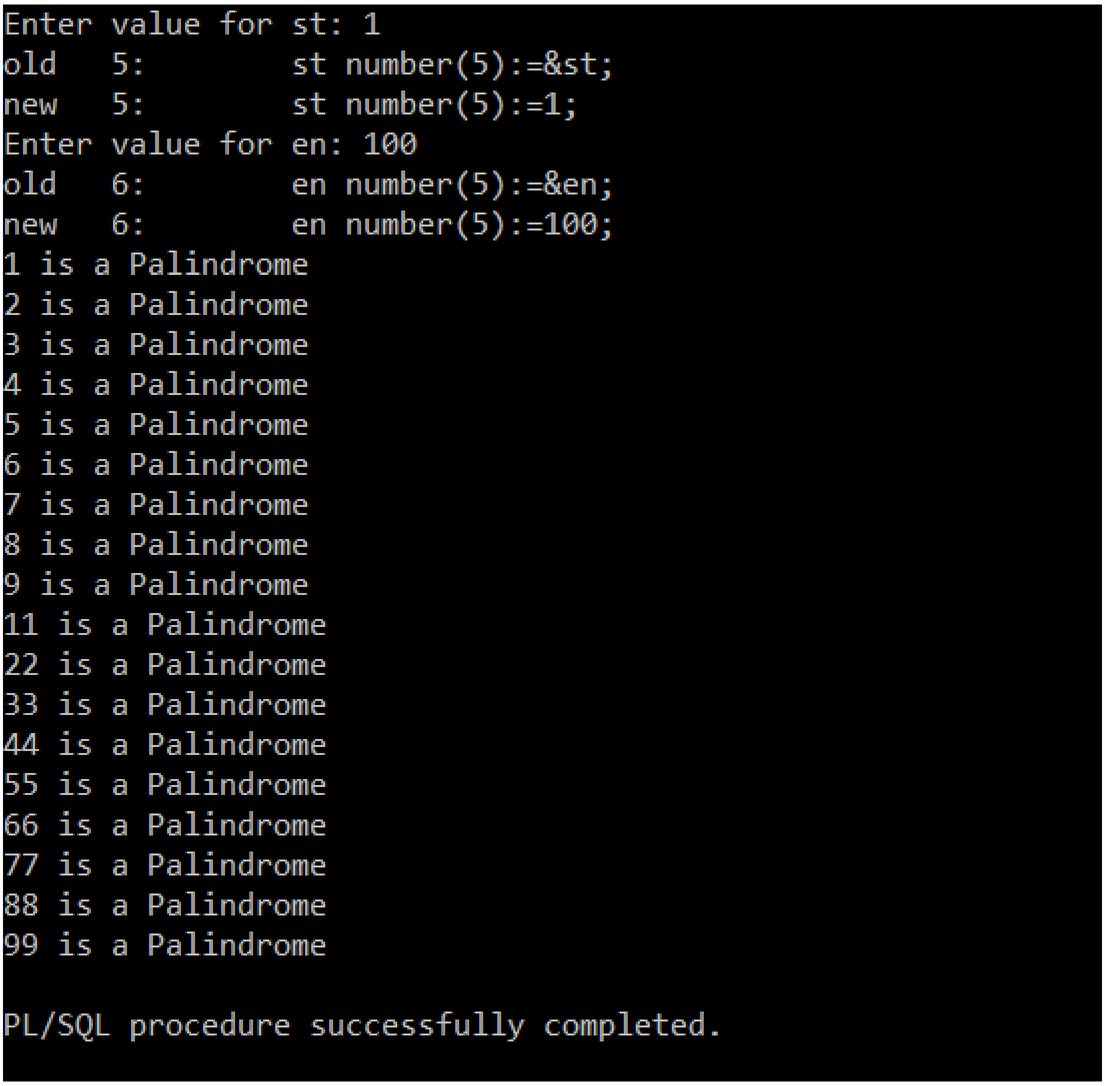
```
Enter value for n: 153
old   2:         n number(5):=&n;
new   2:         n number(5):=153;
It is armstrong number

PL/SQL procedure successfully completed.
```

20. Write a PL/SQL program to print list of palindrome numbers in a range

Program:-

```
declare
        rev number(5):=0;
        rem number(5):=0;
        temp number(5):=0;
        st number(5):=&st;
        en number(5):=&en;
begin
        for fk in st..en
        loop
                rev:=0;
                temp:=fk;
                while(temp!=0)
                loop
                        rem:=mod(temp,10);
                        rev:=rev*10+rem;
                        temp:=floor(temp/10);
                end loop;

                if(rev=fk)then
                        dbms_output.put_line(fk||' is a Palindrome');
                end if;
        end loop;
end;
/
```

Output:-



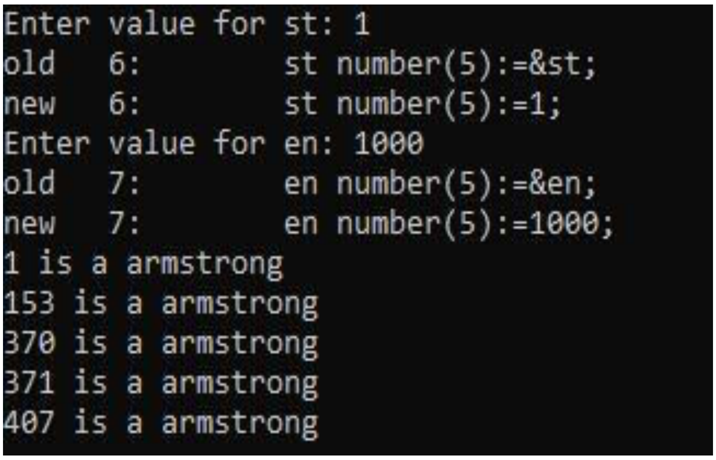
```
Enter value for st: 1
old   5:        st number(5):=&st;
new   5:        st number(5):=1;
Enter value for en: 100
old   6:        en number(5):=&en;
new   6:        en number(5):=100;
1 is a Palindrome
2 is a Palindrome
3 is a Palindrome
4 is a Palindrome
5 is a Palindrome
6 is a Palindrome
7 is a Palindrome
8 is a Palindrome
9 is a Palindrome
11 is a Palindrome
22 is a Palindrome
33 is a Palindrome
44 is a Palindrome
55 is a Palindrome
66 is a Palindrome
77 is a Palindrome
88 is a Palindrome
99 is a Palindrome

PL/SQL procedure successfully completed.
```

21. Write a PL/SQL program to print list of Armstrong numbers in a range

Program:-

```
declare
        num number(5);
        rem number(5);
        rev number(5);
        temp number(5);
        st number(5):=&st;
        en number(5):=&en;
 begin
        for num in st..en
        loop
                temp:=num;
                rev:=0;
                while(temp!=0)
                loop
                        rem:=mod(temp,10);
                        temp:=floor(temp/10);
                        rev:=rev+rem*rem*rem;
                end loop;
                if(rev=num)then
                        dbms_output.put_line(num||' is a armstrong');
                end if;
        end loop;
 end;
 /
```

Output:-



```
Enter value for st: 1
old   6:        st number(5):=&st;
new   6:        st number(5):=1;
Enter value for en: 1000
old   7:        en number(5):=&en;
new   7:        en number(5):=1000;
1 is a armstrong
153 is a armstrong
370 is a armstrong
371 is a armstrong
407 is a armstrong
```

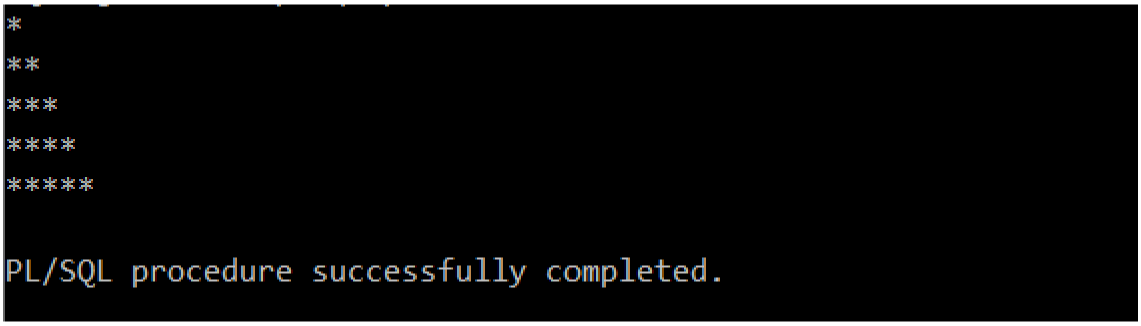
22. Write a PL/SQL program for following pattern:-

```
*
**
***
****
*****
```

Program:-

```
declare
        i number(5);
        j number(5);
begin
        for i in 1..5 loop
                for j in 1..i loop
                        dbms_output.put('*');
                end loop;
               dbms_output.new_line;
        end loop;
end;
/
```

Output:-



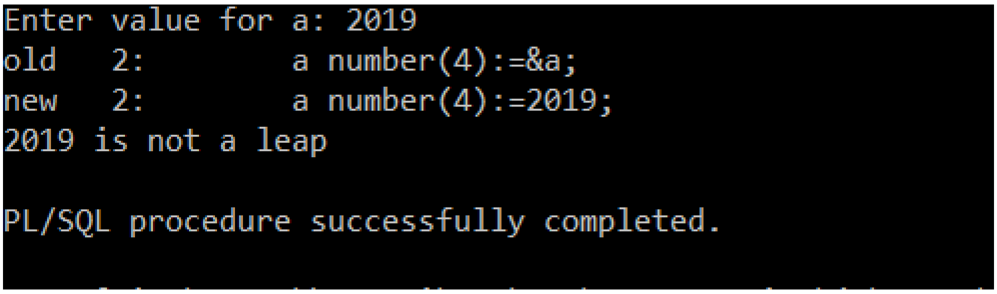
```
*
**
***
****
*****

PL/SQL procedure successfully completed.
```

23. Write a PL/SQL program to check the given year is leap year or not

Program:-

```
declare
        a number(4):=&a;
begin
        if(mod(a,4)=0) then
                dbms_output.put_line(a||' is a leap year');
        elsif(mod(a,100)=0) then
                dbms_output.put_line(a||' is a leap year');
        elsif(mod(a,400)=0) then
                dbms_output.put_line(a||' is a leap year');
        else
          dbms_output.put_line(a||' is not a leap year');
        end if;
end;
/
```

Output:-



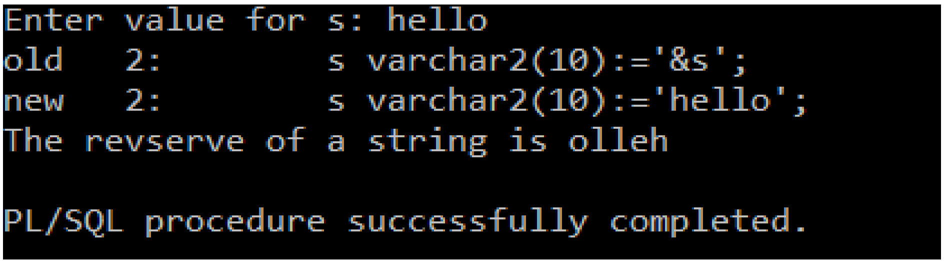
```
Enter value for a: 2019
old   2:        a number(4):=&a;
new   2:        a number(4):=2019;
2019 is not a leap

PL/SQL procedure successfully completed.
```

24. Write a PL/SQL program to print reverse of a given string

Program:-

```
declare
         s varchar2(10):='&s';
         rev varchar2(10);
         le number(10);
begin
       le:=length(s);
       for i in 1..le
       loop
                rev:=rev||substr(s,-i,1);
       end loop;
       dbms_output.put_line('The revserve of a string is '||rev);
 end;
 /
```

Output:-



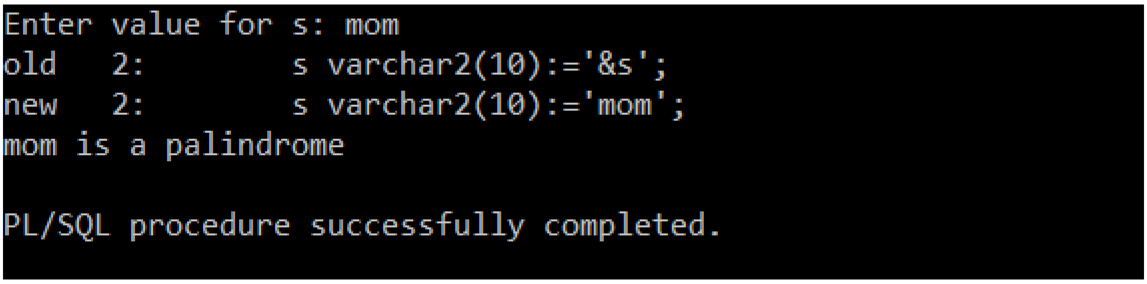
```
Enter value for s: hello
old   2:        s varchar2(10):='&s';
new   2:        s varchar2(10):='hello';
The revserve of a string is olleh

PL/SQL procedure successfully completed.
```

25. Write a PL/SQL program given to check the given string is palindrome or not

Program:-

```
declare
        s varchar2(10):='&s';
        rev varchar2(10);
        le number(10);
begin
        le:=length(s);
        for i in 1..le
        loop
                rev:=rev||substr(s,-i,1);
        end loop;
        if(s=rev) then
                dbms_output.put_line(s||' is a palindrome');
        else
                dbms_output.put_line(s||' is not a palindrome');
        end if;
end;
/
```

Output:-



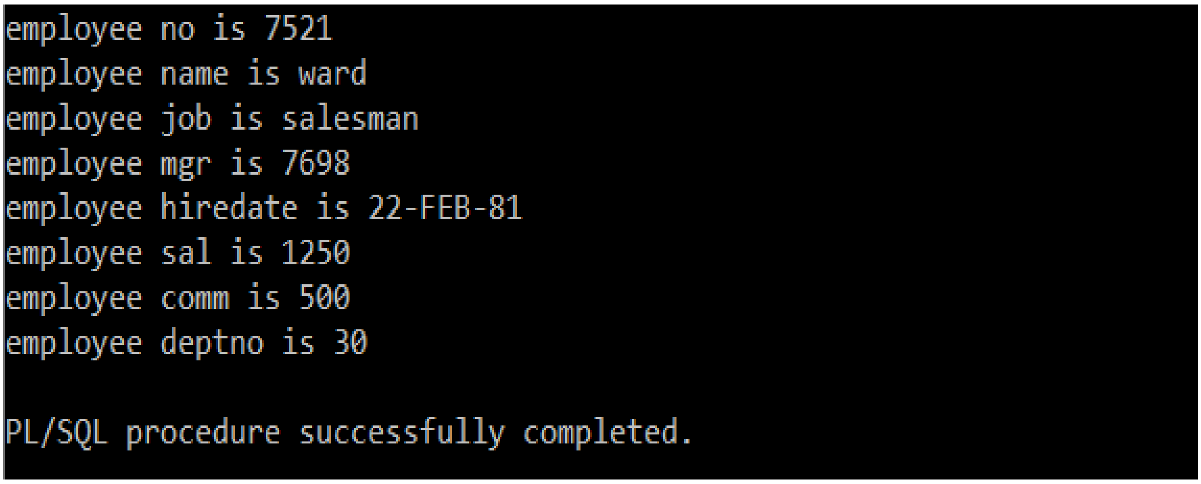
```
Enter value for s: mom
old   2:        s varchar2(10):='&s';
new   2:        s varchar2(10):='mom';
mom is a palindrome

PL/SQL procedure successfully completed.
```

26. Write a PL/SQL program to display employee details for given employee number

Program:-

```
declare
        v_empno number(4):=&empno;
        v_ename varchar2(10);
        v_job varchar2(9);
        v_mgr number(4);
        v_hiredate date;
        v_sal number(7,2);
        v_comm number(4);
        v_deptno number(4);
begin
        select     empno,ename,job,mgr,hiredate,sal,comm,deptno     into
        v_empno,v_ename,v_job,v_mgr,v_hiredate,v_sal,v_comm,v_depto
        from emp where empno=v_empno;
        dbms_output.put_line('employee no is '||v_empno);
        dbms_output.put_line('employee name is '||v_ename);
        dbms_output.put_line('employee job is '||v_job);
        dbms_output.put_line('employee mgr is '||v_mgr);
        dbms_output.put_line('employee hiredate is'||v_hiredate);
        dbms_output.put_line('employee sal is '||v_sal);
        dbms_output.put_line('employee comm is '||v_comm);
        dbms_output.put_line('employee deptno is '||v_deptno);
end;
/
```

Output:-



```
employee no is 7521
employee name is ward
employee job is salesman
employee mgr is 7698
employee hiredate is 22-FEB-81
employee sal is 1250
employee comm is 500
employee deptno is 30

PL/SQL procedure successfully completed.
```

27. Write a PL/SQL program to display employee details by using normal cursor

Program:-

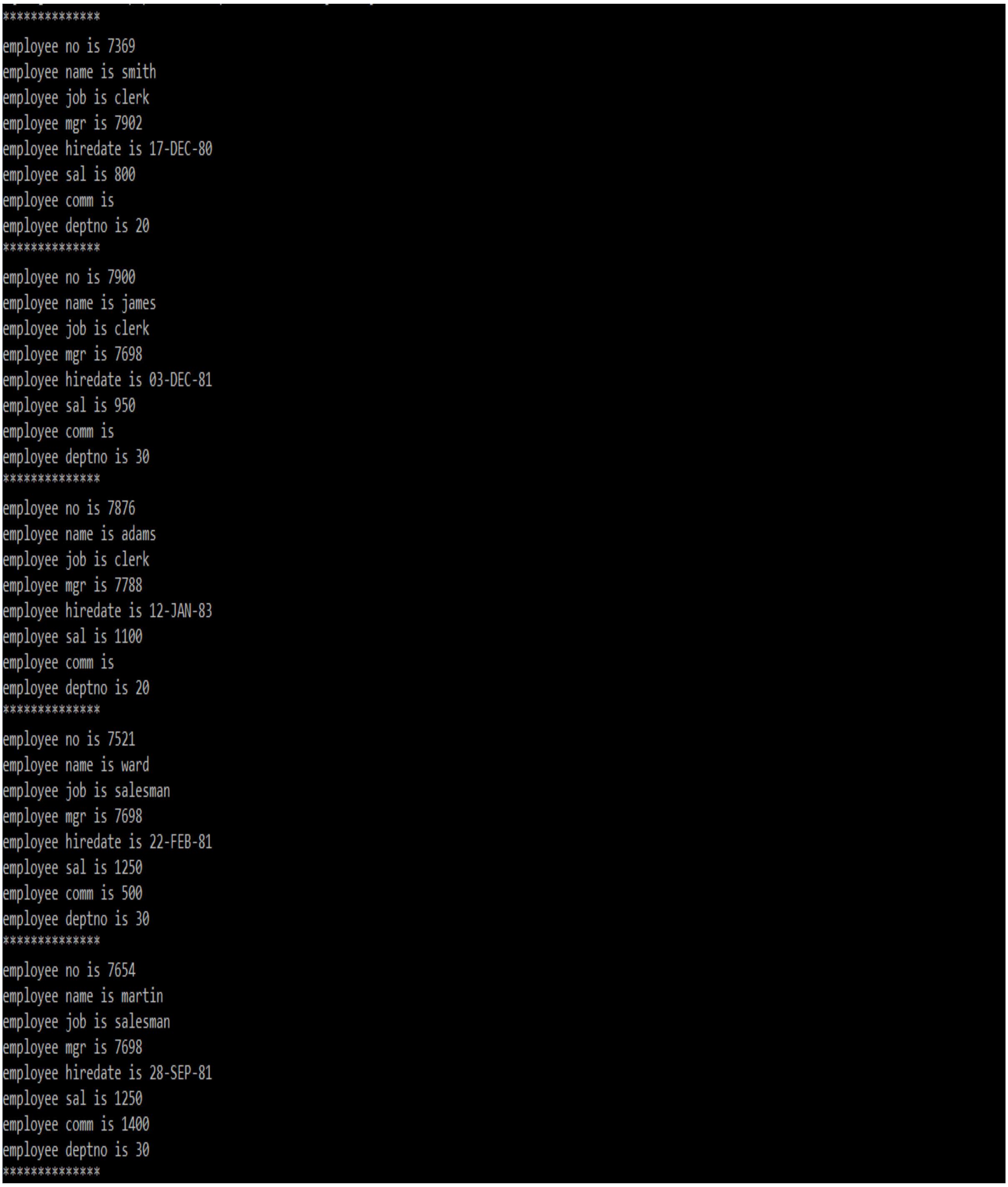
```
declare

      cursor c_emp is select * from emp;
      v_emp emp%rowtype;
begin
      open c_emp;
      loop
      fetch c_emp into v_emp;
      dbms_output.put_line('**************');
      if c_emp%found then
      dbms_output.put_line('employee no is '||v_emp.empno);
      dbms_output.put_line('employee name is '||v_emp.ename);
      dbms_output.put_line('employee job is '||v_emp.job);
      dbms_output.put_line('employee mgr is '||v_emp.mgr);
      dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
      dbms_output.put_line('employee sal is '||v_emp.sal);
      dbms_output.put_line('employee comm is '||v_emp.comm);
      dbms_output.put_line('employee deptno is '||v_emp.deptno);
      else
      dbms_output.put_line('cursor empty');
      exit;
      end if;
      end loop;
      close c_emp;
end;
/
```

28. Write a PL/SQL program to display employee details by using cursor for loop

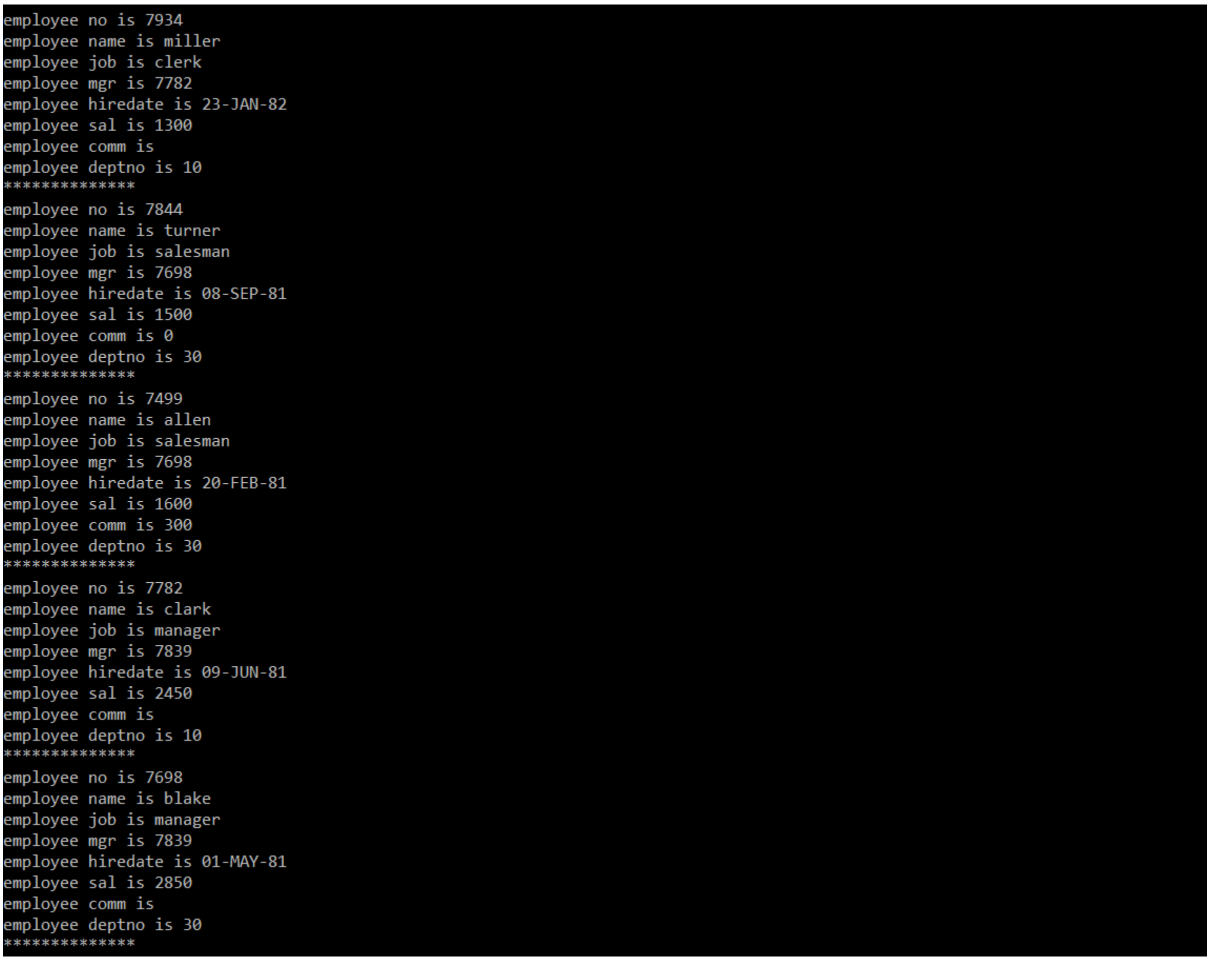
Program:-

```
declare
        cursor cfor_emp is select * from emp;
begin
        for v_emp in cfor_emp
        loop
                dbms_output.put_line('**************');
                dbms_output.put_line('employee no is '||v_emp.empno);
                dbms_output.put_line('employee name is '||v_emp.ename);
                dbms_output.put_line('employee job is '||v_emp.job);
                dbms_output.put_line('employee mgr is '||v_emp.mgr);
                dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
                dbms_output.put_line('employee sal is '||v_emp.sal);
                dbms_output.put_line('employee comm is '||v_emp.comm);
                dbms_output.put_line('employee deptno is '||v_emp.deptno);
        end loop;
end;
/
```

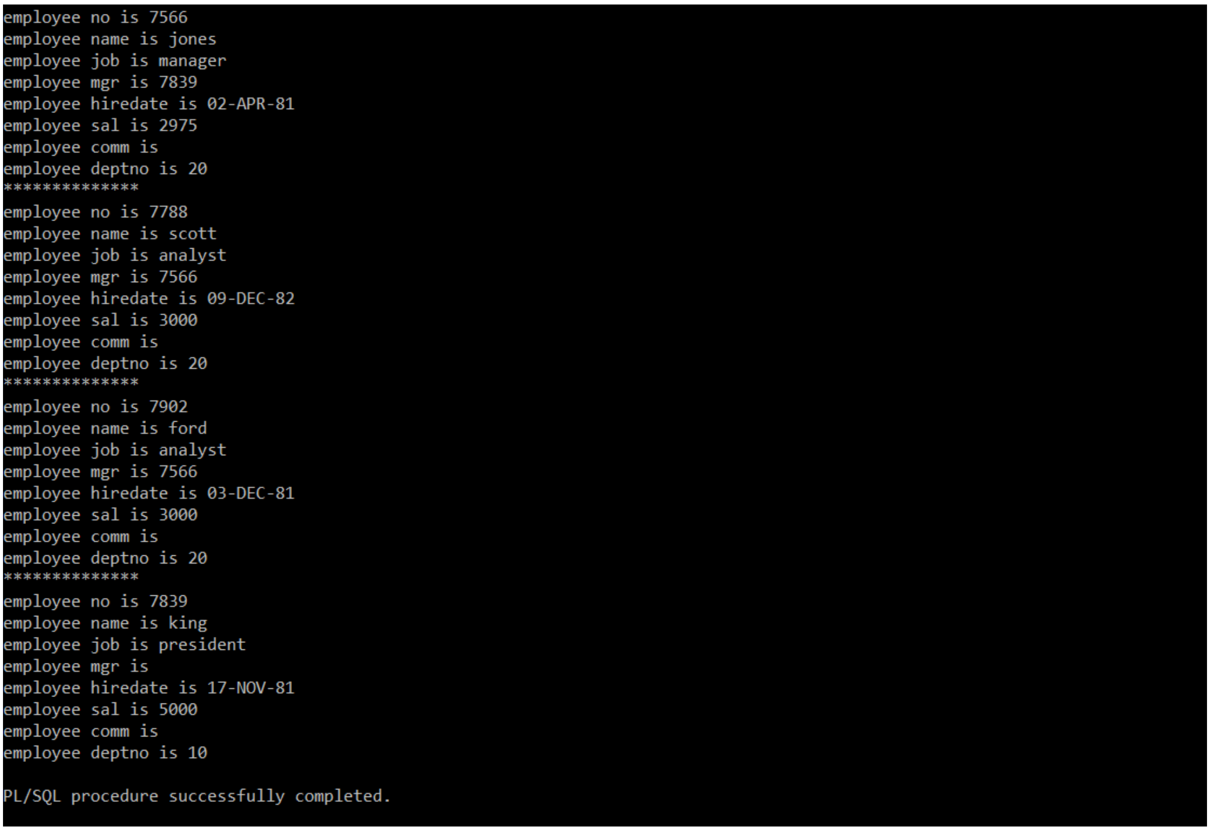
Output:-



```
**************
employee no is 7369
employee name is smith
employee job is clerk
employee mgr is 7902
employee hiredate is 17-DEC-80
employee sal is 800
employee comm is
employee deptno is 20
**************
employee no is 7900
employee name is james
employee job is clerk
employee mgr is 7698
employee hiredate is 03-DEC-81
employee sal is 950
employee comm is
employee deptno is 30
**************
employee no is 7876
employee name is adams
employee job is clerk
employee mgr is 7788
employee hiredate is 12-JAN-83
employee sal is 1100
employee comm is
employee deptno is 20
**************
employee no is 7521
employee name is ward
employee job is salesman
employee mgr is 7698
employee hiredate is 22-FEB-81
employee sal is 1250
employee comm is 500
employee deptno is 30
**************
employee no is 7654
employee name is martin
employee job is salesman
employee mgr is 7698
employee hiredate is 28-SEP-81
employee sal is 1250
employee comm is 1400
employee deptno is 30
**************
```



```
employee no is 7934
employee name is miller
employee job is clerk
employee mgr is 7782
employee hiredate is 23-JAN-82
employee sal is 1300
employee comm is
employee deptno is 10
**************
employee no is 7844
employee name is turner
employee job is salesman
employee mgr is 7698
employee hiredate is 08-SEP-81
employee sal is 1500
employee comm is 0
employee deptno is 30
**************
employee no is 7499
employee name is allen
employee job is salesman
employee mgr is 7698
employee hiredate is 20-FEB-81
employee sal is 1600
employee comm is 300
employee deptno is 30
**************
employee no is 7782
employee name is clark
employee job is manager
employee mgr is 7839
employee hiredate is 09-JUN-81
employee sal is 2450
employee comm is
employee deptno is 10
**************
employee no is 7698
employee name is blake
employee job is manager
employee mgr is 7839
employee hiredate is 01-MAY-81
employee sal is 2850
employee comm is
employee deptno is 30
**************
```



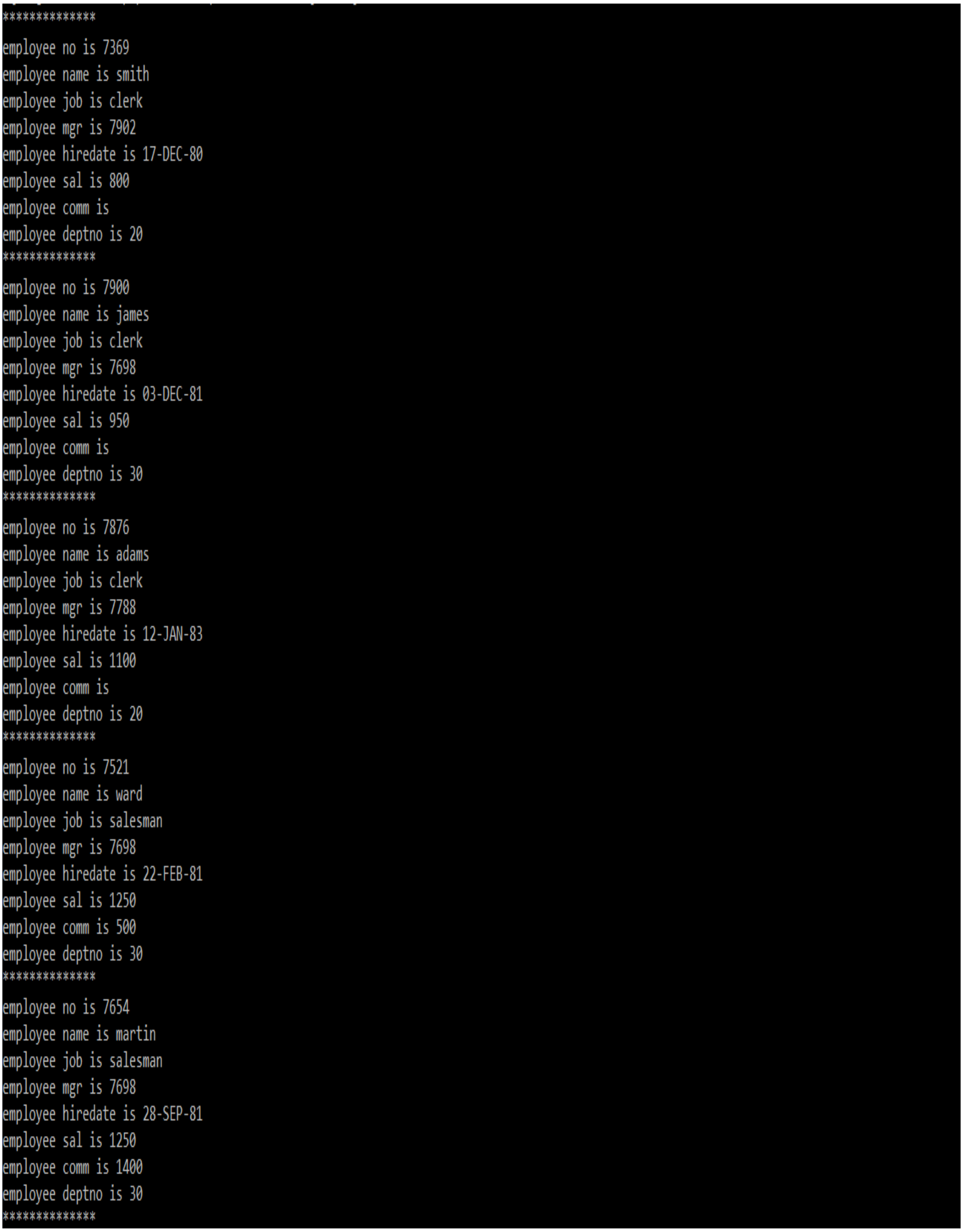
```
employee no is 7566
employee name is jones
employee job is manager
employee mgr is 7839
employee hiredate is 02-APR-81
employee sal is 2975
employee comm is
employee deptno is 20
**************
employee no is 7788
employee name is scott
employee job is analyst
employee mgr is 7566
employee hiredate is 09-DEC-82
employee sal is 3000
employee comm is
employee deptno is 20
**************
employee no is 7902
employee name is ford
employee job is analyst
employee mgr is 7566
employee hiredate is 03-DEC-81
employee sal is 3000
employee comm is
employee deptno is 20
**************
employee no is 7839
employee name is king
employee job is president
employee mgr is
employee hiredate is 17-NOV-81
employee sal is 5000
employee comm is
employee deptno is 10

PL/SQL procedure successfully completed.
```

29. Write a PL/SQL program to display all employee details in the ascending order of their salaries

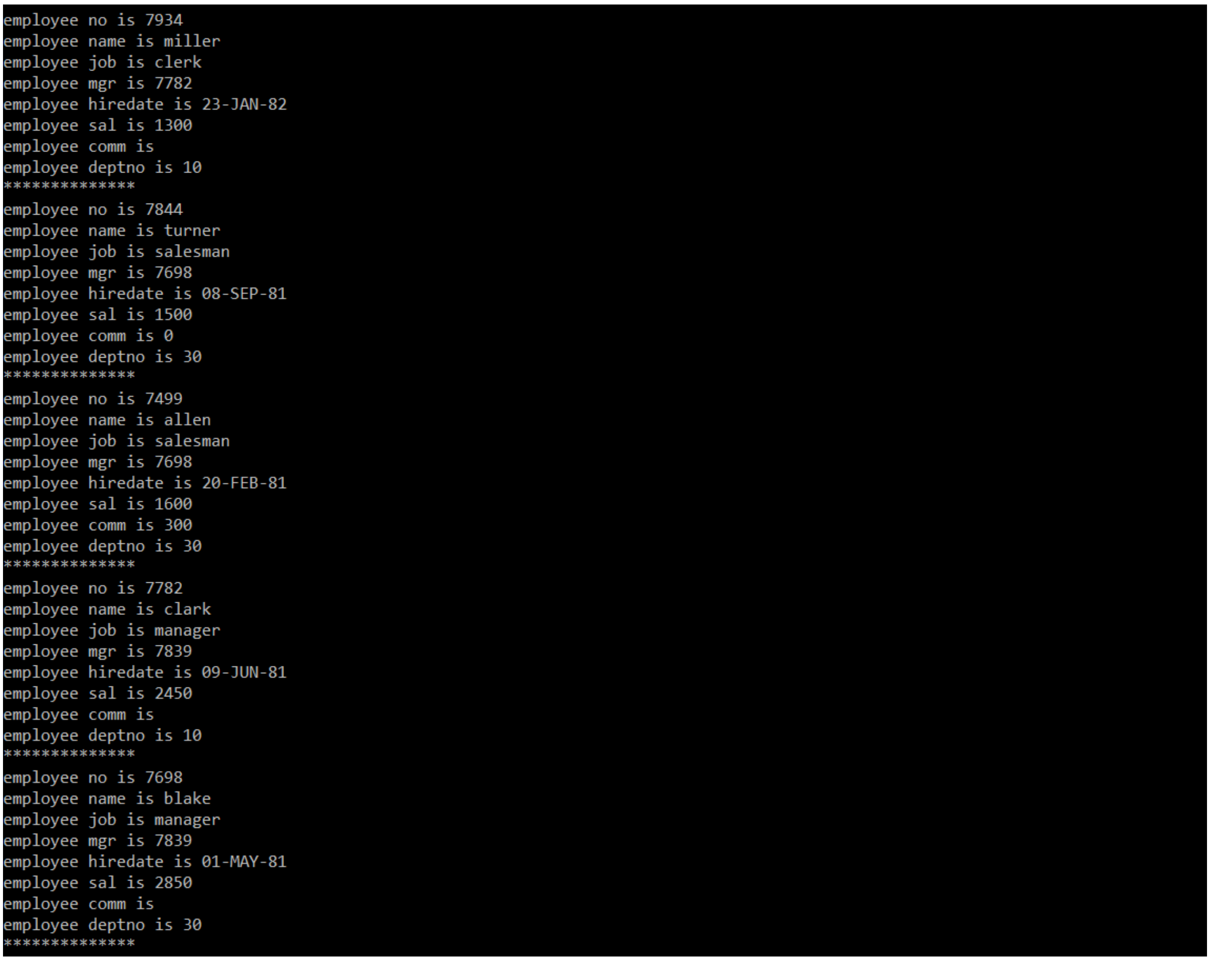
Program:-

```
declare
   cursor cfor_emp is select * from emp order by sal;
begin
   for v_emp in cfor_emp
   loop
   dbms_output.put_line('**************');
   dbms_output.put_line('employee no is '||v_emp.empno);
   dbms_output.put_line('employee name is '||v_emp.ename);
   dbms_output.put_line('employee job is '||v_emp.job);
   dbms_output.put_line('employee mgr is '||v_emp.mgr);
   dbms_output.put_line('employee hiredate is
   '||v_emp.hiredate);
   dbms_output.put_line('employee sal is '||v_emp.sal);
   dbms_output.put_line('employee comm is '||v_emp.comm);
   dbms_output.put_line('employee deptno is '||v_emp.deptno);
   end loop;
end;
/
```

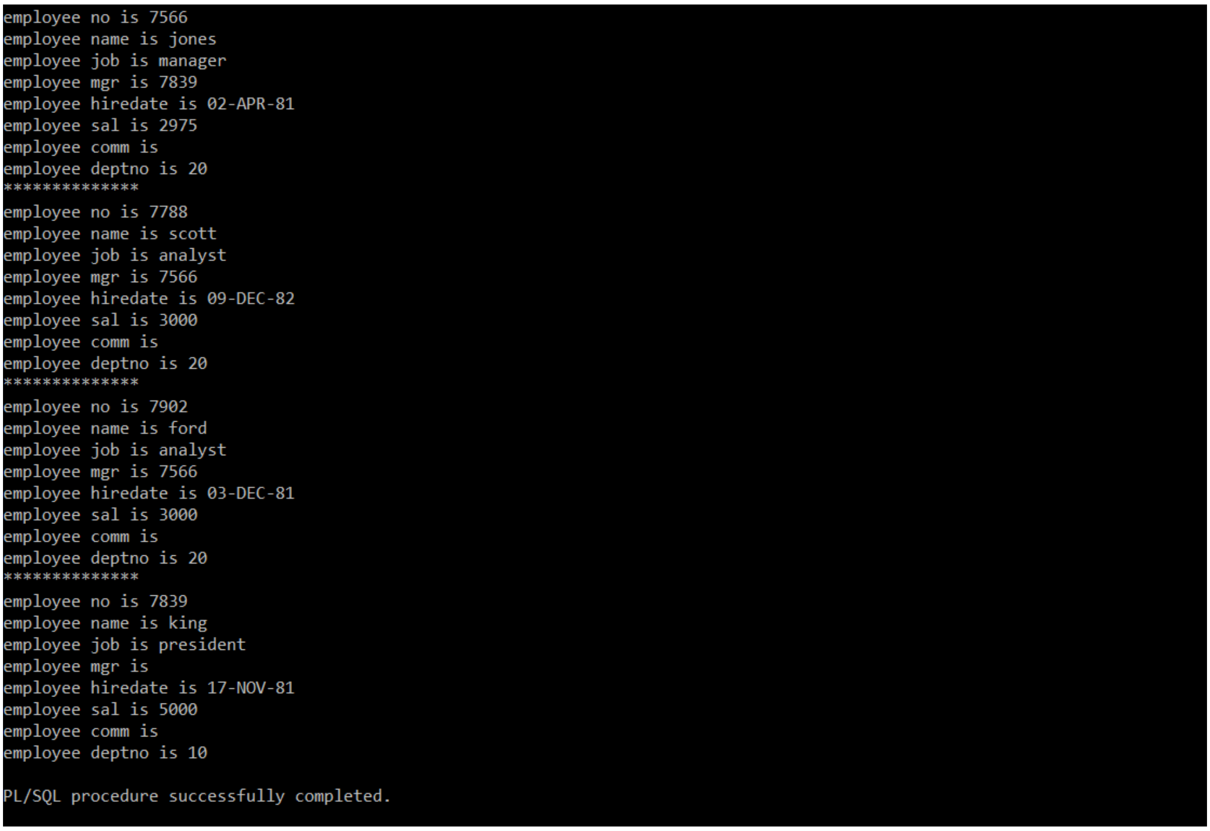
Output:-



```
**************
employee no is 7369
employee name is smith
employee job is clerk
employee mgr is 7902
employee hiredate is 17-DEC-80
employee sal is 800
employee comm is
employee deptno is 20
**************
employee no is 7900
employee name is james
employee job is clerk
employee mgr is 7698
employee hiredate is 03-DEC-81
employee sal is 950
employee comm is
employee deptno is 30
**************
employee no is 7876
employee name is adams
employee job is clerk
employee mgr is 7788
employee hiredate is 12-JAN-83
employee sal is 1100
employee comm is
employee deptno is 20
**************
employee no is 7521
employee name is ward
employee job is salesman
employee mgr is 7698
employee hiredate is 22-FEB-81
employee sal is 1250
employee comm is 500
employee deptno is 30
**************
employee no is 7654
employee name is martin
employee job is salesman
employee mgr is 7698
employee hiredate is 28-SEP-81
employee sal is 1250
employee comm is 1400
employee deptno is 30
**************
```



```
employee no is 7934
employee name is miller
employee job is clerk
employee mgr is 7782
employee hiredate is 23-JAN-82
employee sal is 1300
employee comm is
employee deptno is 10
**************
employee no is 7844
employee name is turner
employee job is salesman
employee mgr is 7698
employee hiredate is 08-SEP-81
employee sal is 1500
employee comm is 0
employee deptno is 30
**************
employee no is 7499
employee name is allen
employee job is salesman
employee mgr is 7698
employee hiredate is 20-FEB-81
employee sal is 1600
employee comm is 300
employee deptno is 30
**************
employee no is 7782
employee name is clark
employee job is manager
employee mgr is 7839
employee hiredate is 09-JUN-81
employee sal is 2450
employee comm is
employee deptno is 10
**************
employee no is 7698
employee name is blake
employee job is manager
employee mgr is 7839
employee hiredate is 01-MAY-81
employee sal is 2850
employee comm is
employee deptno is 30
**************
```



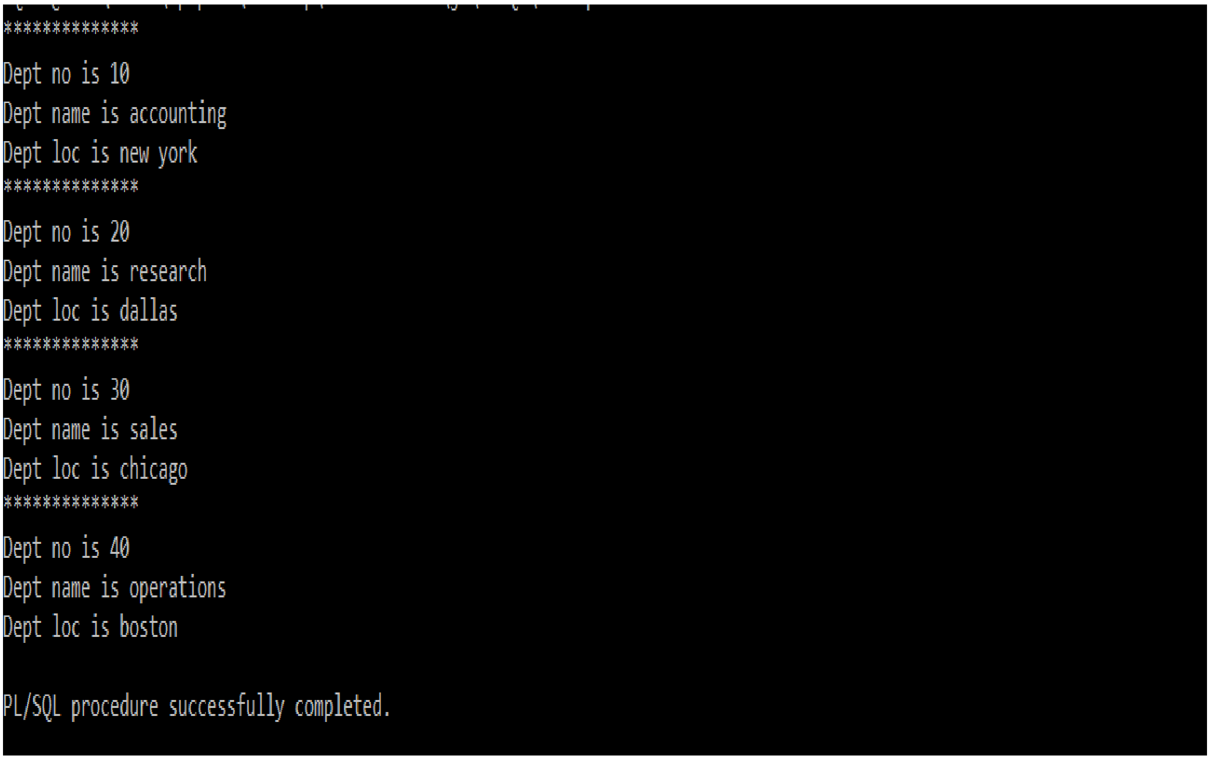
```
employee no is 7566
employee name is jones
employee job is manager
employee mgr is 7839
employee hiredate is 02-APR-81
employee sal is 2975
employee comm is
employee deptno is 20
**************
employee no is 7788
employee name is scott
employee job is analyst
employee mgr is 7566
employee hiredate is 09-DEC-82
employee sal is 3000
employee comm is
employee deptno is 20
**************
employee no is 7902
employee name is ford
employee job is analyst
employee mgr is 7566
employee hiredate is 03-DEC-81
employee sal is 3000
employee comm is
employee deptno is 20
**************
employee no is 7839
employee name is king
employee job is president
employee mgr is
employee hiredate is 17-NOV-81
employee sal is 5000
employee comm is
employee deptno is 10

PL/SQL procedure successfully completed.
```

30. Write a PL/SQL program to display all department information

Program:-

```
declare
    cursor cfor_dept is select * from dept;
begin
    for v_emp in cfor_dept
    loop
    dbms_output.put_line('**************');
    dbms_output.put_line('Dept no is '||v_emp.deptno);
    dbms_output.put_line('Dept name is '||v_emp.dname);
    dbms_output.put_line('Dept loc is '||v_emp.loc);
    end loop;
end;
/
```

Output:-



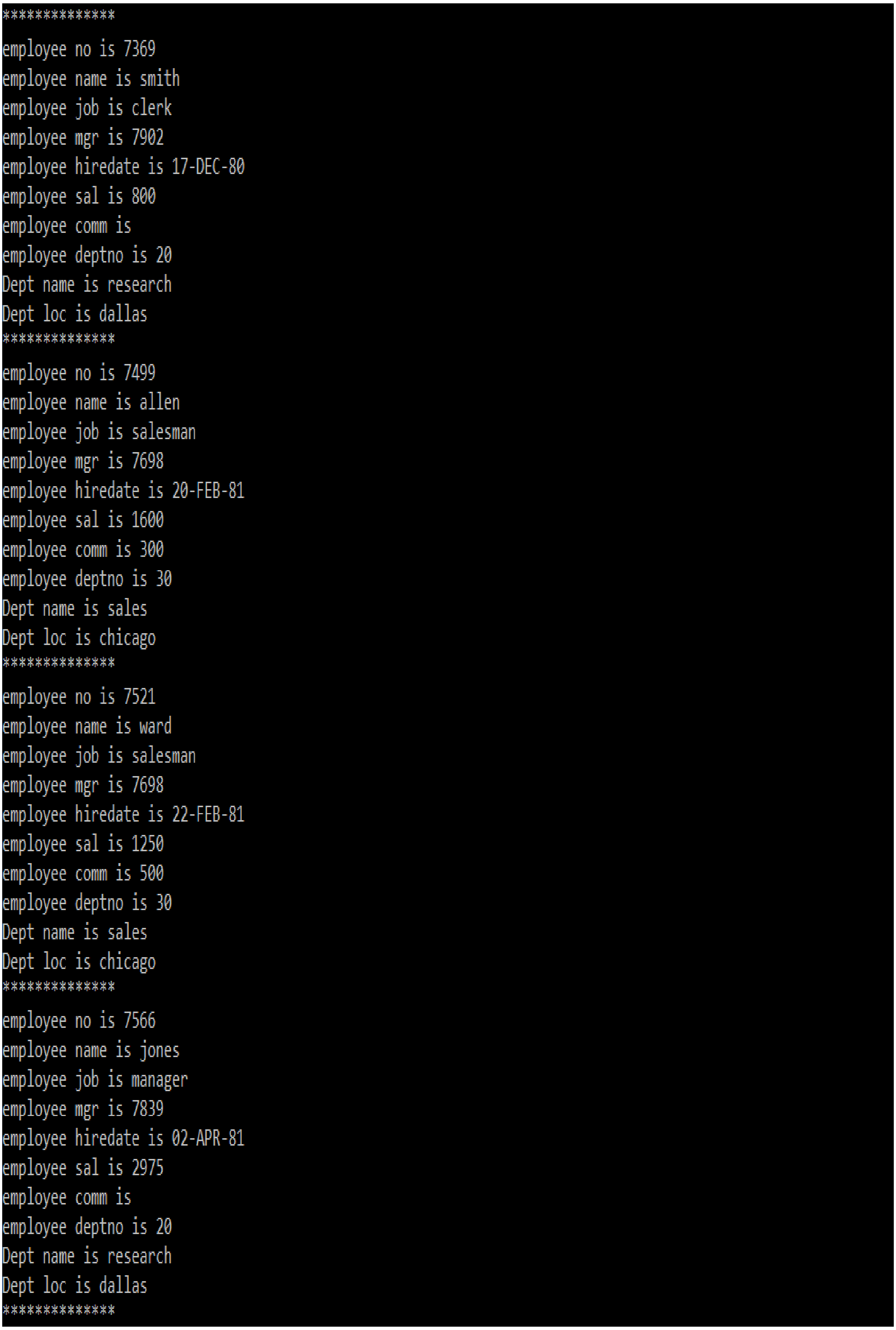
```
**************
Dept no is 10
Dept name is accounting
Dept loc is new york
**************
Dept no is 20
Dept name is research
Dept loc is dallas
**************
Dept no is 30
Dept name is sales
Dept loc is chicago
**************
Dept no is 40
Dept name is operations
Dept loc is boston

PL/SQL procedure successfully completed.
```

31. Write a PL/SQL program to display employee and department information

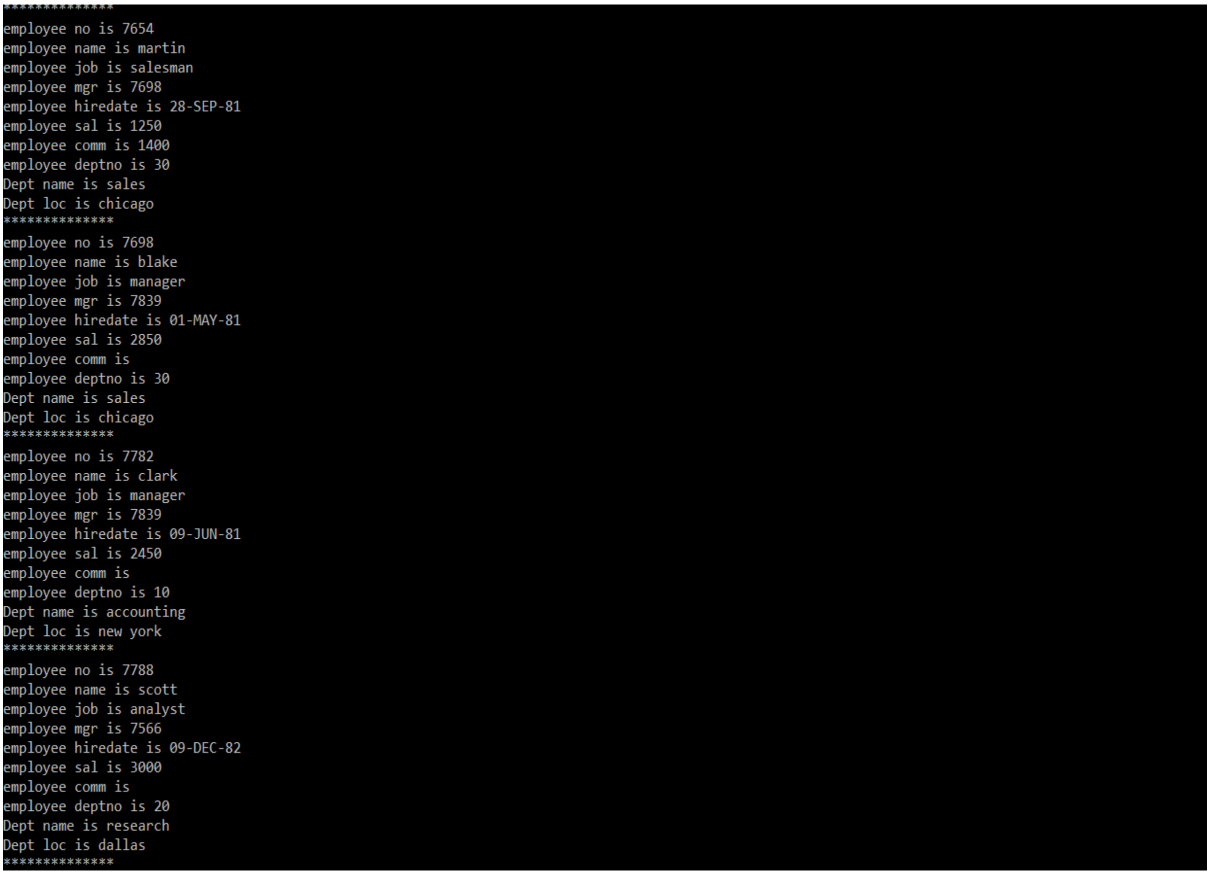
Program:-

```
declare
   cursor cfor_emp is select emp.*,dept.dname,dept.loc from
   emp,dept where dept.deptno=emp.deptno;
begin
   for v_emp in cfor_emp
   loop
   dbms_output.put_line('**************');
   dbms_output.put_line('employee no is '‖v_emp.empno);
   dbms_output.put_line('employee name is '‖v_emp.ename);
   dbms_output.put_line('employee job is '‖v_emp.job);
   dbms_output.put_line('employee mgr is '‖v_emp.mgr);
   dbms_output.put_line('employee hiredate is '‖v_emp.hiredate);
   dbms_output.put_line('employee sal is '‖v_emp.sal);
   dbms_output.put_line('employee comm is '‖v_emp.comm);
   dbms_output.put_line('employee deptno is '‖v_emp.deptno);
   dbms_output.put_line('Dept name is '‖v_emp.dname);
   dbms_output.put_line('Dept loc is '‖v_emp.loc);
   end loop;
end;
/
```

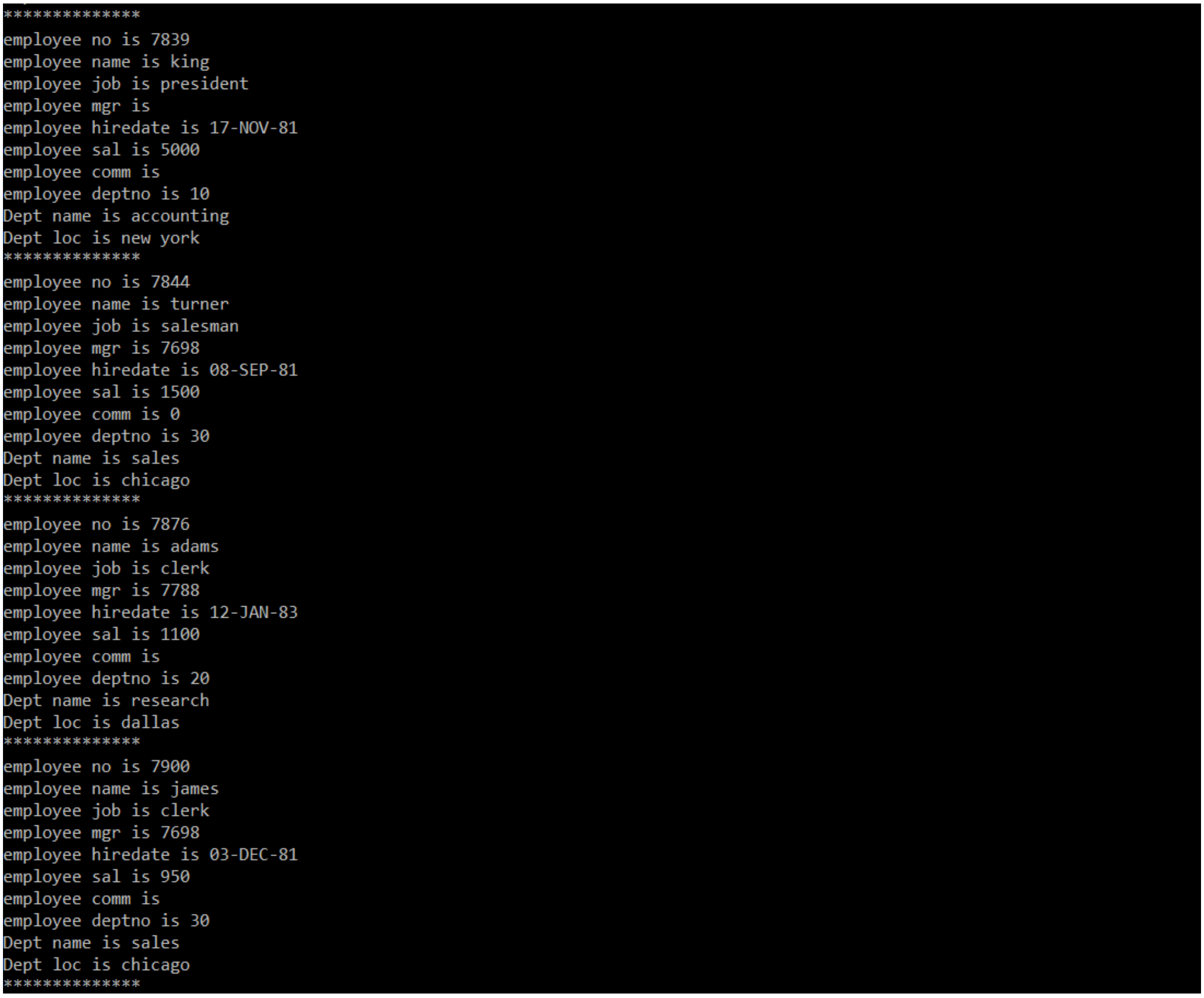
Output:-



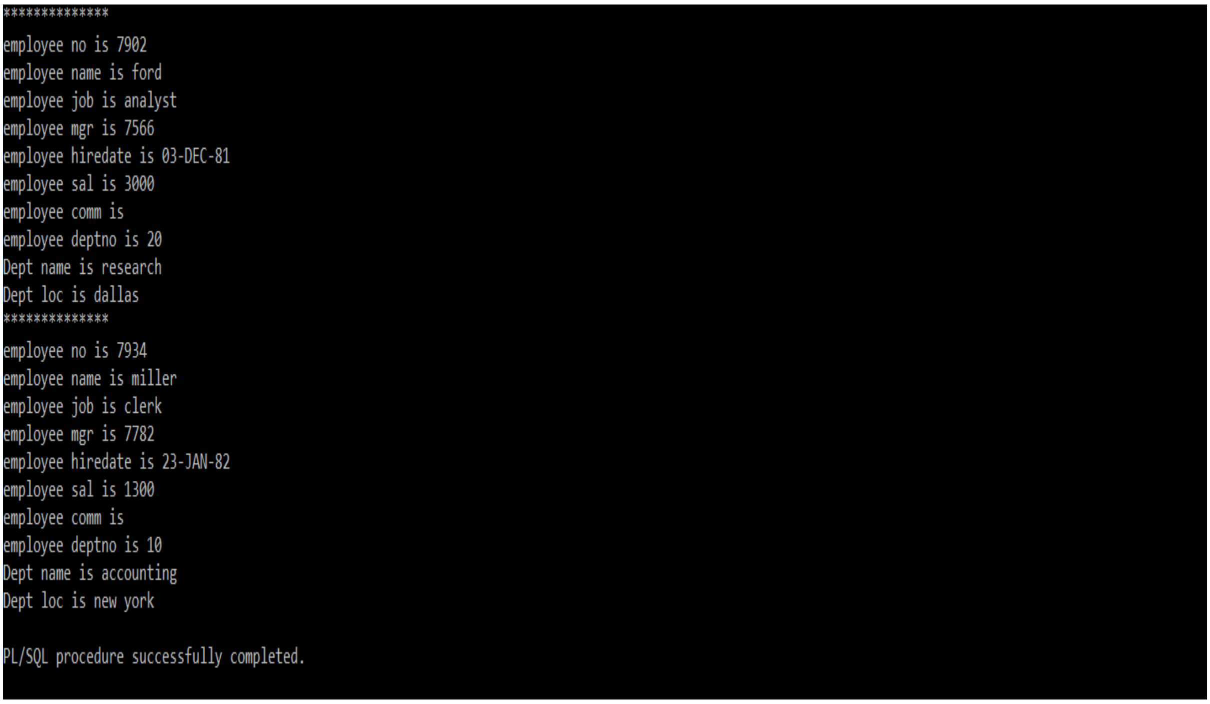
```
**************
employee no is 7369
employee name is smith
employee job is clerk
employee mgr is 7902
employee hiredate is 17-DEC-80
employee sal is 800
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
employee no is 7499
employee name is allen
employee job is salesman
employee mgr is 7698
employee hiredate is 20-FEB-81
employee sal is 1600
employee comm is 300
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
employee no is 7521
employee name is ward
employee job is salesman
employee mgr is 7698
employee hiredate is 22-FEB-81
employee sal is 1250
employee comm is 500
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
employee no is 7566
employee name is jones
employee job is manager
employee mgr is 7839
employee hiredate is 02-APR-81
employee sal is 2975
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
```



```
**************
employee no is 7654
employee name is martin
employee job is salesman
employee mgr is 7698
employee hiredate is 28-SEP-81
employee sal is 1250
employee comm is 1400
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
employee no is 7698
employee name is blake
employee job is manager
employee mgr is 7839
employee hiredate is 01-MAY-81
employee sal is 2850
employee comm is
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
employee no is 7782
employee name is clark
employee job is manager
employee mgr is 7839
employee hiredate is 09-JUN-81
employee sal is 2450
employee comm is
employee deptno is 10
Dept name is accounting
Dept loc is new york
**************
employee no is 7788
employee name is scott
employee job is analyst
employee mgr is 7566
employee hiredate is 09-DEC-82
employee sal is 3000
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
```



```
**************
employee no is 7839
employee name is king
employee job is president
employee mgr is
employee hiredate is 17-NOV-81
employee sal is 5000
employee comm is
employee deptno is 10
Dept name is accounting
Dept loc is new york
**************
employee no is 7844
employee name is turner
employee job is salesman
employee mgr is 7698
employee hiredate is 08-SEP-81
employee sal is 1500
employee comm is 0
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
employee no is 7876
employee name is adams
employee job is clerk
employee mgr is 7788
employee hiredate is 12-JAN-83
employee sal is 1100
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
employee no is 7900
employee name is james
employee job is clerk
employee mgr is 7698
employee hiredate is 03-DEC-81
employee sal is 950
employee comm is
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
```



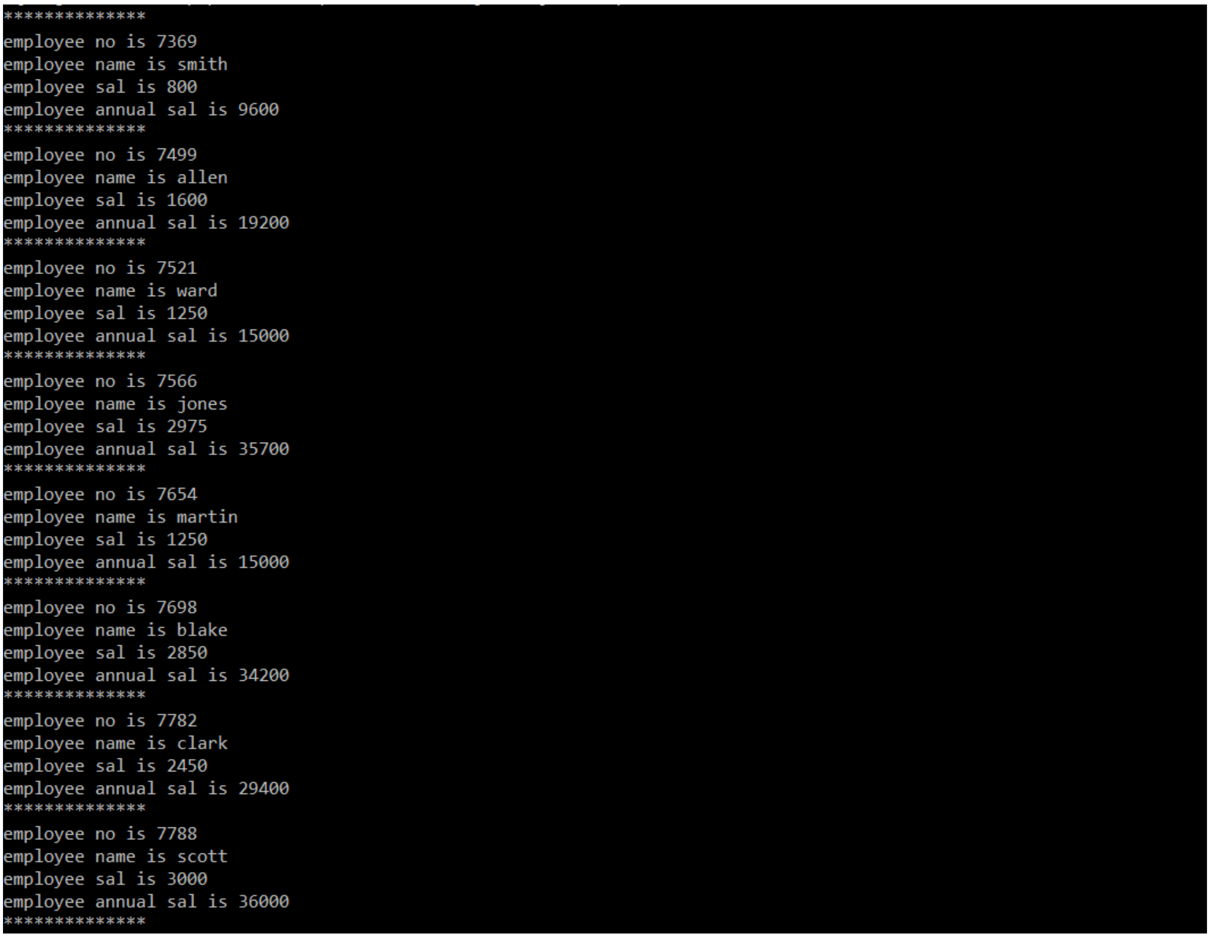
```
**************
employee no is 7902
employee name is ford
employee job is analyst
employee mgr is 7566
employee hiredate is 03-DEC-81
employee sal is 3000
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
employee no is 7934
employee name is miller
employee job is clerk
employee mgr is 7782
employee hiredate is 23-JAN-82
employee sal is 1300
employee comm is
employee deptno is 10
Dept name is accounting
Dept loc is new york

PL/SQL procedure successfully completed.
```

32. Write a PL/SQL program to display empno, ename, sal, annual sal

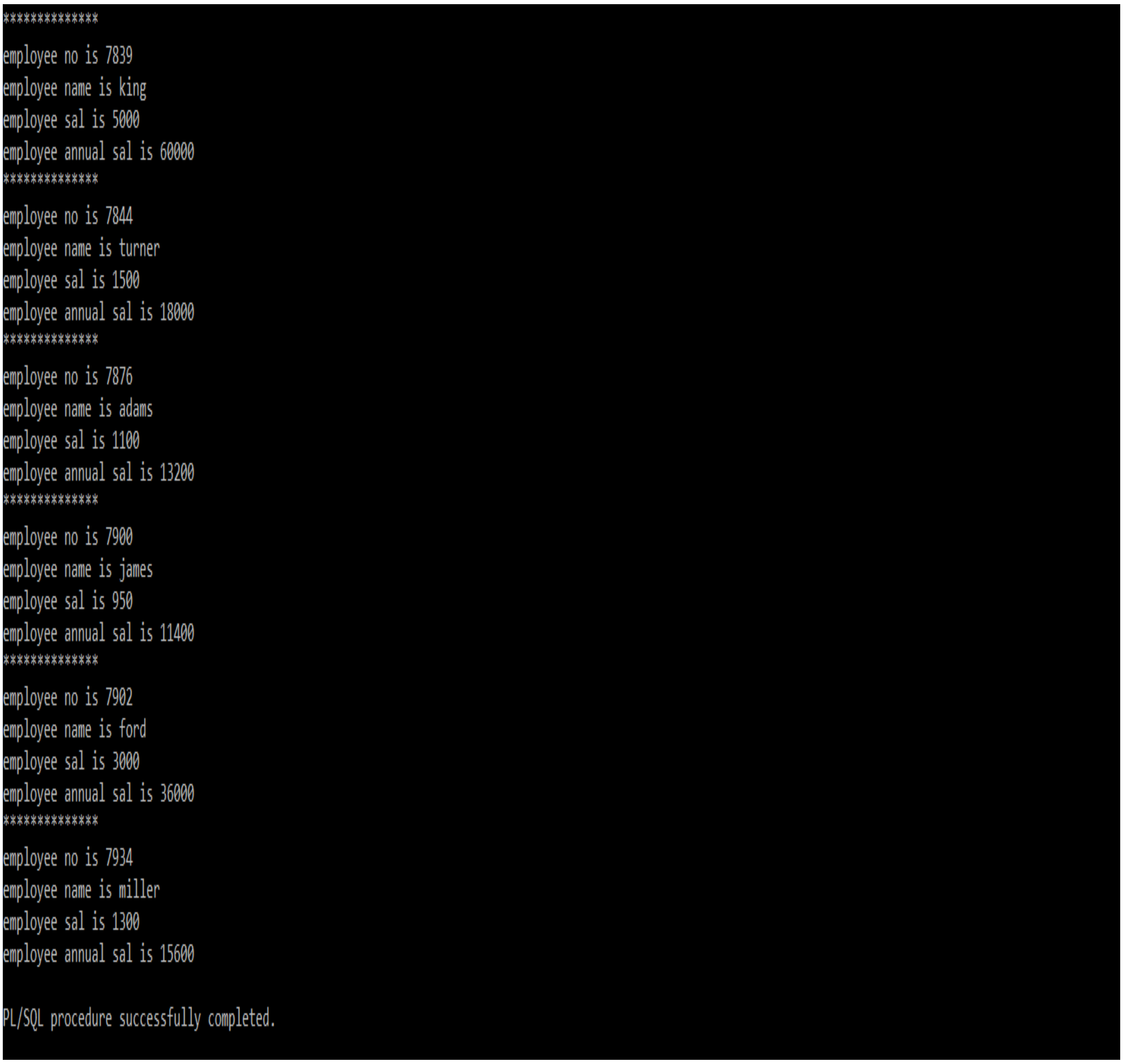
Program:-

```
declare
   cursor cfor_emp is select emp.empno,emp.ename,sal,sal*12
   from emp;
begin
   for v_emp in cfor_emp
   loop
   dbms_output.put_line('**************');
   dbms_output.put_line('employee no is '||v_emp.empno);
   dbms_output.put_line('employee name is '||v_emp.ename);
   dbms_output.put_line('employee sal is '||v_emp.sal);
   dbms_output.put_line('employee annual sal is '||v_emp.sal*12);
   end loop;
end;
/
```

Output:-



```
**************
employee no is 7369
employee name is smith
employee sal is 800
employee annual sal is 9600
**************
employee no is 7499
employee name is allen
employee sal is 1600
employee annual sal is 19200
**************
employee no is 7521
employee name is ward
employee sal is 1250
employee annual sal is 15000
**************
employee no is 7566
employee name is jones
employee sal is 2975
employee annual sal is 35700
**************
employee no is 7654
employee name is martin
employee sal is 1250
employee annual sal is 15000
**************
employee no is 7698
employee name is blake
employee sal is 2850
employee annual sal is 34200
**************
employee no is 7782
employee name is clark
employee sal is 2450
employee annual sal is 29400
**************
employee no is 7788
employee name is scott
employee sal is 3000
employee annual sal is 36000
**************
```



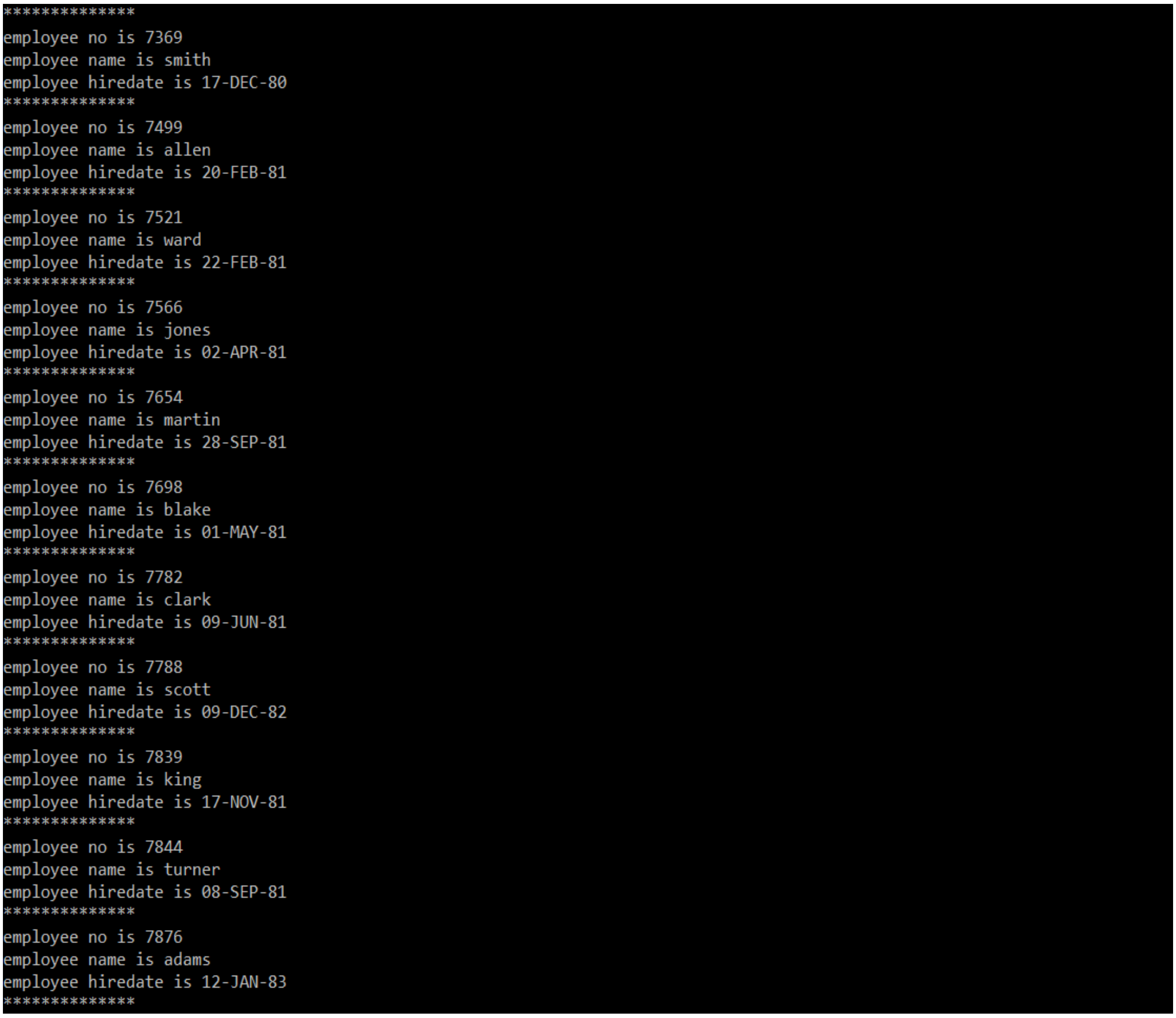
```
**************
employee no is 7839
employee name is king
employee sal is 5000
employee annual sal is 60000
**************
employee no is 7844
employee name is turner
employee sal is 1500
employee annual sal is 18000
**************
employee no is 7876
employee name is adams
employee sal is 1100
employee annual sal is 13200
**************
employee no is 7900
employee name is james
employee sal is 950
employee annual sal is 11400
**************
employee no is 7902
employee name is ford
employee sal is 3000
employee annual sal is 36000
**************
employee no is 7934
employee name is miller
employee sal is 1300
employee annual sal is 15600

PL/SQL procedure successfully completed.
```

33. Write a PL/SQL Program to display empno, ename and their joining date

Program:-

```
declare
        cursor cfor_emp is select empno,ename,hiredate from emp;
begin
        for v_emp in cfor_emp
        loop
        dbms_output.put_line('**************');
        dbms_output.put_line('employee no is '||v_emp.empno);
        dbms_output.put_line('employee name is '||v_emp.ename);
        dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
        end loop;
end;
/
```

Output:-



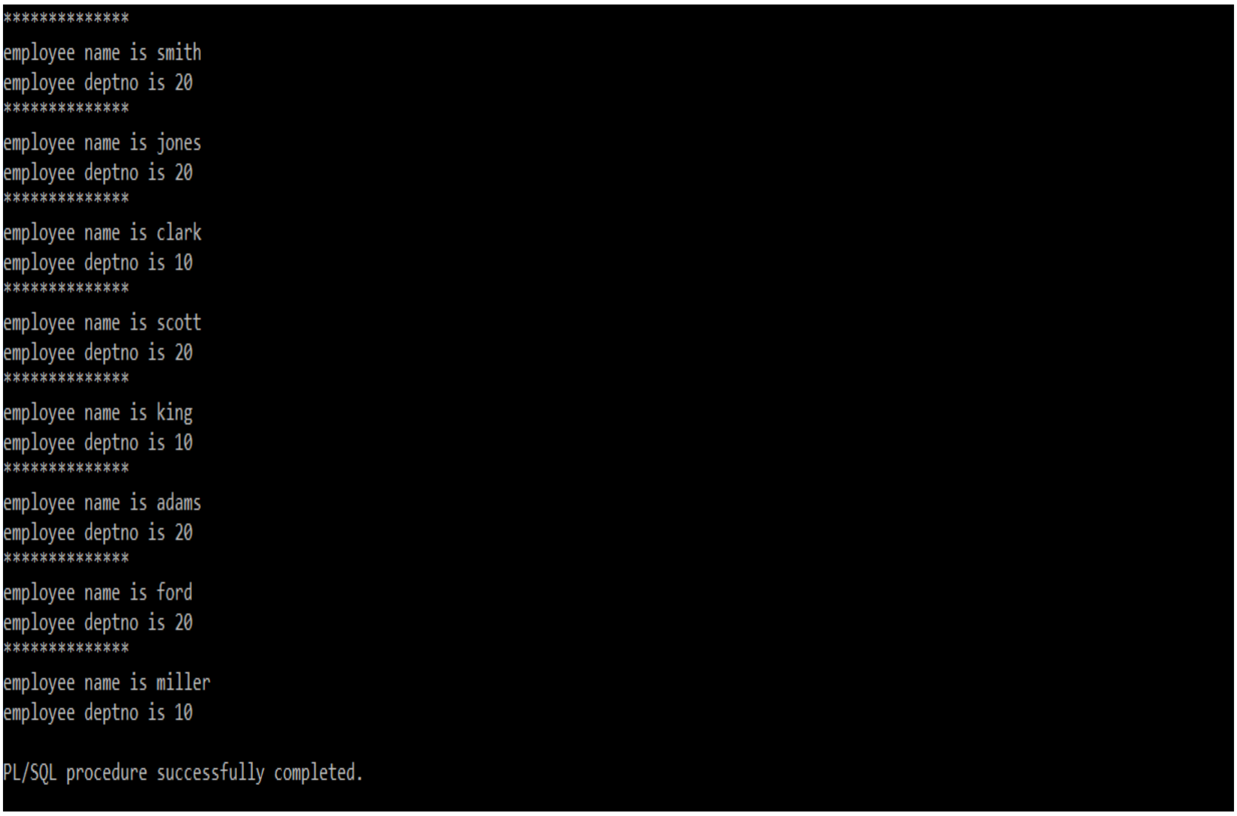
```
**************
employee no is 7369
employee name is smith
employee hiredate is 17-DEC-80
**************
employee no is 7499
employee name is allen
employee hiredate is 20-FEB-81
**************
employee no is 7521
employee name is ward
employee hiredate is 22-FEB-81
**************
employee no is 7566
employee name is jones
employee hiredate is 02-APR-81
**************
employee no is 7654
employee name is martin
employee hiredate is 28-SEP-81
**************
employee no is 7698
employee name is blake
employee hiredate is 01-MAY-81
**************
employee no is 7782
employee name is clark
employee hiredate is 09-JUN-81
**************
employee no is 7788
employee name is scott
employee hiredate is 09-DEC-82
**************
employee no is 7839
employee name is king
employee hiredate is 17-NOV-81
**************
employee no is 7844
employee name is turner
employee hiredate is 08-SEP-81
**************
employee no is 7876
employee name is adams
employee hiredate is 12-JAN-83
**************
```

34. Write a PL/SQL Program to display working in dept 10 or 20

Program:-

```
declare
        cursor cfor_emp is select * from emp where
        deptno=10 or deptno=20;
begin
        for v_emp in cfor_emp
loop
        dbms_output.put_line('**************');
        dbms_output.put_line('employee name is '||v_emp.ename);
        dbms_output.put_line('employee deptno is '||v_emp.deptno);
end loop;
end;
/
```

Output:-



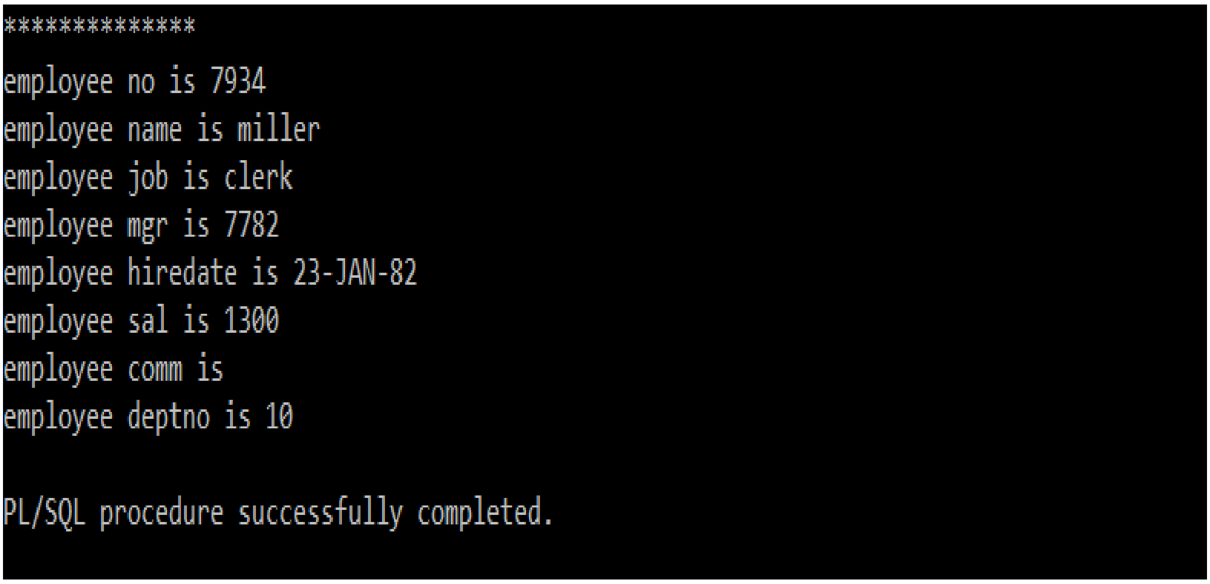
```
**************
employee name is smith
employee deptno is 20
**************
employee name is jones
employee deptno is 20
**************
employee name is clark
employee deptno is 10
**************
employee name is scott
employee deptno is 20
**************
employee name is king
employee deptno is 10
**************
employee name is adams
employee deptno is 20
**************
employee name is ford
employee deptno is 20
**************
employee name is miller
employee deptno is 10

PL/SQL procedure successfully completed.
```

35. Write a PL/SQL Program to display working in dept 10 and working as ‘clerk’

Program:-

```
declare
        cursor cfor_emp is select * from emp where deptno=10 and
        job='clerk';
begin
        for v_emp in cfor_emp
        loop
                dbms_output.put_line('**************');
                dbms_output.put_line('employee no is '||v_emp.empno);
                dbms_output.put_line('employee name is '||v_emp.ename);
                dbms_output.put_line('employee job is '||v_emp.job);
                dbms_output.put_line('employee mgr is '||v_emp.mgr);
                dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
                dbms_output.put_line('employee sal is '||v_emp.sal);
                dbms_output.put_line('employee comm is '||v_emp.comm);
                dbms_output.put_line('employee deptno is '||v_emp.deptno);
        end loop;
        end;
        /
```

Output:-



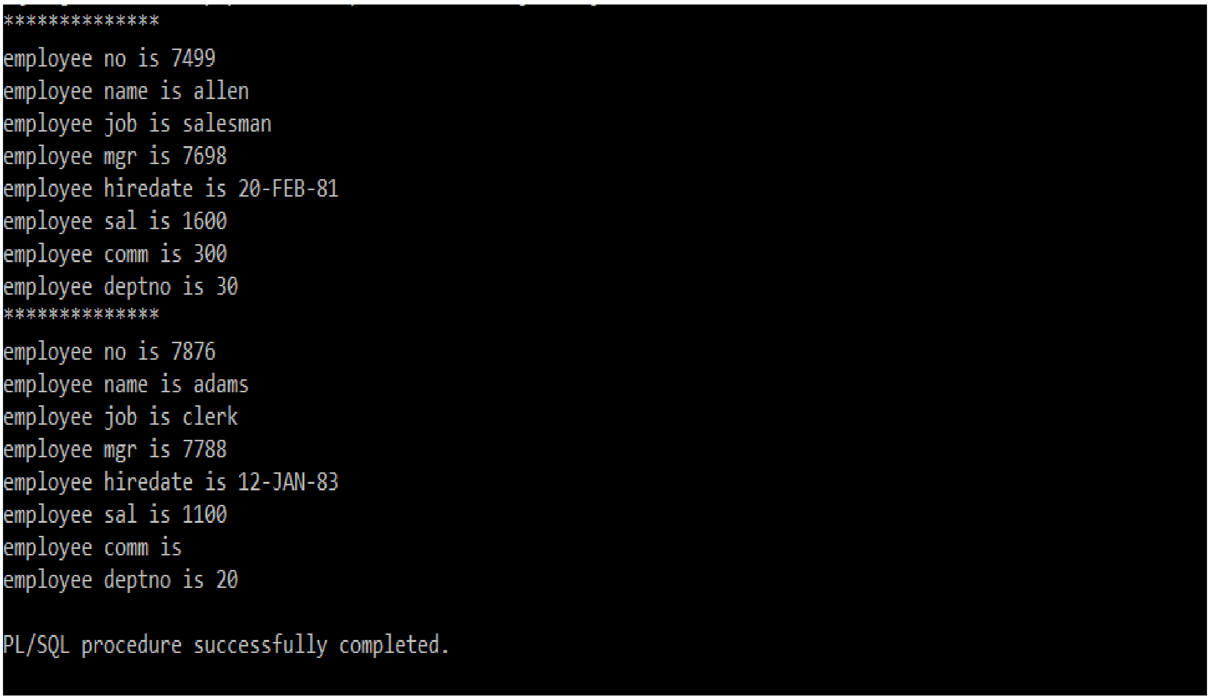
```
**************
employee no is 7934
employee name is miller
employee job is clerk
employee mgr is 7782
employee hiredate is 23-JAN-82
employee sal is 1300
employee comm is
employee deptno is 10

PL/SQL procedure successfully completed.
```

36. Write a PL/SQL Program to display info whose ename starts with ‘a’

Program:-

```
declare
        cursor cfor_emp is select * from emp where ename like 'a%';
begin
        for v_emp in cfor_emp
        loop
        dbms_output.put_line('**************');
        dbms_output.put_line('employee no is '||v_emp.empno);
        dbms_output.put_line('employee name is '||v_emp.ename);
        dbms_output.put_line('employee job is '||v_emp.job);
        dbms_output.put_line('employee mgr is '||v_emp.mgr);
        dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
        dbms_output.put_line('employee sal is '||v_emp.sal);
        dbms_output.put_line('employee comm is '||v_emp.comm);
        dbms_output.put_line('employee deptno is '||v_emp.deptno);
        end loop;
end;
/
```

Output:-



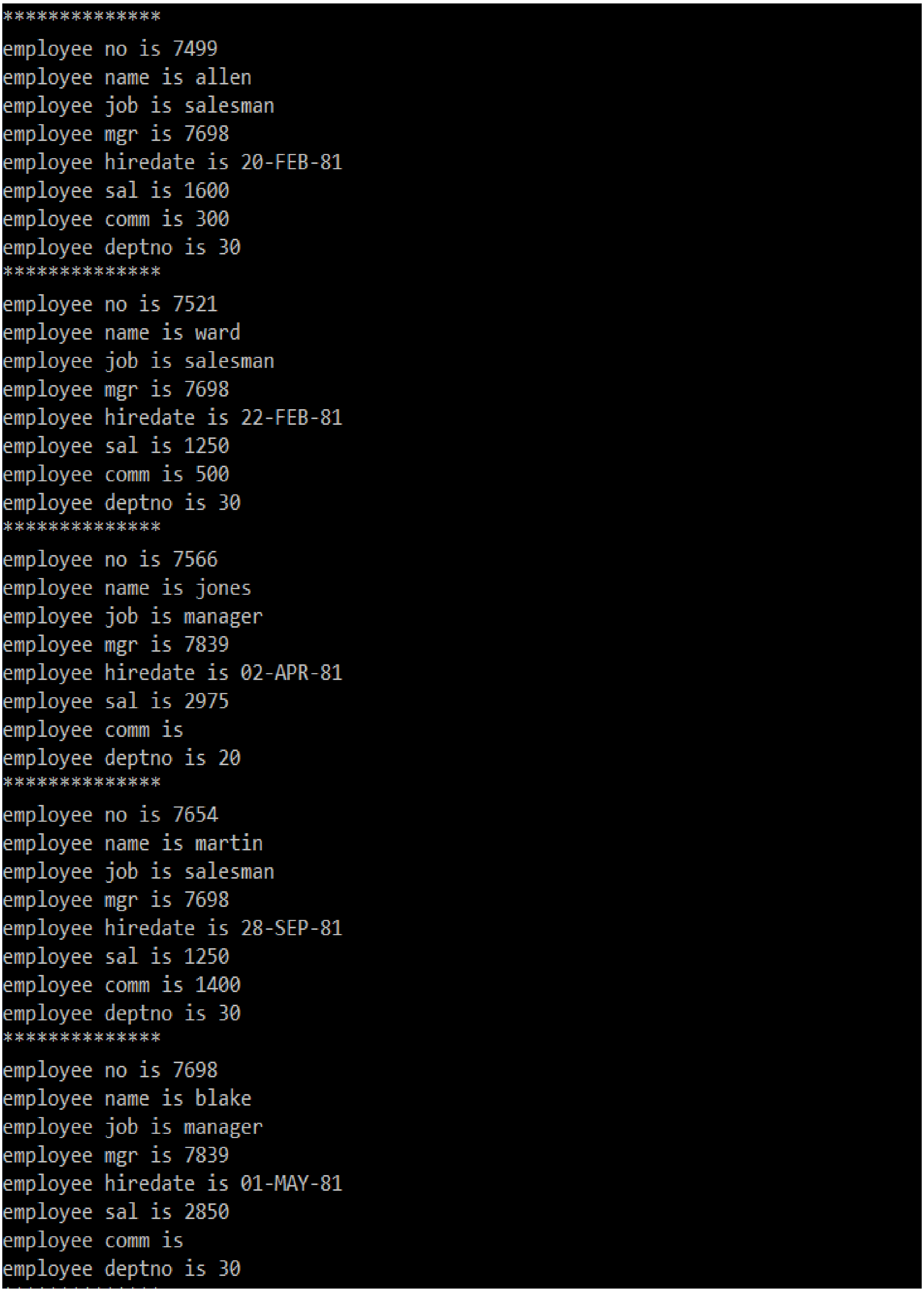
```
**************
employee no is 7499
employee name is allen
employee job is salesman
employee mgr is 7698
employee hiredate is 20-FEB-81
employee sal is 1600
employee comm is 300
employee deptno is 30
**************
employee no is 7876
employee name is adams
employee job is clerk
employee mgr is 7788
employee hiredate is 12-JAN-83
employee sal is 1100
employee comm is
employee deptno is 20

PL/SQL procedure successfully completed.
```

37. Write a PL/SQL Program to display employee information who are joined in the year of 81

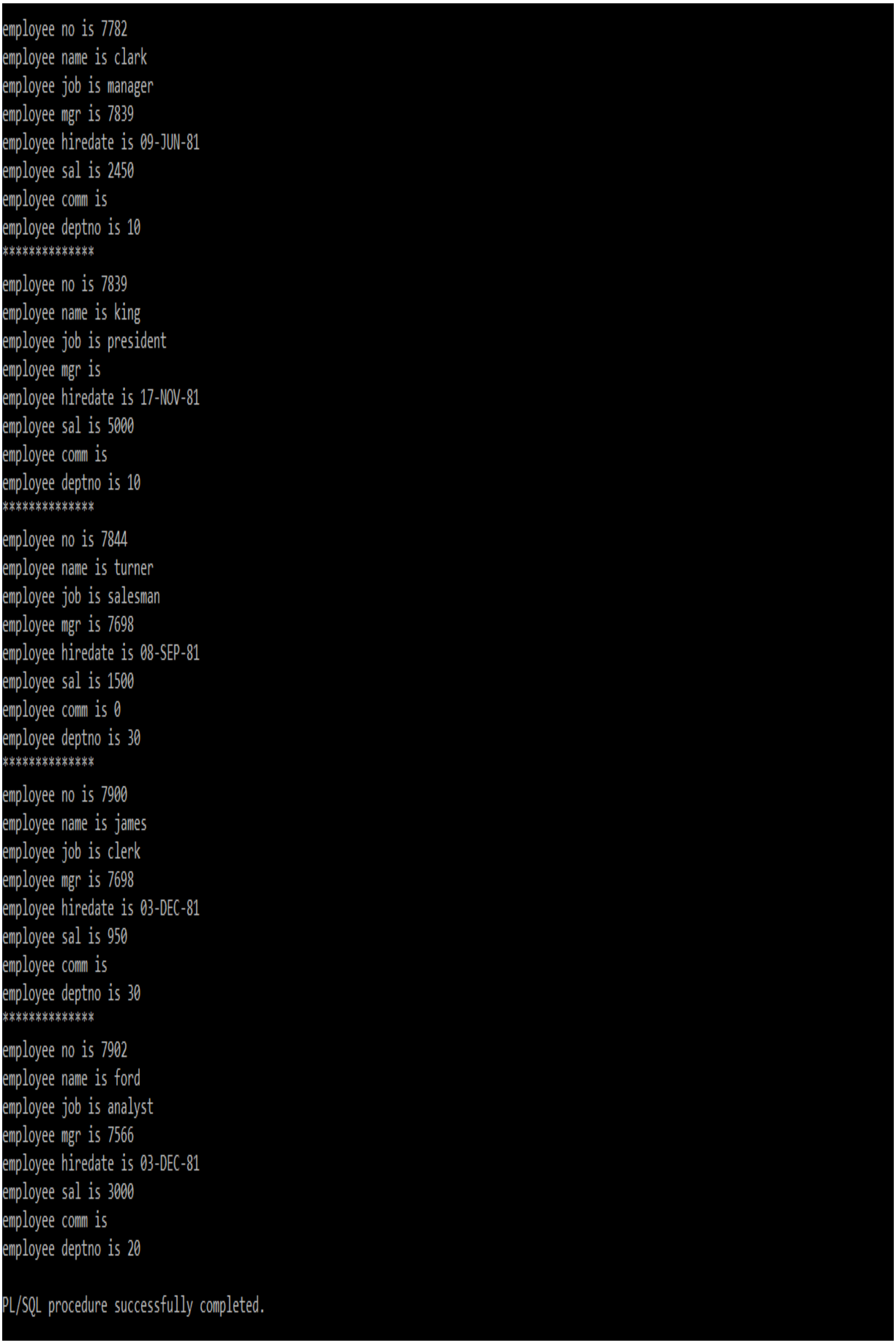
Program:-

```
declare
        cursor cfor_emp is select * from emp where hiredate
        like '%81';
begin
        for v_emp in cfor_emp
        loop
        dbms_output.put_line('**************');
        dbms_output.put_line('employee no is '||v_emp.empno);
        dbms_output.put_line('employee name is '||v_emp.ename);
        dbms_output.put_line('employee job is '||v_emp.job);
        dbms_output.put_line('employee mgr is '||v_emp.mgr);
        dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
        dbms_output.put_line('employee sal is '||v_emp.sal);
        dbms_output.put_line('employee comm is '||v_emp.comm);
        dbms_output.put_line('employee deptno is '||v_emp.deptno);
        end loop;
end;
/
```

Output:-



```
**************
employee no is 7499
employee name is allen
employee job is salesman
employee mgr is 7698
employee hiredate is 20-FEB-81
employee sal is 1600
employee comm is 300
employee deptno is 30
**************
employee no is 7521
employee name is ward
employee job is salesman
employee mgr is 7698
employee hiredate is 22-FEB-81
employee sal is 1250
employee comm is 500
employee deptno is 30
**************
employee no is 7566
employee name is jones
employee job is manager
employee mgr is 7839
employee hiredate is 02-APR-81
employee sal is 2975
employee comm is
employee deptno is 20
**************
employee no is 7654
employee name is martin
employee job is salesman
employee mgr is 7698
employee hiredate is 28-SEP-81
employee sal is 1250
employee comm is 1400
employee deptno is 30
**************
employee no is 7698
employee name is blake
employee job is manager
employee mgr is 7839
employee hiredate is 01-MAY-81
employee sal is 2850
employee comm is
employee deptno is 30
**************
```



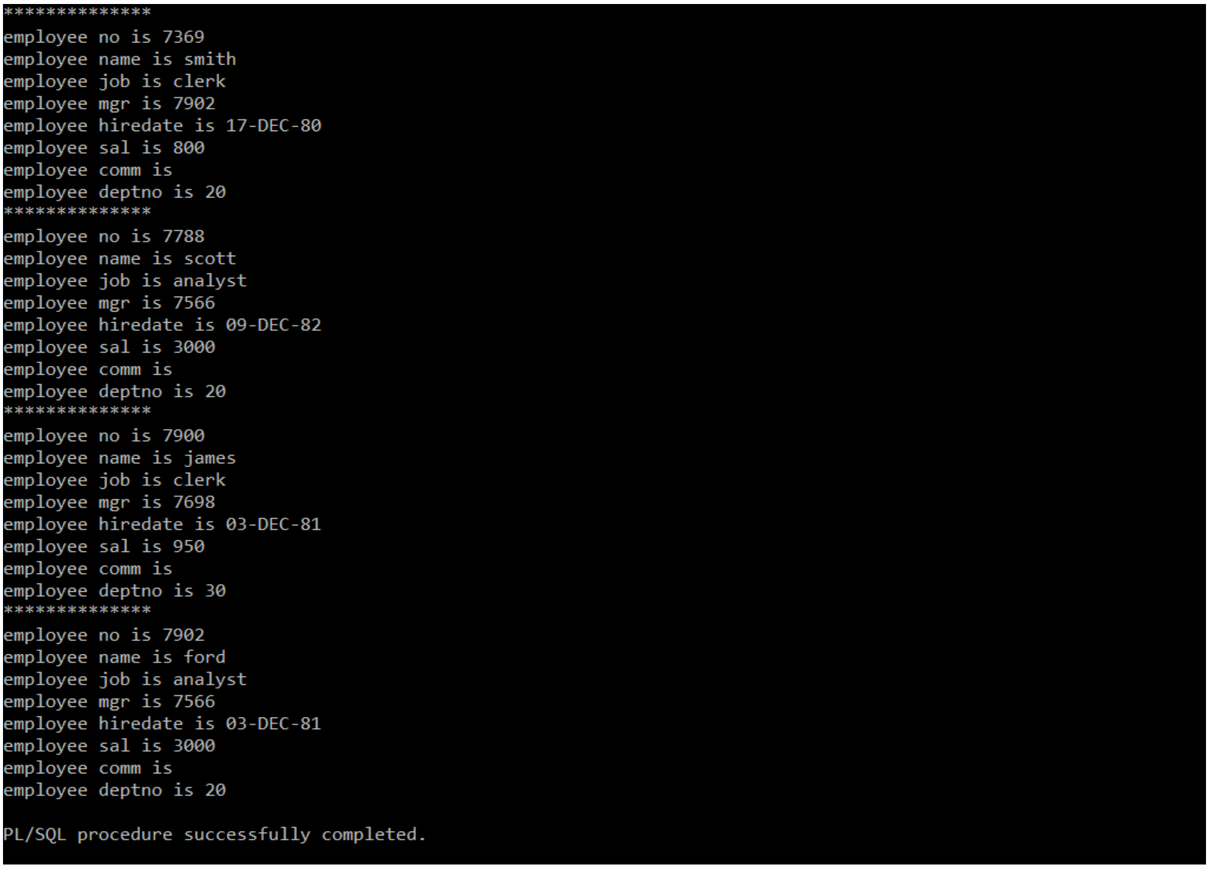
```
employee no is 7782
employee name is clark
employee job is manager
employee mgr is 7839
employee hiredate is 09-JUN-81
employee sal is 2450
employee comm is
employee deptno is 10
**************
employee no is 7839
employee name is king
employee job is president
employee mgr is
employee hiredate is 17-NOV-81
employee sal is 5000
employee comm is
employee deptno is 10
**************
employee no is 7844
employee name is turner
employee job is salesman
employee mgr is 7698
employee hiredate is 08-SEP-81
employee sal is 1500
employee comm is 0
employee deptno is 30
**************
employee no is 7900
employee name is james
employee job is clerk
employee mgr is 7698
employee hiredate is 03-DEC-81
employee sal is 950
employee comm is
employee deptno is 30
**************
employee no is 7902
employee name is ford
employee job is analyst
employee mgr is 7566
employee hiredate is 03-DEC-81
employee sal is 3000
employee comm is
employee deptno is 20

PL/SQL procedure successfully completed.
```

38. Write a PL/SQL Program to display employee information who are joined in the month of ‘December’

Program:-

```
declare
        cursor cfor_emp is select * from emp where hiredate like '%DEC%';
begin
        for v_emp in cfor_emp
        loop
        dbms_output.put_line('**************');
        dbms_output.put_line('employee no is '||v_emp.empno);
        dbms_output.put_line('employee name is '||v_emp.ename);
        dbms_output.put_line('employee job is '||v_emp.job);
        dbms_output.put_line('employee mgr is '||v_emp.mgr);
        dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
        dbms_output.put_line('employee sal is '||v_emp.sal);
        dbms_output.put_line('employee comm is '||v_emp.comm);
        dbms_output.put_line('employee deptno is '||v_emp.deptno);
        end loop;
end;
/
```

Output:-



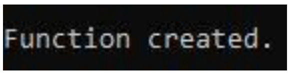
```
**************
employee no is 7369
employee name is smith
employee job is clerk
employee mgr is 7902
employee hiredate is 17-DEC-80
employee sal is 800
employee comm is
employee deptno is 20
**************
employee no is 7788
employee name is scott
employee job is analyst
employee mgr is 7566
employee hiredate is 09-DEC-82
employee sal is 3000
employee comm is
employee deptno is 20
**************
employee no is 7900
employee name is james
employee job is clerk
employee mgr is 7698
employee hiredate is 03-DEC-81
employee sal is 950
employee comm is
employee deptno is 30
**************
employee no is 7902
employee name is ford
employee job is analyst
employee mgr is 7566
employee hiredate is 03-DEC-81
employee sal is 3000
employee comm is
employee deptno is 20

PL/SQL procedure successfully completed.
```

39. Write a PL/SQL Program to display addition of two numbers using functions

Program:-

```
create or replace function f_add(x number,y number)
return number
is
        z number(3);
begin
        z:=x+y;
        return z;
end;
/
```

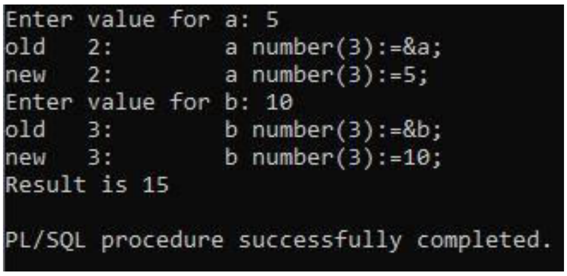
Output:-



```
Function created.
```

```
declare
        a number(3):=&a;
        b number(3):=&b;
        c number(3);
begin
        c:=f_add(a,b);
        dbms_output.put_line('Result is '||c);
end;
/
```

Output:-



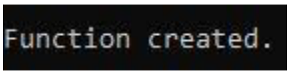
```
Enter value for a: 5
old   2:        a number(3):=&a;
new   2:        a number(3):=5;
Enter value for b: 10
old   3:        b number(3):=&b;
new   3:        b number(3):=10;
Result is 15

PL/SQL procedure successfully completed.
```

40. Write a PL/SQL Program to display name of an employee for the given emp_no using function

Program:-

```
create or replace function f_emp(x number)
return varchar2
is
     v_ename varchar2(10);
begin
     select ename into v_ename from emp where empno=x;
     return v_ename;
end;
/
```

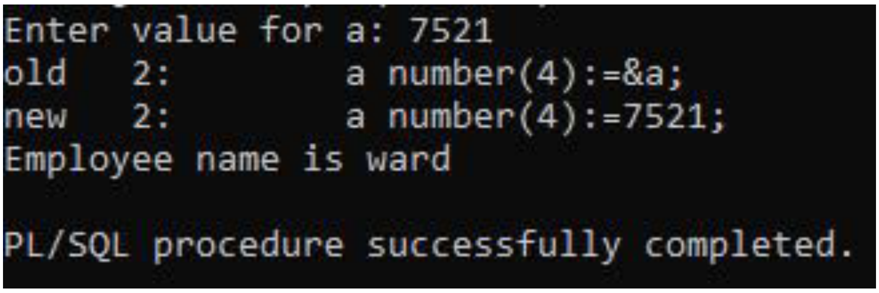
Output:-



```
Function created.
```

```
declare
              a number(4):=&a;
              b varchar2(10);
begin
              b:=f_emp(a);
              dbms_output.put_line('Employee name is '||b);
end;
/
```

Output:-



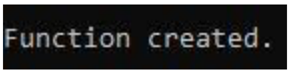
```
Enter value for a: 7521
old   2:        a number(4):=&a;
new   2:        a number(4):=7521;
Employee name is ward

PL/SQL procedure successfully completed.
```

41. Write a PL/SQL Program to display multiplication of given number using function

Program:-

```
create or replace function f_multable(a number)
return number
is
begin
        for i in 1..10
        loop
                dbms_output.put_line(a||'*'||i||'='||a*i);
        end loop;
        return 0;
end;
/
```

Output:-

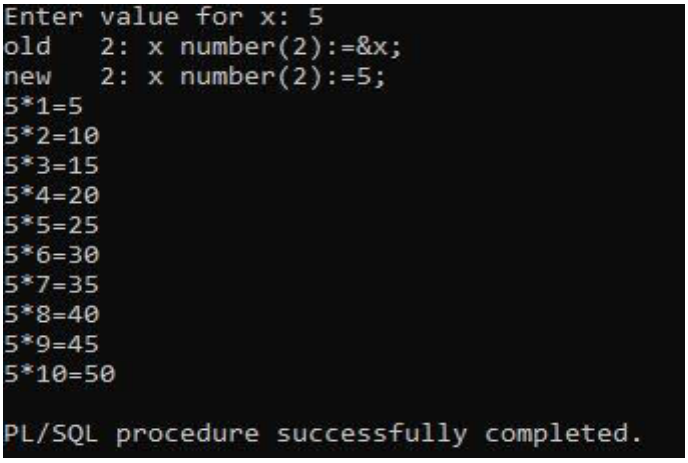


```
Function created.
```

Program:-

```
declare
x number(2):=&x;
c number(2);
begin
c:=f_multable(x);
end;
/
```

Output:-



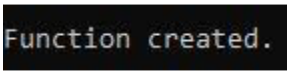
```
Enter value for x: 5
old   2: x number(2):=&x;
new   2: x number(2):=5;
5*1=5
5*2=10
5*3=15
5*4=20
5*5=25
5*6=30
5*7=35
5*8=40
5*9=45
5*10=50

PL/SQL procedure successfully completed.
```

42. Write a PL/SQL Program to display reverse of given number using function

Program:-

```
create or replace function f_rev(c number)
return number
is
        a number(5);
        rev number(5):=0;
        rem number(5);
begin
      a:=c;
      while(a!=0)
      loop
              rem:=mod(a,10);
              rev:=rev*10+rem;
              a:=floor(a/10);
      end loop;
return rev;
end;
/
```

Output:-

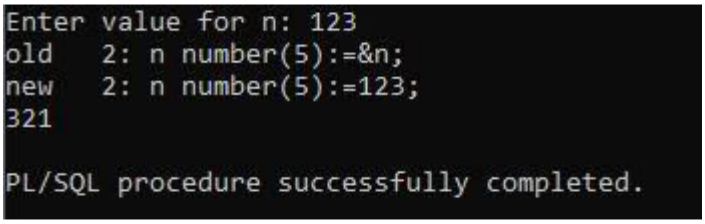


```
Function created.
```

Program:-

```
declare
        n number(5):=&n;
        b number(5);
begin
        b:=f_rev(n);
        dbms_output.put_line(b);
end;
/
```

Output:-



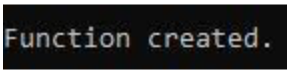
```
Enter value for n: 123
old   2: n number(5):=&n;
new   2: n number(5):=123;
321

PL/SQL procedure successfully completed.
```

43. Write a PL/SQL Program to display palindrome or not of given number using function

Program:-

```
create or replace function f_pal(c number)
return varchar2
is
        a number(5);
        rev number(5):=0;
        rem number(5);
        temp number(5);
begin
        a:=c;
        temp:=a;
        while(a!=0)
        loop
                rem:=mod(a,10);
                rev:=rev*10+rem;
                a:=floor(a/10);
        end loop;

        if(temp=rev) then
                return 'Palindrome';
        else
                return 'Not Palindrome';
        end if;

end;
/
```

Output:-

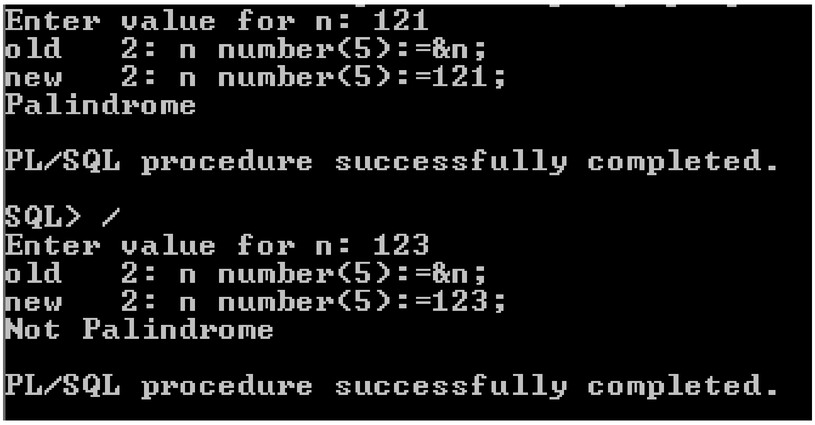


```
Function created.
```

Program:-

```
declare
        n number(5):=&n;
        b varchar2(20);
begin
        b:=f_pal(n);
        dbms_output.put_line(b);
end;
/
```

Output:-



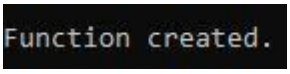
```
Enter value for n: 121
old   2: n number(5):=&n;
new   2: n number(5):=121;
Palindrome

PL/SQL procedure successfully completed.

SQL> /
Enter value for n: 123
old   2: n number(5):=&n;
new   2: n number(5):=123;
Not Palindrome

PL/SQL procedure successfully completed.
```

44. Write a PL/SQL Program to display Armstrong or not of given number using function

Program:-

```
create or replace function f_arm(c number)
return varchar2
is
        n number(4);
        num number(4);
        rem number(4);
        res number(4):=0;

begin
        num:=c;
        n:=num;
        while(num!=0)
        loop
                rem:=mod(num,10);
                res:=res+(rem*rem*rem);
                num:=floor(num/10);
        end loop;

        if(res=n)then
        return 'Armstrong';
        else
        return 'Not Armstrong';
        end if;

end;
/
```

Output:-

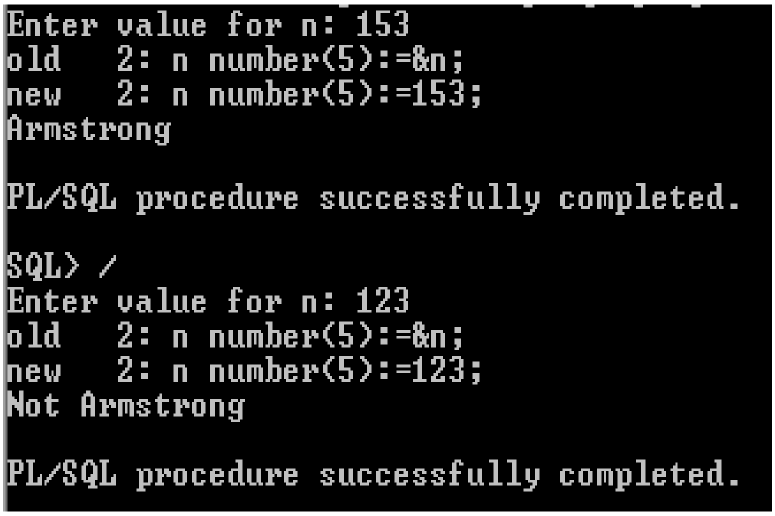


```
Function created.
```

Program:-

```
declare
        n number(5):=&n;
        b varchar2(20);
begin
        b:=f_pal(n);
        dbms_output.put_line(b);
end;
/
```

Output:-



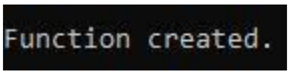
```
Enter value for n: 153
old   2: n number(5):=&n;
new   2: n number(5):=153;
Armstrong

PL/SQL procedure successfully completed.

SQL> /
Enter value for n: 123
old   2: n number(5):=&n;
new   2: n number(5):=123;
Not Armstrong

PL/SQL procedure successfully completed.
```

45. Write a PL/SQL Program to display factorial of given number using function

Program:-

```
create or replace function f_fac(a number)
return number
is
    f number(5):=1;
begin
    for i in 1..a
    loop
        f:=f*i;
    end loop;
return f;
end;
/
```

Output:-

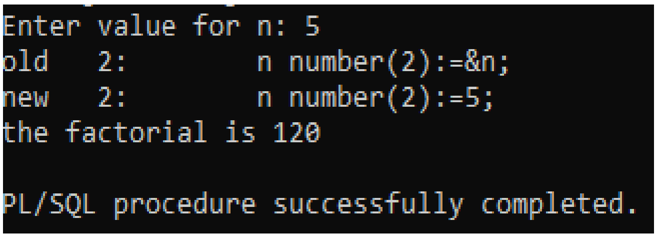


```
Function created.
```

Program:-

```
declare
    n number(2):=&n;
    b number(3);
begin
    b:=f_fac(n);
    dbms_output.put_line('the factorial is '||b);
end;
/
```

Output:-



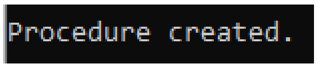
```
Enter value for n: 5
old   2:        n number(2):=&n;
new   2:        n number(2):=5;
the factorial is 120

PL/SQL procedure successfully completed.
```

46. Write a PL/SQL Program to display addition of two numbers with parameters using procedures

Program:-

```
create or replace procedure p_add(x in number ,y in number)
is
        z number(10);
begin
        z:=x+y;
        dbms_output.put_line('Result is '||z);
end;
/
```

Output:-

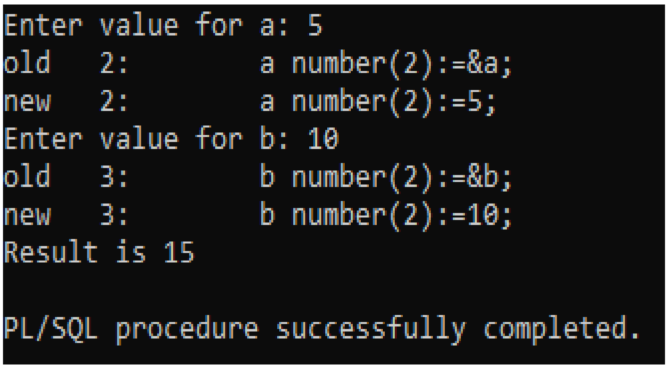


```
Procedure created.
```

Program:-

```
declare
        a number(2):=&a;
        b number(2):=&b;
begin
        p_add(a,b);
        end;
/
```

Output:-



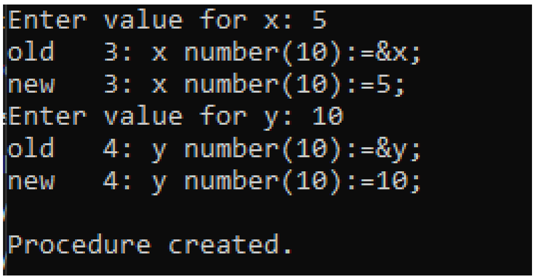
```
Enter value for a: 5
old   2:        a number(2):=&a;
new   2:        a number(2):=5;
Enter value for b: 10
old   3:        b number(2):=&b;
new   3:        b number(2):=10;
Result is 15

PL/SQL procedure successfully completed.
```

47. Write a PL/SQL Program to display addition of two numbers without parameters using procedures

Program:-

```
create or replace procedure p_add1
is
        x number(10):=&x;
        y number(10):=&y;
        z number(10);
begin
        z:=x+y;
        dbms_output.put_line('Result is '||z);
end;
/
```

Output:-

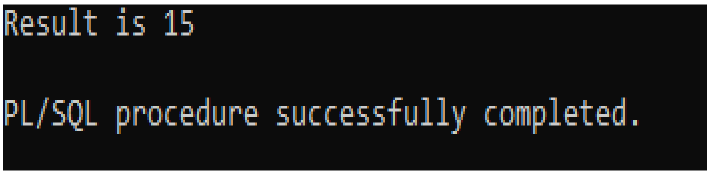


```
Enter value for x: 5
old   3: x number(10):=&x;
new   3: x number(10):=5;
Enter value for y: 10
old   4: y number(10):=&y;
new   4: y number(10):=10;

Procedure created.
```

Program:-

```
begin
        p_add1;
end;
/
```

Output:-



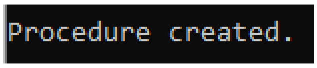
```
Result is 15

PL/SQL procedure successfully completed.
```

48. Write a PL/SQL Program to display employee details using procedures

Program:-

```
create or replace procedure p_empdetails
is
        cursor cfor_emp is select * from emp;
begin
        for v_emp in cfor_emp
        loop
                dbms_output.put_line('**************');
                dbms_output.put_line('employee no is '||v_emp.empno);
                dbms_output.put_line('employee name is '||v_emp.ename);
                dbms_output.put_line('employee job is '||v_emp.job);
                dbms_output.put_line('employee mgr is '||v_emp.mgr);
                dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
                dbms_output.put_line('employee sal is '||v_emp.sal);
                dbms_output.put_line('employee comm is '||v_emp.comm);
                dbms_output.put_line('employee deptno is '||v_emp.deptno);
        end loop;
end;
/
```

Output:-

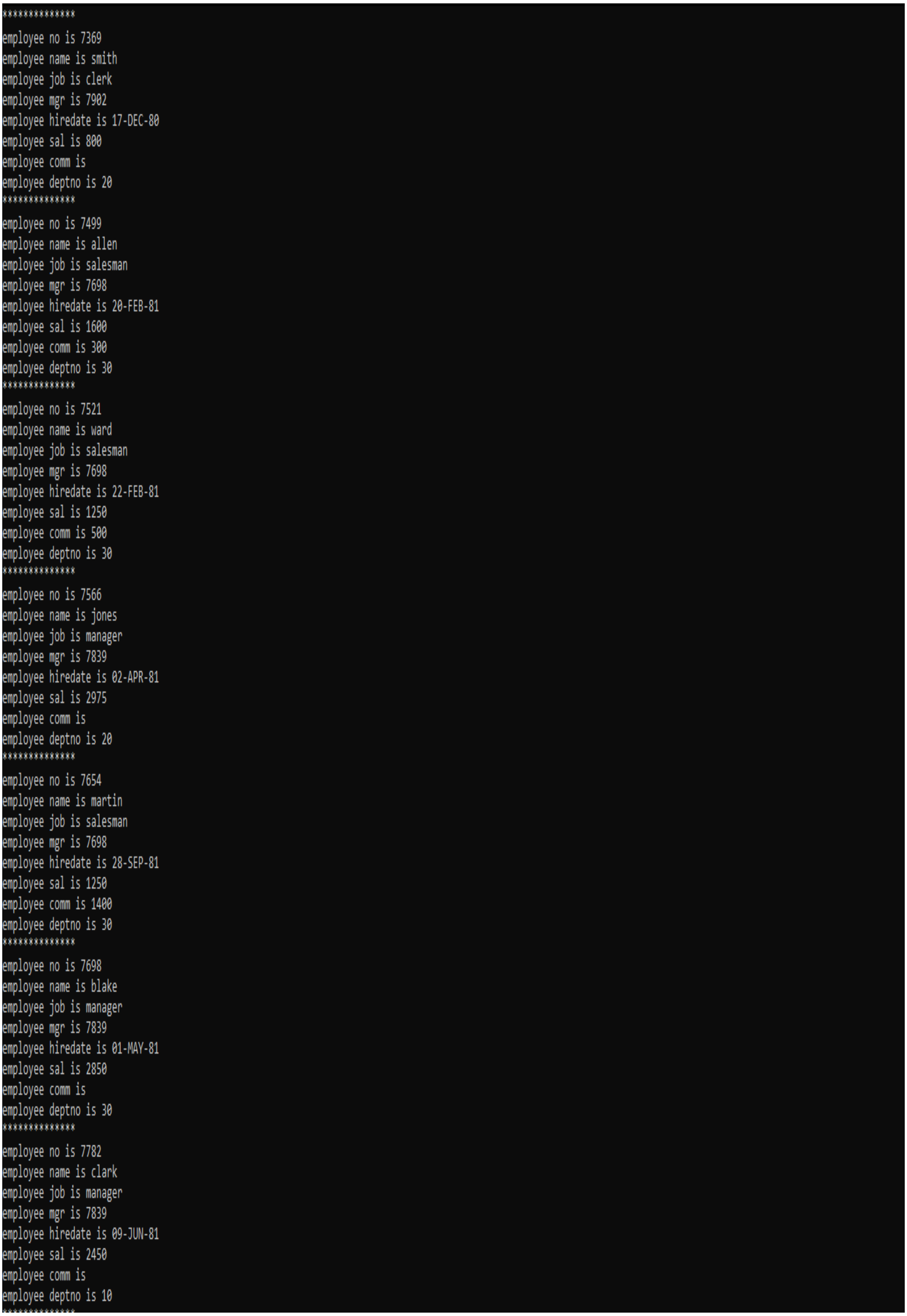


```
Procedure created.
```

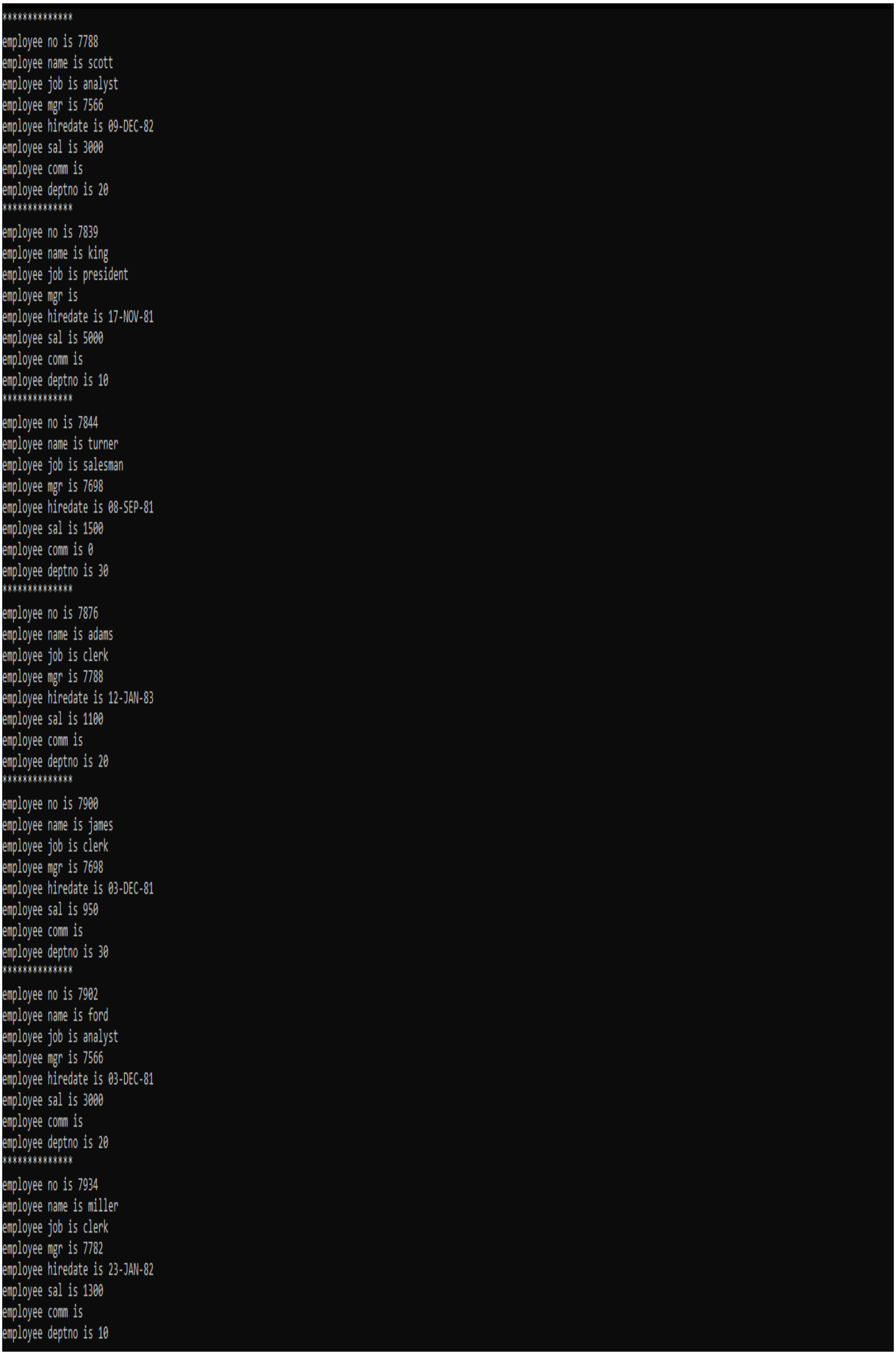
Program:-

```
begin
        p_empdetails;
end;
/
```

Output:-



```
**************
employee no is 7369
employee name is smith
employee job is clerk
employee mgr is 7902
employee hiredate is 17-DEC-80
employee sal is 800
employee comm is
employee deptno is 20
**************
employee no is 7499
employee name is allen
employee job is salesman
employee mgr is 7698
employee hiredate is 20-FEB-81
employee sal is 1600
employee comm is 300
employee deptno is 30
**************
employee no is 7521
employee name is ward
employee job is salesman
employee mgr is 7698
employee hiredate is 22-FEB-81
employee sal is 1250
employee comm is 500
employee deptno is 30
**************
employee no is 7566
employee name is jones
employee job is manager
employee mgr is 7839
employee hiredate is 02-APR-81
employee sal is 2975
employee comm is
employee deptno is 20
**************
employee no is 7654
employee name is martin
employee job is salesman
employee mgr is 7698
employee hiredate is 28-SEP-81
employee sal is 1250
employee comm is 1400
employee deptno is 30
**************
employee no is 7698
employee name is blake
employee job is manager
employee mgr is 7839
employee hiredate is 01-MAY-81
employee sal is 2850
employee comm is
employee deptno is 30
**************
employee no is 7782
employee name is clark
employee job is manager
employee mgr is 7839
employee hiredate is 09-JUN-81
employee sal is 2450
employee comm is
employee deptno is 10
**************
```



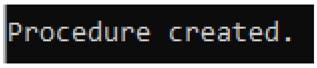
```
**************
employee no is 7788
employee name is scott
employee job is analyst
employee mgr is 7566
employee hiredate is 09-DEC-82
employee sal is 3000
employee comm is
employee deptno is 20
**************
employee no is 7839
employee name is king
employee job is president
employee mgr is
employee hiredate is 17-NOV-81
employee sal is 5000
employee comm is
employee deptno is 10
**************
employee no is 7844
employee name is turner
employee job is salesman
employee mgr is 7698
employee hiredate is 08-SEP-81
employee sal is 1500
employee comm is 0
employee deptno is 30
**************
employee no is 7876
employee name is adams
employee job is clerk
employee mgr is 7788
employee hiredate is 12-JAN-83
employee sal is 1100
employee comm is
employee deptno is 20
**************
employee no is 7900
employee name is james
employee job is clerk
employee mgr is 7698
employee hiredate is 03-DEC-81
employee sal is 950
employee comm is
employee deptno is 30
**************
employee no is 7902
employee name is ford
employee job is analyst
employee mgr is 7566
employee hiredate is 03-DEC-81
employee sal is 3000
employee comm is
employee deptno is 20
**************
employee no is 7934
employee name is miller
employee job is clerk
employee mgr is 7782
employee hiredate is 23-JAN-82
employee sal is 1300
employee comm is
employee deptno is 10
```

49. Write a PL/SQL Program to display dept details using procedures

Program:-

```
create or replace procedure p_deptdetails
is
        cursor cfor_dept is select * from dept;
begin
        for v_emp in cfor_dept
        loop
                dbms_output.put_line('**************');
                dbms_output.put_line('Dept no is '||v_emp.deptno);
                dbms_output.put_line('Dept name is '||v_emp.dname);
                dbms_output.put_line('Dept loc is '||v_emp.loc);
        end loop;
end;
/
```

Output:-

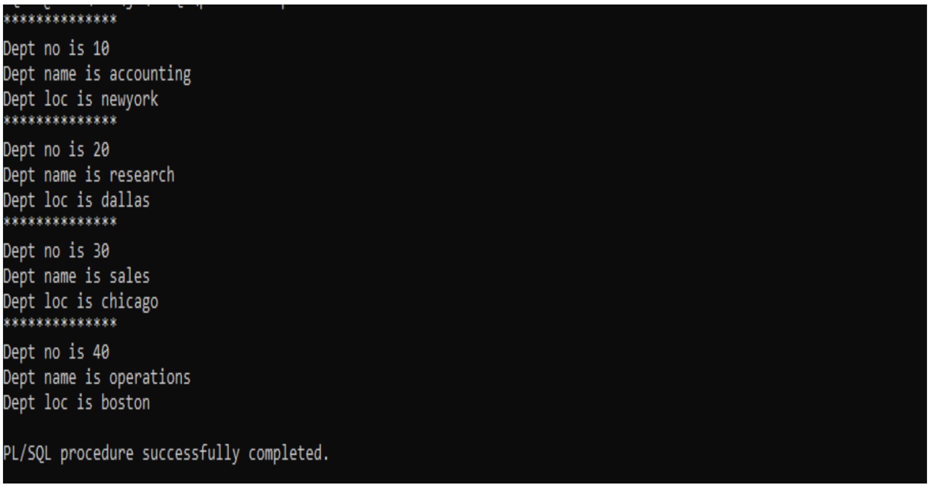


```
Procedure created.
```

Program:-

```
begin
        p_deptdetails;
end;
/
```

Output:-



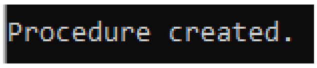
```
**************
Dept no is 10
Dept name is accounting
Dept loc is newyork
**************
Dept no is 20
Dept name is research
Dept loc is dallas
**************
Dept no is 30
Dept name is sales
Dept loc is chicago
**************
Dept no is 40
Dept name is operations
Dept loc is boston

PL/SQL procedure successfully completed.
```

50. Write a PL/SQL Program to display of employee for given deptno and sal greater than given sal using procedures

Program:-

```
create or replace procedure p_empdetails_detpno_sal(x in
number,y in number)
is
cursor cfor_emp is select * from emp where deptno=x and sal>y;
begin
        for v_emp in cfor_emp
        loop
                dbms_output.put_line('**************');
                dbms_output.put_line('employee no is '||v_emp.empno);
                dbms_output.put_line('employee name is '||v_emp.ename);
                dbms_output.put_line('employee job is '||v_emp.job);
                dbms_output.put_line('employee mgr is '||v_emp.mgr);
                dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
                dbms_output.put_line('employee sal is '||v_emp.sal);
                dbms_output.put_line('employee comm is '||v_emp.comm);
                dbms_output.put_line('employee deptno is '||v_emp.deptno);
        end loop;
end;
/
```

Output:-

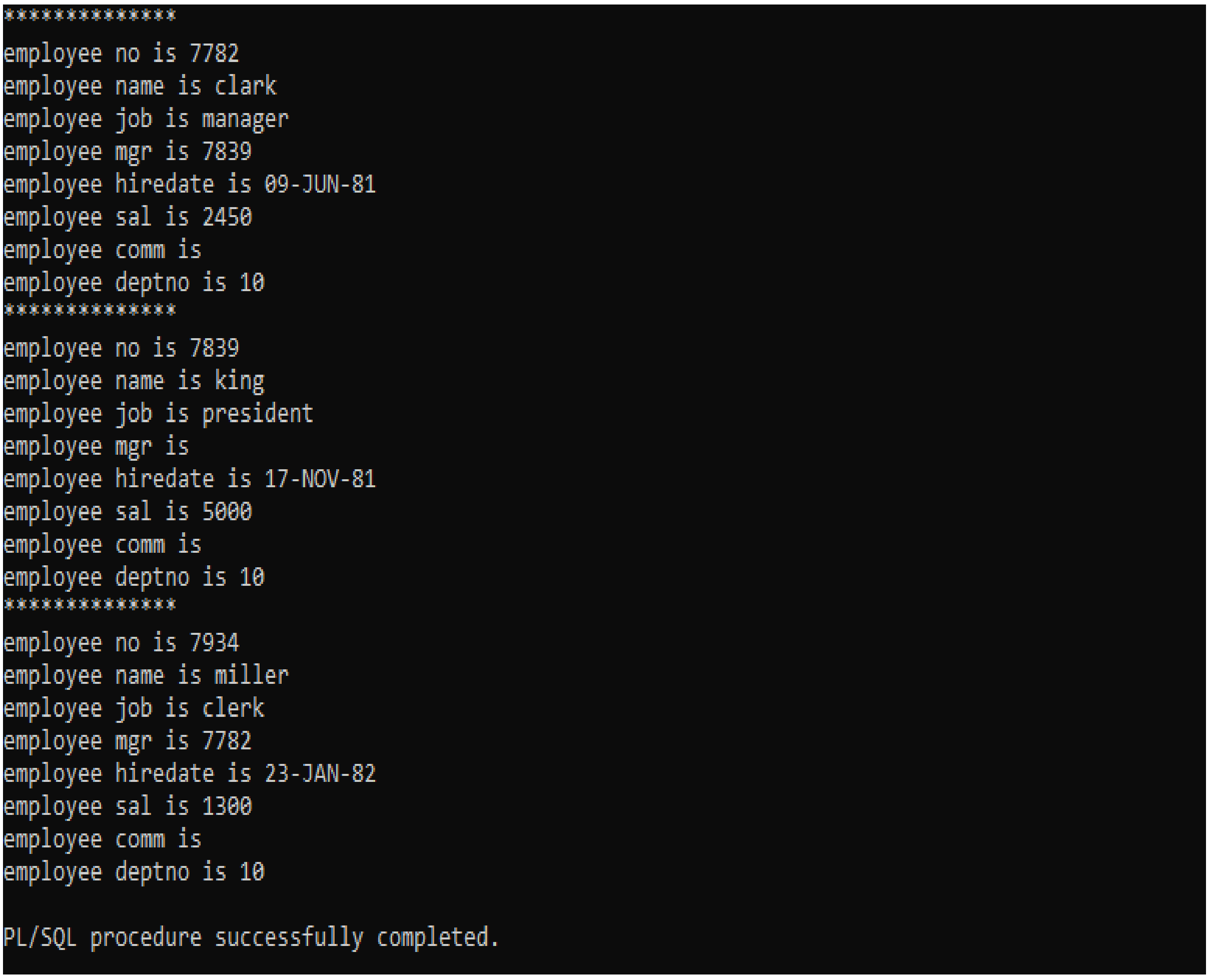


```
Procedure created.
```

Program:-

```
declare
        v_deptno number(2):=&deptno;
         v_sal number(7,2):=&sal;
 begin
        p_empdetails_detpno_sal(v_deptno,v_sal);
 end;
 /
```

Output:-



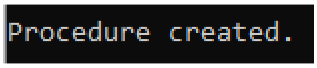
```
**************
employee no is 7782
employee name is clark
employee job is manager
employee mgr is 7839
employee hiredate is 09-JUN-81
employee sal is 2450
employee comm is
employee deptno is 10
**************
employee no is 7839
employee name is king
employee job is president
employee mgr is
employee hiredate is 17-NOV-81
employee sal is 5000
employee comm is
employee deptno is 10
**************
employee no is 7934
employee name is miller
employee job is clerk
employee mgr is 7782
employee hiredate is 23-JAN-82
employee sal is 1300
employee comm is
employee deptno is 10

PL/SQL procedure successfully completed.
```

51. Write a PL/SQL Program to display employee and department information using procedures

Program:-

```
create or replace procedure p_emp_dept
is
cursor cfor_emp is select emp.*,dept.dname,dept.loc from
emp,dept where dept.deptno=emp.deptno;
begin
        for v_emp in cfor_emp
        loop
                dbms_output.put_line('**************');
                dbms_output.put_line('employee no is '||v_emp.empno);
                dbms_output.put_line('employee name is '||v_emp.ename);
                dbms_output.put_line('employee job is '||v_emp.job);
                dbms_output.put_line('employee mgr is '||v_emp.mgr);
                dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
                dbms_output.put_line('employee sal is '||v_emp.sal);
                dbms_output.put_line('employee comm is '||v_emp.comm);
                dbms_output.put_line('employee deptno is '||v_emp.deptno);
                dbms_output.put_line('Dept name is '||v_emp.dname);
                dbms_output.put_line('Dept loc is '||v_emp.loc);
        end loop;
end;
/
```

Output:-

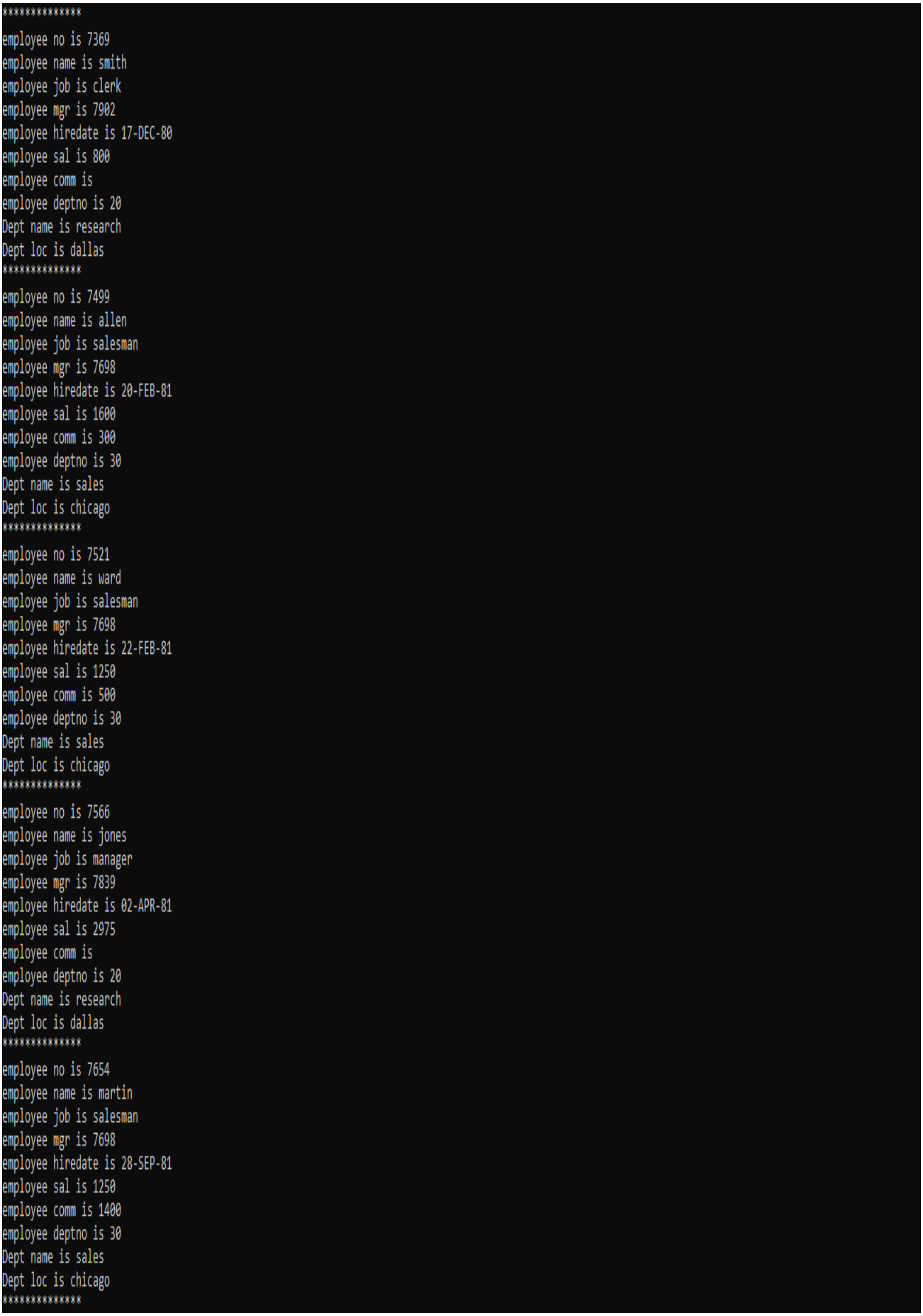


```
Procedure created.
```

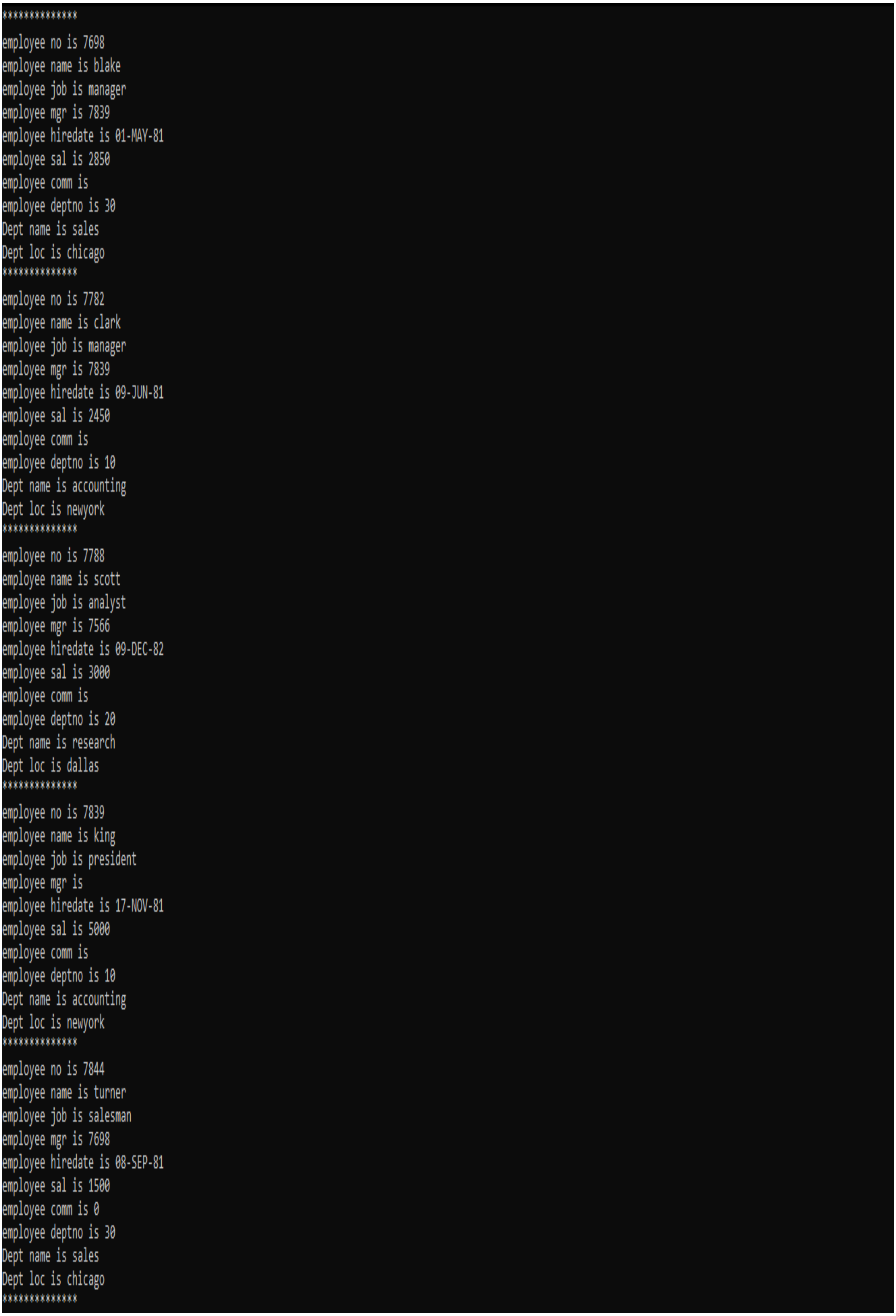
Program:-

```
begin
        p_emp_dept;
end;
/
```

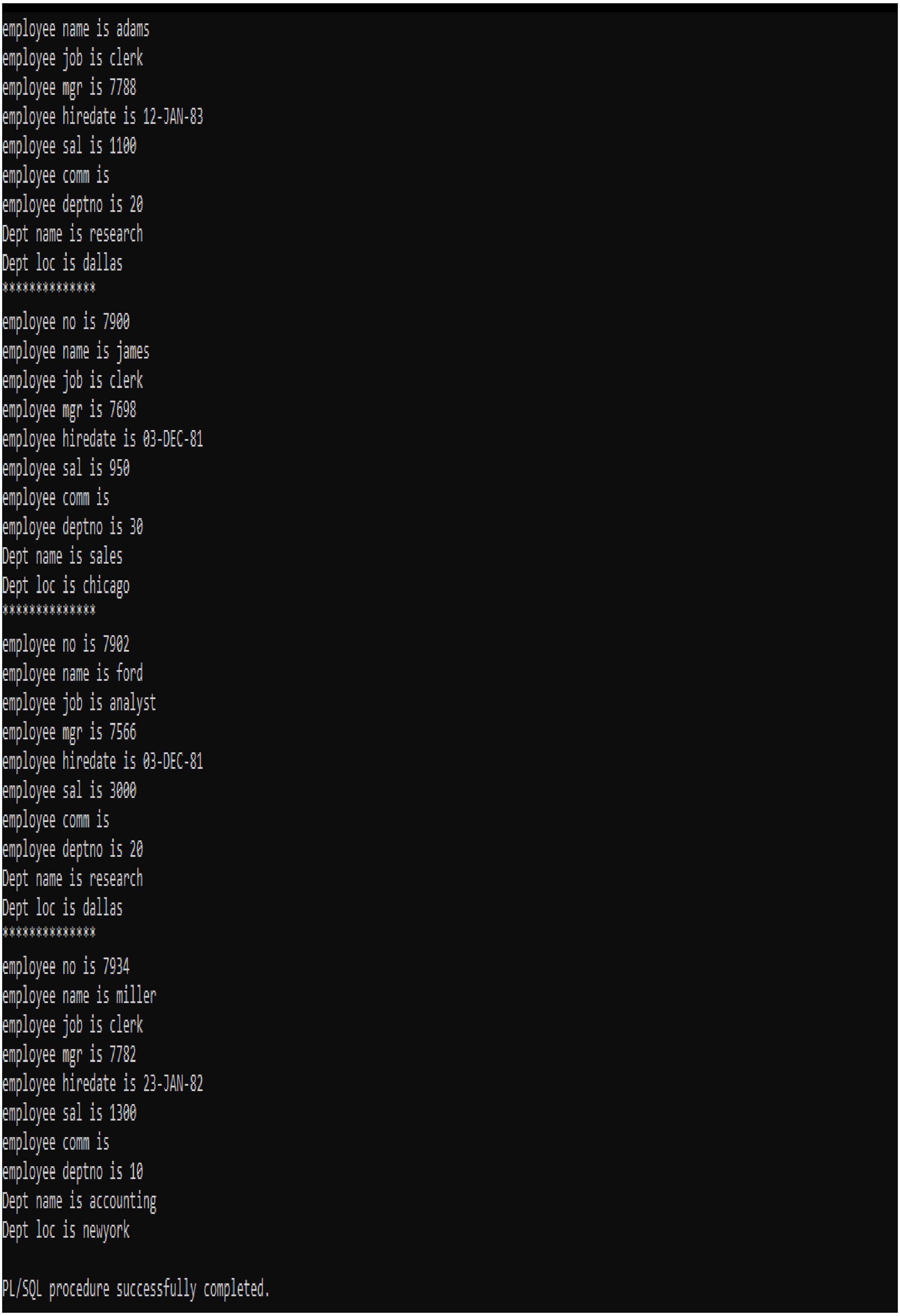
Output:-



```
**************
employee no is 7369
employee name is smith
employee job is clerk
employee mgr is 7902
employee hiredate is 17-DEC-80
employee sal is 800
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
employee no is 7499
employee name is allen
employee job is salesman
employee mgr is 7698
employee hiredate is 20-FEB-81
employee sal is 1600
employee comm is 300
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
employee no is 7521
employee name is ward
employee job is salesman
employee mgr is 7698
employee hiredate is 22-FEB-81
employee sal is 1250
employee comm is 500
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
employee no is 7566
employee name is jones
employee job is manager
employee mgr is 7839
employee hiredate is 02-APR-81
employee sal is 2975
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
employee no is 7654
employee name is martin
employee job is salesman
employee mgr is 7698
employee hiredate is 28-SEP-81
employee sal is 1250
employee comm is 1400
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
```



```
**************
employee no is 7698
employee name is blake
employee job is manager
employee mgr is 7839
employee hiredate is 01-MAY-81
employee sal is 2850
employee comm is
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
employee no is 7782
employee name is clark
employee job is manager
employee mgr is 7839
employee hiredate is 09-JUN-81
employee sal is 2450
employee comm is
employee deptno is 10
Dept name is accounting
Dept loc is newyork
**************
employee no is 7788
employee name is scott
employee job is analyst
employee mgr is 7566
employee hiredate is 09-DEC-82
employee sal is 3000
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
employee no is 7839
employee name is king
employee job is president
employee mgr is
employee hiredate is 17-NOV-81
employee sal is 5000
employee comm is
employee deptno is 10
Dept name is accounting
Dept loc is newyork
**************
employee no is 7844
employee name is turner
employee job is salesman
employee mgr is 7698
employee hiredate is 08-SEP-81
employee sal is 1500
employee comm is 0
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
```



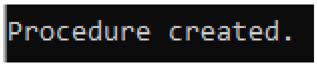
```
employee name is adams
employee job is clerk
employee mgr is 7788
employee hiredate is 12-JAN-83
employee sal is 1100
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
employee no is 7900
employee name is james
employee job is clerk
employee mgr is 7698
employee hiredate is 03-DEC-81
employee sal is 950
employee comm is
employee deptno is 30
Dept name is sales
Dept loc is chicago
**************
employee no is 7902
employee name is ford
employee job is analyst
employee mgr is 7566
employee hiredate is 03-DEC-81
employee sal is 3000
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
employee no is 7934
employee name is miller
employee job is clerk
employee mgr is 7782
employee hiredate is 23-JAN-82
employee sal is 1300
employee comm is
employee deptno is 10
Dept name is accounting
Dept loc is newyork

PL/SQL procedure successfully completed.
```

52. Write a PL/SQL Program to display employee and dept info whose name start with given character using procedures

Program:-

```
create or replace procedure p_emp_dept_name(a in varchar2)
is
        cursor cfor_emp is select emp.*,dept.dname,dept.loc from
        emp,dept where dept.deptno=emp.deptno and ename like
        a||'%';
begin
for v_emp in cfor_emp
loop
        dbms_output.put_line('**************');
        dbms_output.put_line('employee no is '||v_emp.empno);
        dbms_output.put_line('employee name is '||v_emp.ename);
        dbms_output.put_line('employee job is '||v_emp.job);
        dbms_output.put_line('employee mgr is '||v_emp.mgr);
        dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
        dbms_output.put_line('employee sal is '||v_emp.sal);
        dbms_output.put_line('employee comm is '||v_emp.comm);
        dbms_output.put_line('employee deptno is '||v_emp.deptno);
        dbms_output.put_line('Dept name is '||v_emp.dname);
        dbms_output.put_line('Dept loc is '||v_emp.loc);
end loop;
end;
/
```

Output:-

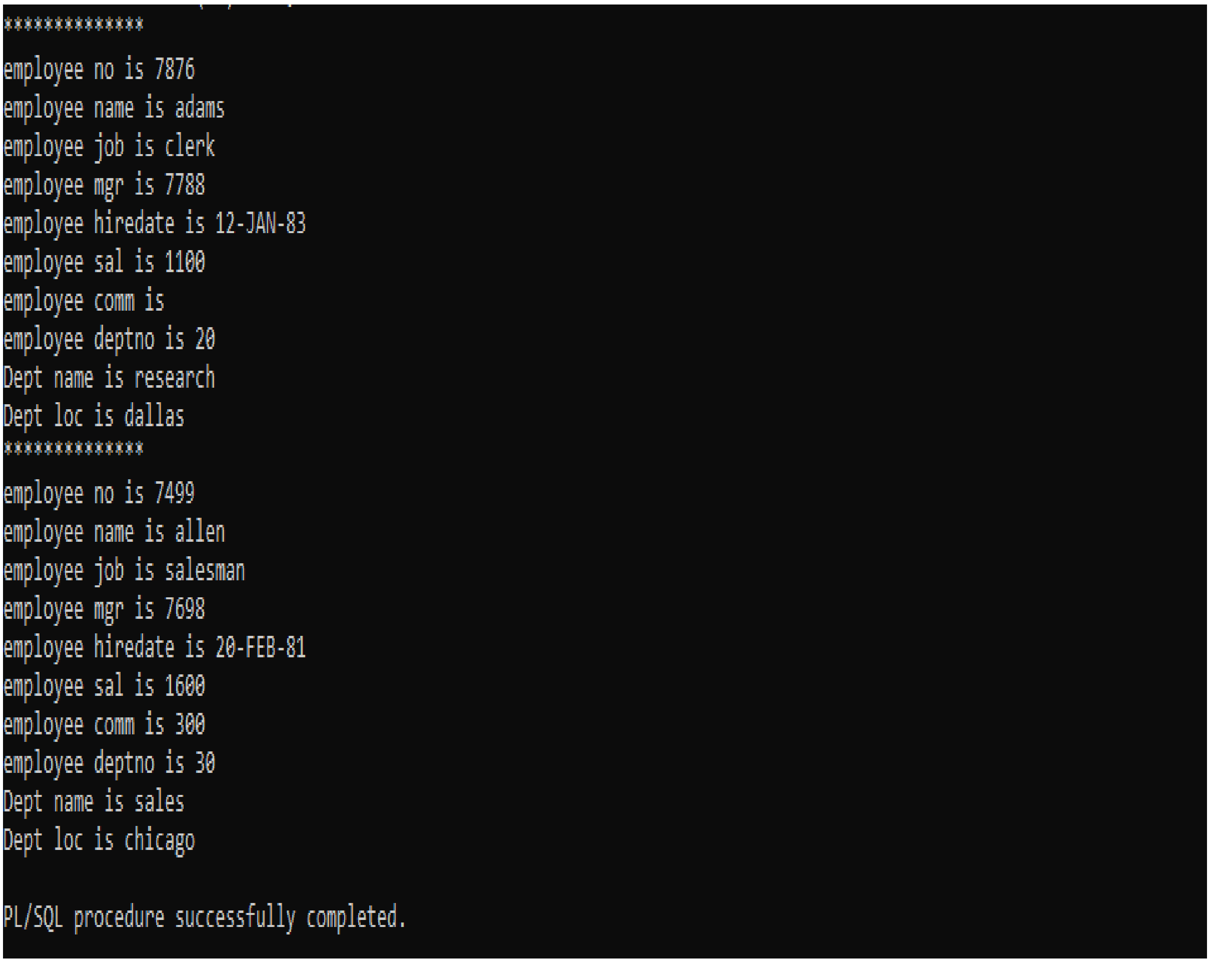


```
Procedure created.
```

Program:-

```
declare
        x varchar2(10):='&x';
begin
        p_emp_dept_name(x);
end;
/
```

Output:-



```
**************
employee no is 7876
employee name is adams
employee job is clerk
employee mgr is 7788
employee hiredate is 12-JAN-83
employee sal is 1100
employee comm is
employee deptno is 20
Dept name is research
Dept loc is dallas
**************
employee no is 7499
employee name is allen
employee job is salesman
employee mgr is 7698
employee hiredate is 20-FEB-81
employee sal is 1600
employee comm is 300
employee deptno is 30
Dept name is sales
Dept loc is chicago

PL/SQL procedure successfully completed.
```

53. Write a PL/SQL Program to display employee details using packages

Spec Program:-

```
create or replace package pack_emp
is
        procedure p_emp(a in number);
end;
/
```

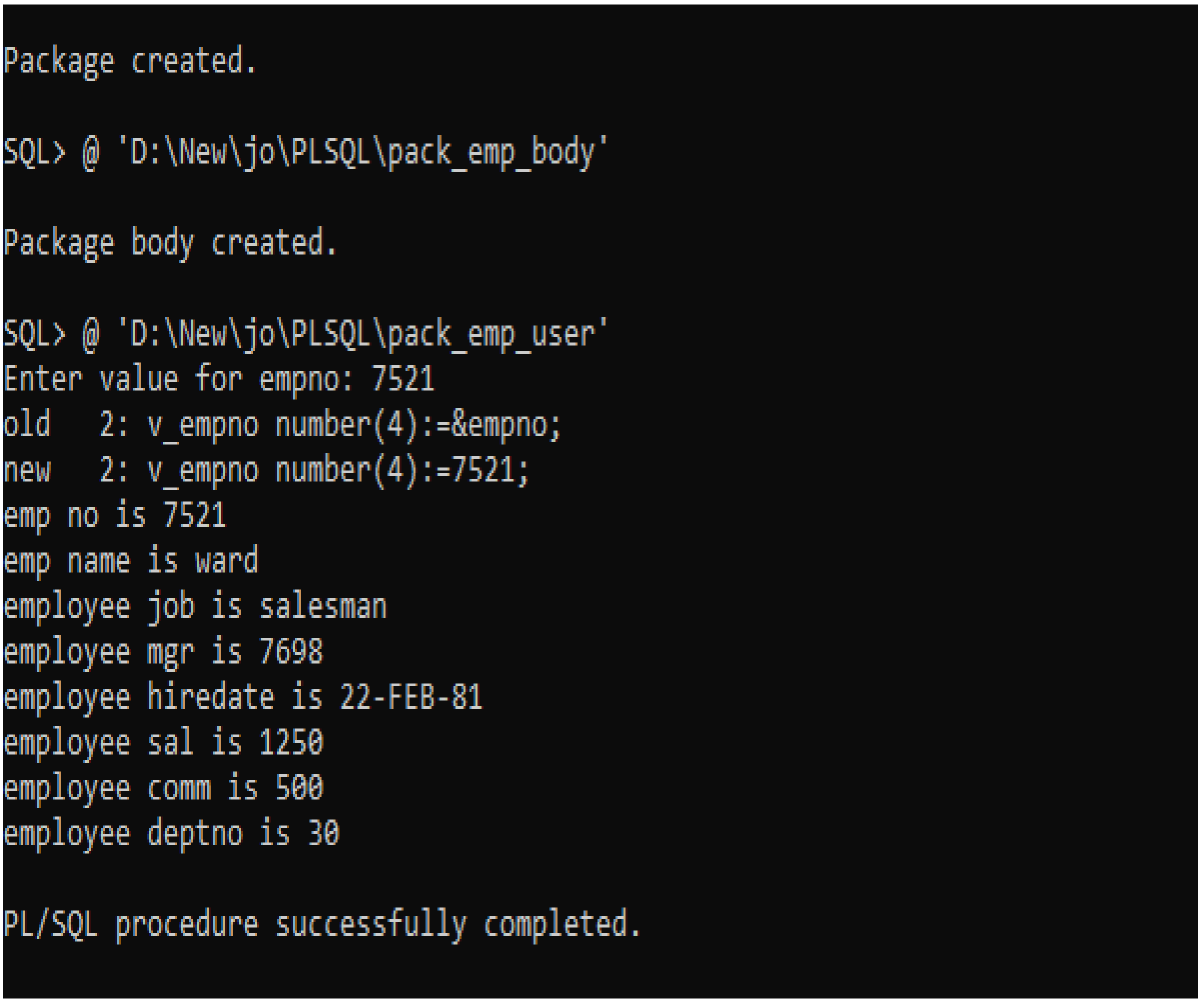
Body Program:-

```
create or replace package body pack_emp
is
        procedure p_emp(a in number)
        is
                b emp%rowtype;
        begin
                select  empno,ename,job,mgr,hiredate,sal,comm,deptno  into
                b from emp where empno=a;

                dbms_output.put_line('emp no is '||b.empno);
                dbms_output.put_line('emp name is '||b.ename);
                dbms_output.put_line('employee job is '||b.job);
                dbms_output.put_line('employee mgr is '||b.mgr);
                dbms_output.put_line('employee hiredate is '||b.hiredate);
                dbms_output.put_line('employee sal is '||b.sal);
                dbms_output.put_line('employee comm is '||b.comm);
                dbms_output.put_line('employee deptno is '||b.deptno);
        end p_emp;
end pack_emp;
/
```

User Program:-

```
declare
        v_empno number(4):=&empno;
begin
        pack_emp.p_emp(v_empno);
end;
/
```

Output:-



```
Package created.

SQL> @ 'D:\New\jo\PLSQL\pack_emp_body'

Package body created.

SQL> @ 'D:\New\jo\PLSQL\pack_emp_user'
Enter value for empno: 7521
old   2: v_empno number(4):=&empno;
new   2: v_empno number(4):=7521;
emp no is 7521
emp name is ward
employee job is salesman
employee mgr is 7698
employee hiredate is 22-FEB-81
employee sal is 1250
employee comm is 500
employee deptno is 30

PL/SQL procedure successfully completed.
```

54. Write a PL/SQL Program to display employee details for the given deptno using packages

Spec Program:-

```
create or replace package pack_emp_deptno
is
    procedure p_emp_deptno(a in number);
end;
/
```

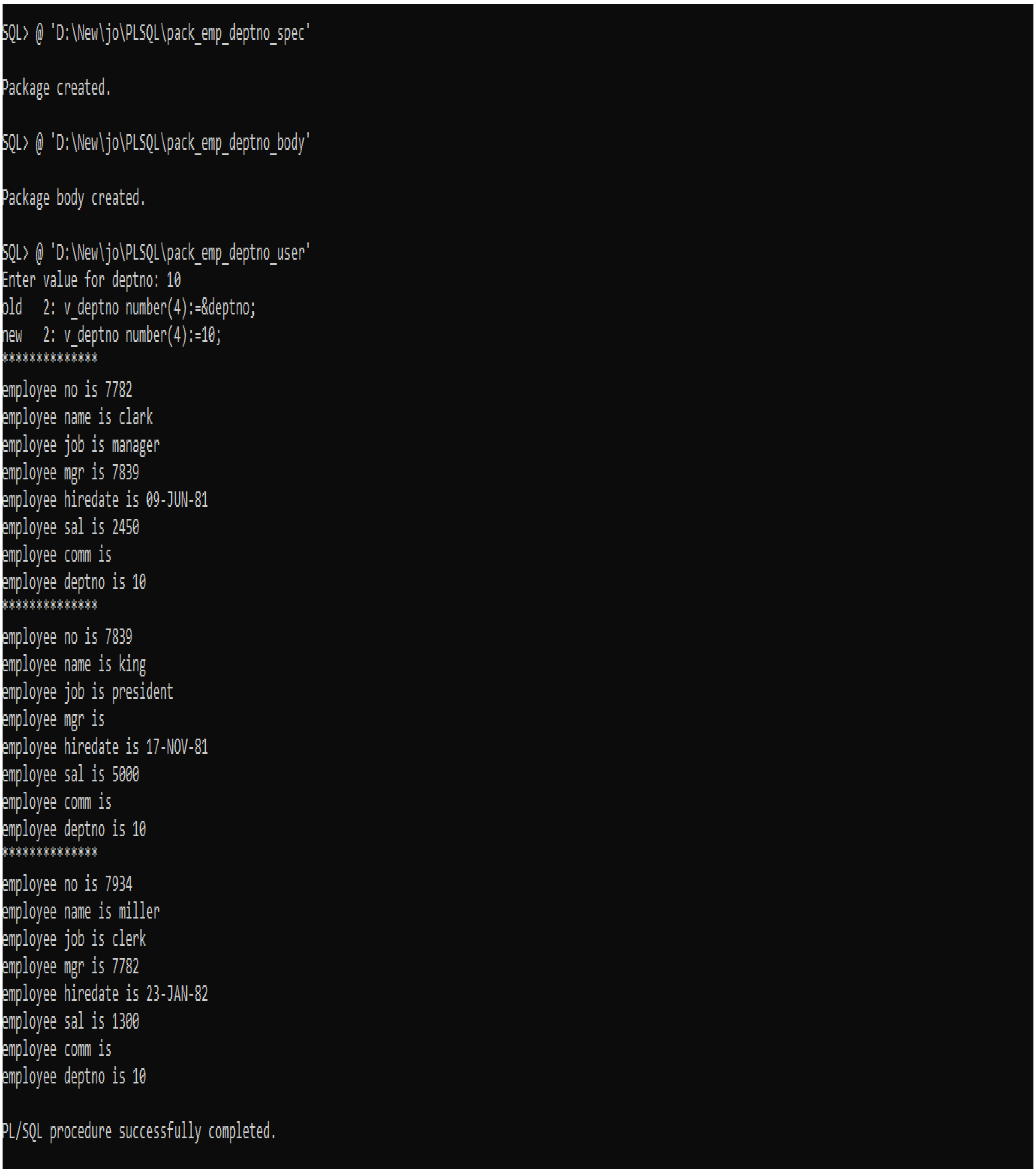
Body Program:-

```
create or replace package body pack_emp_deptno
is
    procedure p_emp_deptno(a in number)
    is
        cursor cfor_emp is select * from emp where
        deptno=a;
    begin
        for v_emp in cfor_emp
        loop
            dbms_output.put_line('**************');
            dbms_output.put_line('employee no is '||v_emp.empno);
            dbms_output.put_line('employee name is '||v_emp.ename);
            dbms_output.put_line('employee job is '||v_emp.job);
            dbms_output.put_line('employee mgr is '||v_emp.mgr);
            dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
            dbms_output.put_line('employee sal is '||v_emp.sal);
            dbms_output.put_line('employee comm is '||v_emp.comm);
            dbms_output.put_line('employee deptno is '||v_emp.deptno);
        end loop;
    end p_emp_deptno;
end pack_emp_deptno;
/
```

User Program:-

```
declare
        v_deptno number(4):=&deptno;
begin
        pack_emp_deptno.p_emp_deptno(v_deptno);
end;
/
```

Output:-



```
SQL> @ 'D:\New\jo\PLSQL\pack_emp_deptno_spec'

Package created.

SQL> @ 'D:\New\jo\PLSQL\pack_emp_deptno_body'

Package body created.

SQL> @ 'D:\New\jo\PLSQL\pack_emp_deptno_user'
Enter value for deptno: 10
old   2: v_deptno number(4):=&deptno;
new   2: v_deptno number(4):=10;
**************
employee no is 7782
employee name is clark
employee job is manager
employee mgr is 7839
employee hiredate is 09-JUN-81
employee sal is 2450
employee comm is
employee deptno is 10
**************
employee no is 7839
employee name is king
employee job is president
employee mgr is
employee hiredate is 17-NOV-81
employee sal is 5000
employee comm is
employee deptno is 10
**************
employee no is 7934
employee name is miller
employee job is clerk
employee mgr is 7782
employee hiredate is 23-JAN-82
employee sal is 1300
employee comm is
employee deptno is 10

PL/SQL procedure successfully completed.
```

55. Write a PL/SQL Program to perform reverse of given number, factorial of given number using functions and addition of two numbers, display dept details using procedures implemented by packages

Spec Program:-

```
        create or replace package pack_rev_fact_add_dept
        is
                procedure p_add(x in number ,y in number);
                procedure p_deptdetails;
                function f_rev(b in number) return number;
                function f_fac(a in number) return number;
        end;
        /
```

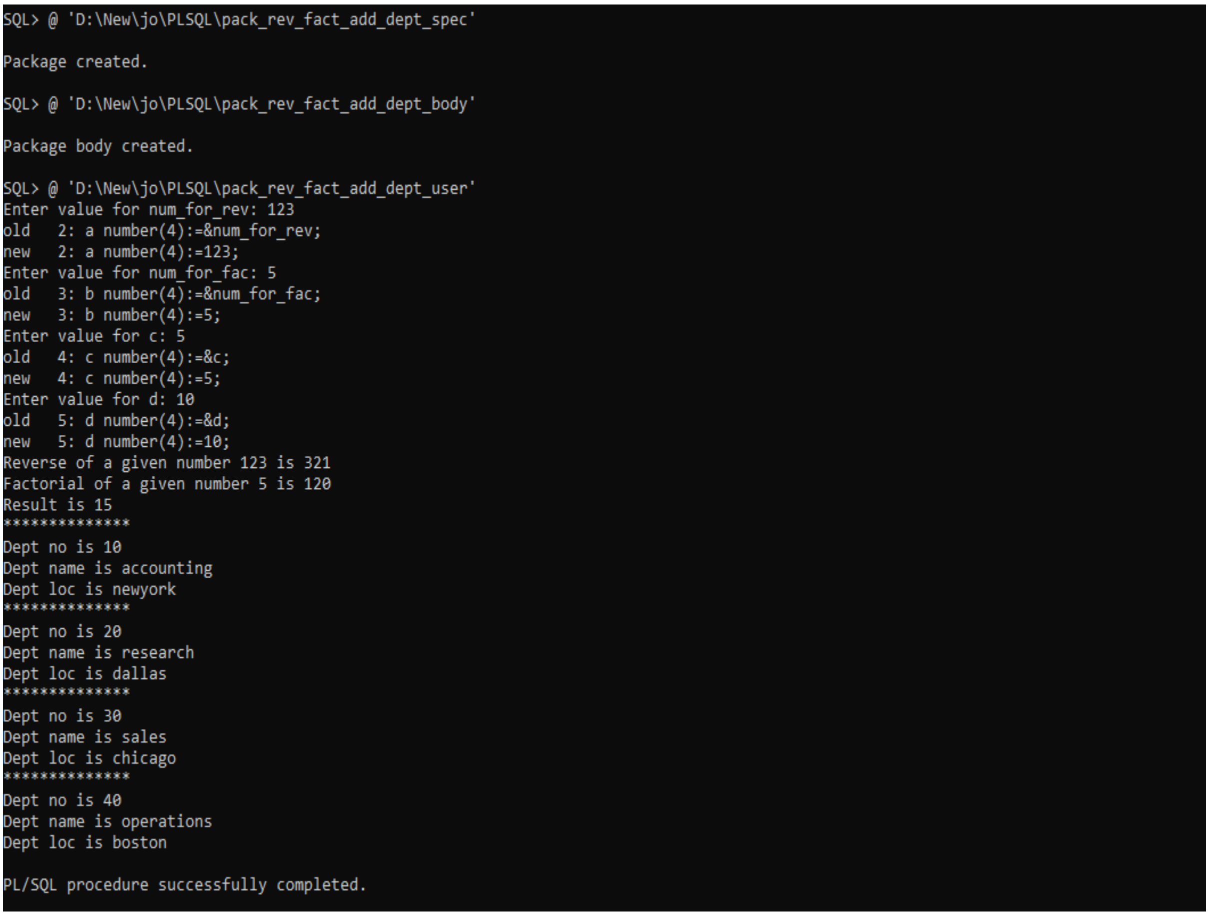
Body Program:-

```
create or replace package body pack_rev_fact_add_dept
is
        procedure p_add(x in number ,y in number)
        is
        z number(10);
        begin
                z:=x+y;
                dbms_output.put_line('Result is '||z);
        end p_add;

        procedure p_deptdetails
        is
                cursor cfor_dept is select * from dept;
        begin
                for v_emp in cfor_dept
                loop
                        dbms_output.put_line('*************');
                        dbms_output.put_line('Dept no is '||v_emp.deptno);
                        dbms_output.put_line('Dept name is '||v_emp.dname);
                        dbms_output.put_line('Dept loc is '||v_emp.loc);
                end loop;
        end p_deptdetails;
        function f_rev(b in number)
        return number
        is
                rev number(5):=0;
                rem number(5);
                a number(5);
        begin
                a:=b;
                while(a!=0)
                loop
                        rem:=mod(a,10);
                        rev:= rev*10+rem;
                        a:=floor(a/10);
                end loop;
                return rev;
        end f_rev;

        function f_fac(a in number)
        return number
        is
                f number(5):=1;
        begin
                for i in 1..a
                loop
                        f:=f*i;
                end loop;
                return f;
        end f_fac;
end pack_rev_fact_add_dept;
/
```

User Program:-

```
    declare
        a number(4):=&num_for_rev;
        b number(4):=&num_for_fac;
        c number(4):=&c;
        d number(4):=&d;
        v_rev number(4);
        v_fac number(4);
    begin
        v_rev:=pack_rev_fact_add_dept.f_rev(a);
        v_fac:=pack_rev_fact_add_dept.f_fac(b);
        dbms_output.put_line('Reverse of a given number '||a||' is '||v_rev);
        dbms_output.put_line('Factorial of a given number '||b||' is '||v_fac);
        pack_rev_fact_add_dept.p_add(c, d);
        pack_rev_fact_add_dept.p_deptdetails();
    end;
    /
```

Output:-



```
SQL> @ 'D:\New\jo\PLSQL\pack_rev_fact_add_dept_spec'

Package created.

SQL> @ 'D:\New\jo\PLSQL\pack_rev_fact_add_dept_body'

Package body created.

SQL> @ 'D:\New\jo\PLSQL\pack_rev_fact_add_dept_user'
Enter value for num_for_rev: 123
old   2: a number(4):=&num_for_rev;
new   2: a number(4):=123;
Enter value for num_for_fac: 5
old   3: b number(4):=&num_for_fac;
new   3: b number(4):=5;
Enter value for c: 5
old   4: c number(4):=&c;
new   4: c number(4):=5;
Enter value for d: 10
old   5: d number(4):=&d;
new   5: d number(4):=10;
Reverse of a given number 123 is 321
Factorial of a given number 5 is 120
Result is 15
**************
Dept no is 10
Dept name is accounting
Dept loc is newyork
**************
Dept no is 20
Dept name is research
Dept loc is dallas
**************
Dept no is 30
Dept name is sales
Dept loc is chicago
**************
Dept no is 40
Dept name is operations
Dept loc is boston

PL/SQL procedure successfully completed.
```

56. Write a PL/SQL Program to display whether the given number is palindrome or not using Packages

Spec Program:-

```
create or replace package pack_pal
is
        function  f_pal(c in number) return varchar;
end;
/
```

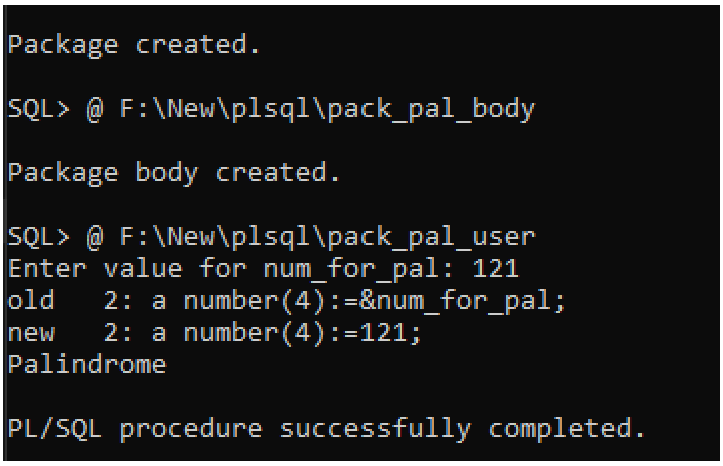
Body Program:-

```
create or replace package body pack_pal
is
        function f_pal(c in number)
        return varchar
        is
                a number(5);
                rev number(5):=0;
                rem number(5);
                temp number(5);
        begin
                a:=c;
                temp:=a;
                while(a!=0)
                loop
                        rem:=mod(a,10);
                        rev:=rev*10+rem;
                        a:=floor(a/10);
                end loop;
                if(temp=rev)then
                        dbms_output.put_line('Palindrome');
                else
                        dbms_output.put_line('Not Palindrome');
                end if;
                return 0;
        end f_pal;
end pack_pal;
/
```

User Program:-

```
declare
        a number(4):=&num_for_pal;
        v_pal number(4);
begin
        v_pal:=pack_pal.f_pal(a);
end;
/
```

Output:-



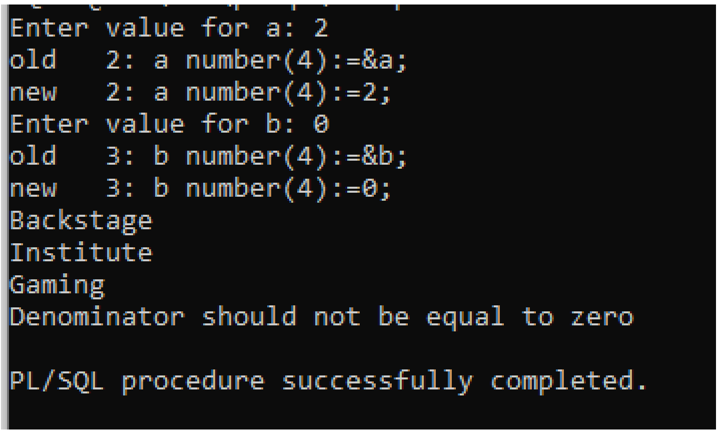
```
Package created.

SQL> @ F:\New\plsql\pack_pal_body

Package body created.

SQL> @ F:\New\plsql\pack_pal_user
Enter value for num_for_pal: 121
old   2: a number(4):=&num_for_pal;
new   2: a number(4):=121;
Palindrome

PL/SQL procedure successfully completed.
```

57. Write a PL/SQL Program how to handle exception if denominator is equal to zero

Program:-

```
declare
        a number(4):=&a;
        b number(4):=&b;
        c number(4);
begin
        dbms_output.put_line('Backstage');
        dbms_output.put_line('Institute');
        dbms_output.put_line('Gaming');
        c:=a/b;
        dbms_output.put_line('Technology');
        dbms_output.put_line('Art');
exception
        when zero_divide then
        dbms_output.put_line('Denominator should not be equal to zero');
end;
/
```

Output:-



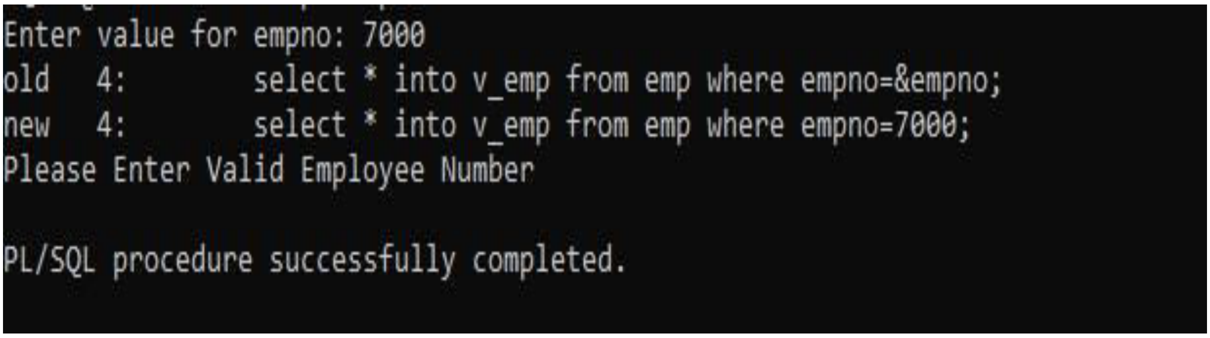
```
Enter value for a: 2
old   2: a number(4):=&a;
new   2: a number(4):=2;
Enter value for b: 0
old   3: b number(4):=&b;
new   3: b number(4):=0;
Backstage
Institute
Gaming
Denominator should not be equal to zero

PL/SQL procedure successfully completed.
```

58. Write a PL/SQL Program how to handle exception if data is not available

Program:-

```
declare
        v_emp emp%rowtype;
begin
        select * into v_emp from emp where empno=&empno;
        dbms_output.put_line('employee no is '||v_emp.empno);
        dbms_output.put_line('employee name is '||v_emp.ename);
        dbms_output.put_line('employee job is '||v_emp.job);
        dbms_output.put_line('employee mgr is '||v_emp.mgr);
        dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
        dbms_output.put_line('employee sal is '||v_emp.sal);
        dbms_output.put_line('employee comm is '||v_emp.comm);
        dbms_output.put_line('employee deptno is '||v_emp.deptno);
exception
        when no_data_found then
        dbms_output.put_line('Please Enter Valid Employee Number');

end;
/
```

Output:-



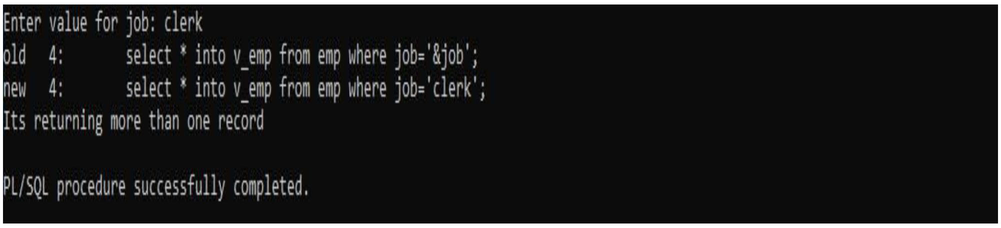
```
Enter value for empno: 7000
old   4:        select * into v_emp from emp where empno=&empno;
new   4:        select * into v_emp from emp where empno=7000;
Please Enter Valid Employee Number

PL/SQL procedure successfully completed.
```

59. Write a PL/SQL Program how to handle exception if it returns more than one record

Program:-

```
declare
        v_emp emp%rowtype;
begin
        select * into v_emp from emp where job='&job';
        dbms_output.put_line('employee no is '||v_emp.empno);
        dbms_output.put_line('employee name is '||v_emp.ename);
        dbms_output.put_line('employee job is '||v_emp.job);
        dbms_output.put_line('employee mgr is '||v_emp.mgr);
        dbms_output.put_line('employee hiredate is '||v_emp.hiredate);
        dbms_output.put_line('employee sal is '||v_emp.sal);
        dbms_output.put_line('employee comm is '||v_emp.comm);
        dbms_output.put_line('employee deptno is '||v_emp.deptno);
exception
        when no_data_found then
        dbms_output.put_line('Please Enter Valid Employee Job');
        when too_many_rows then
        dbms_output.put_line('Its returning more than one record');
end;
/
```

Output:-



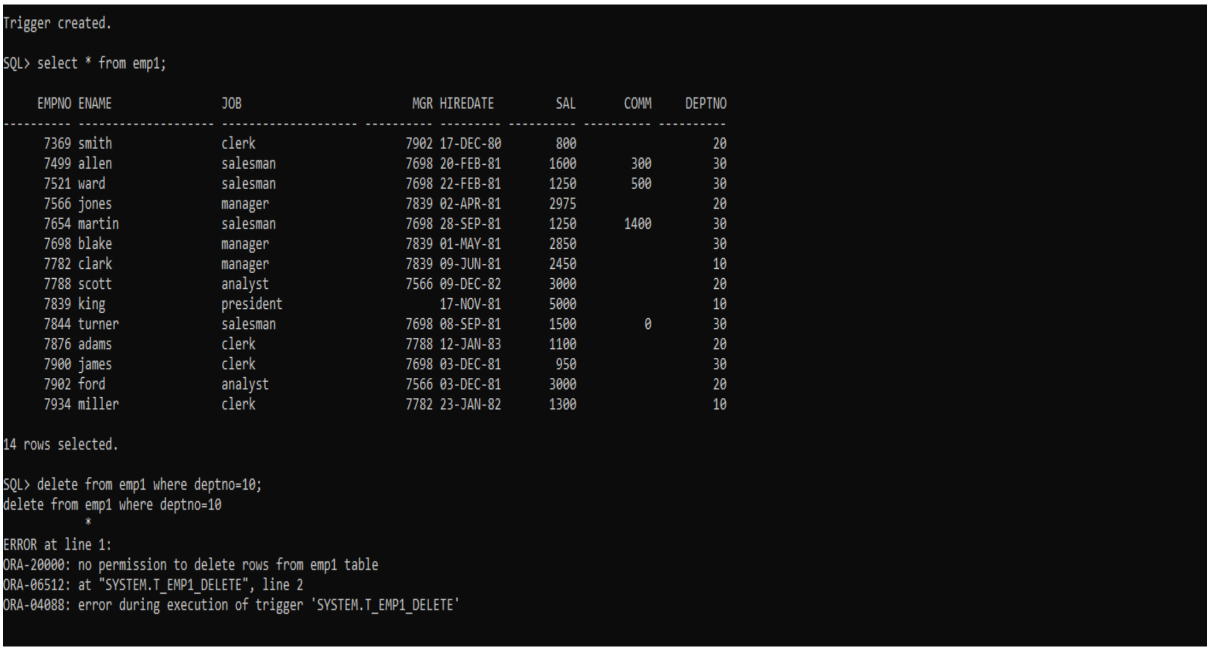
```
Enter value for job: clerk
old   4:        select * into v_emp from emp where job='&job';
new   4:        select * into v_emp from emp where job='clerk';
Its returning more than one record

PL/SQL procedure successfully completed.
```

60. Write a PL/SQL Program to create a trigger on employee table before deletion

Program:-

```
create or replace trigger t_emp1_delete
before delete on emp1
begin
    raise_application_error(-20000,'no permission to delete rows from emp1 table');
end;
/
```

Output:-



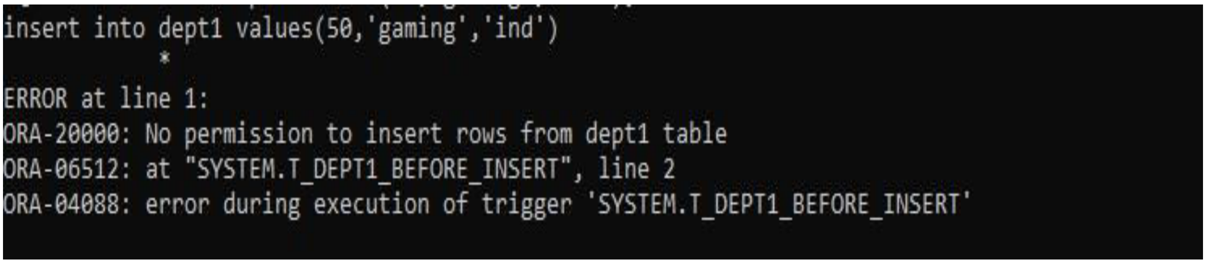
```
Trigger created.

SQL> select * from emp1;

     EMPNO ENAME                JOB                         MGR HIREDATE         SAL       COMM     DEPTNO
---------- -------------------- -------------------- ---------- --------- ---------- ---------- ----------
      7369 smith                clerk                      7902 17-DEC-80        800                    20
      7499 allen                salesman                   7698 20-FEB-81       1600        300         30
      7521 ward                 salesman                   7698 22-FEB-81       1250        500         30
      7566 jones                manager                    7839 02-APR-81       2975                    20
      7654 martin               salesman                   7698 28-SEP-81       1250       1400         30
      7698 blake                manager                    7839 01-MAY-81       2850                    30
      7782 clark                manager                    7839 09-JUN-81       2450                    10
      7788 scott                analyst                    7566 09-DEC-82       3000                    20
      7839 king                 president                       17-NOV-81       5000                    10
      7844 turner               salesman                   7698 08-SEP-81       1500          0         30
      7876 adams                clerk                      7788 12-JAN-83       1100                    20
      7900 james                clerk                      7698 03-DEC-81        950                    30
      7902 ford                 analyst                    7566 03-DEC-81       3000                    20
      7934 miller               clerk                      7782 23-JAN-82       1300                    10

14 rows selected.

SQL> delete from emp1 where deptno=10;
delete from emp1 where deptno=10
            *
ERROR at line 1:
ORA-20000: no permission to delete rows from emp1 table
ORA-06512: at "SYSTEM.T_EMP1_DELETE", line 2
ORA-04088: error during execution of trigger 'SYSTEM.T_EMP1_DELETE'
```

61. Write a PL/SQL Program to create a trigger on emp table before insertion

Program:-

```
create or replace trigger t_dept1_before_insert
before insert on dept1
begin
        raise_application_error(-20000,'No permission to insert
        rows from dept1 table');
end;
/
```

Output:-



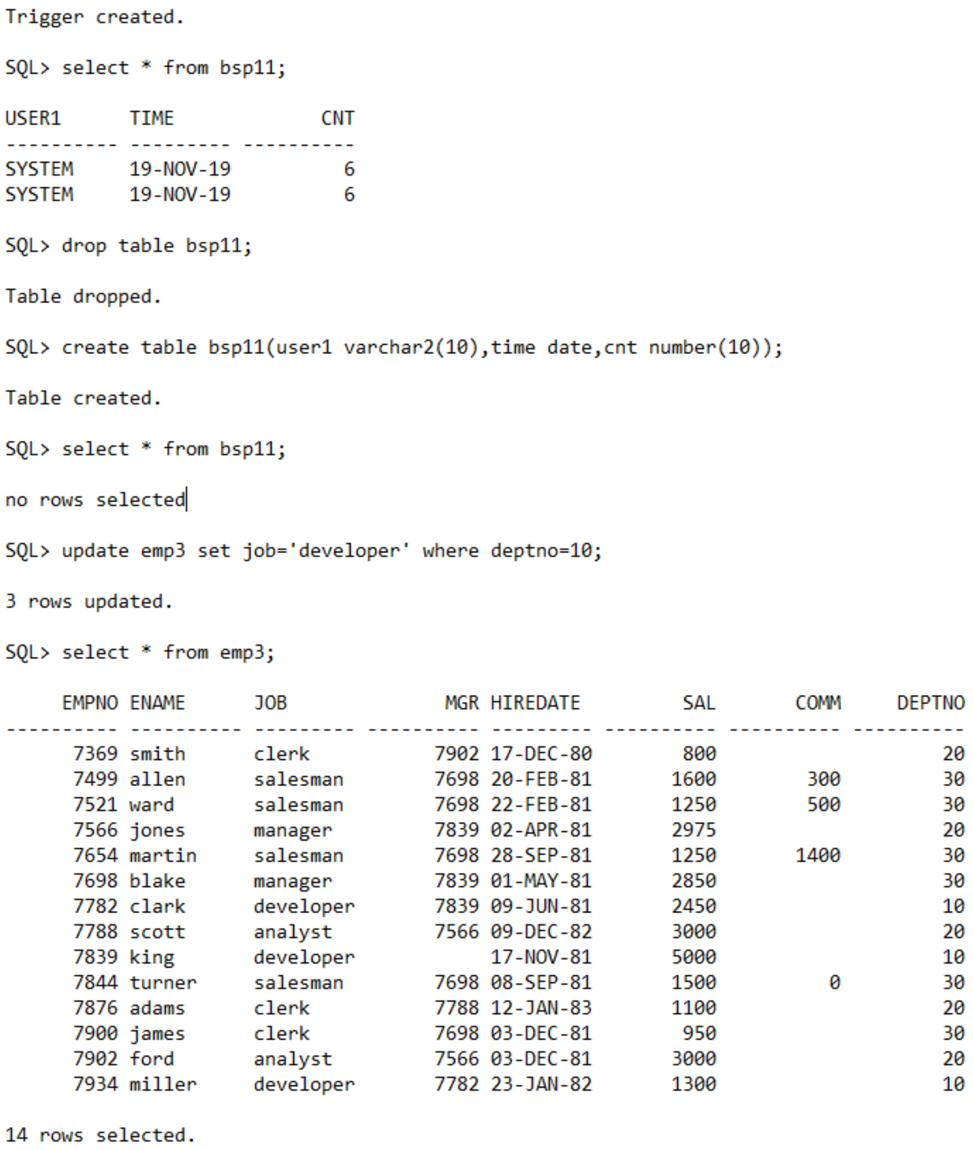
```
insert into dept1 values(50,'gaming','ind')
            *
ERROR at line 1:
ORA-20000: No permission to insert rows from dept1 table
ORA-06512: at "SYSTEM.T_DEPT1_BEFORE_INSERT", line 2
ORA-04088: error during execution of trigger 'SYSTEM.T_DEPT1_BEFORE_INSERT'
```

62. Write a PL/SQL Program to create a trigger on emp1 or EMP table after deletion to maintain logging and audit information

Program:-

```
create or replace trigger tr_test5
after update on emp3
declare
        v number(10):=0;
begin
        select count(*) into v from emp3;
        insert into bsp11 values(user,sysdate,v);
end;
/
```

Output:-



```
Trigger created.

SQL> select * from bsp11;

USER1      TIME             CNT
---------- --------- ----------
SYSTEM     19-NOV-19          6
SYSTEM     19-NOV-19          6

SQL> drop table bsp11;

Table dropped.

SQL> create table bsp11(user1 varchar2(10),time date,cnt number(10));

Table created.

SQL> select * from bsp11;

no rows selected

SQL> update emp3 set job='developer' where deptno=10;

3 rows updated.

SQL> select * from emp3;

     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM     DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------- ----------
      7369 smith      clerk           7902 17-DEC-80        800                    20
      7499 allen      salesman        7698 20-FEB-81       1600        300         30
      7521 ward       salesman        7698 22-FEB-81       1250        500         30
      7566 jones      manager         7839 02-APR-81       2975                    20
      7654 martin     salesman        7698 28-SEP-81       1250       1400         30
      7698 blake      manager         7839 01-MAY-81       2850                    30
      7782 clark      developer       7839 09-JUN-81       2450                    10
      7788 scott      analyst         7566 09-DEC-82       3000                    20
      7839 king       developer            17-NOV-81       5000                    10
      7844 turner     salesman        7698 08-SEP-81       1500          0         30
      7876 adams      clerk           7788 12-JAN-83       1100                    20
      7900 james      clerk           7698 03-DEC-81        950                    30
      7902 ford       analyst         7566 03-DEC-81       3000                    20
      7934 miller     developer       7782 23-JAN-82       1300                    10

14 rows selected.
```