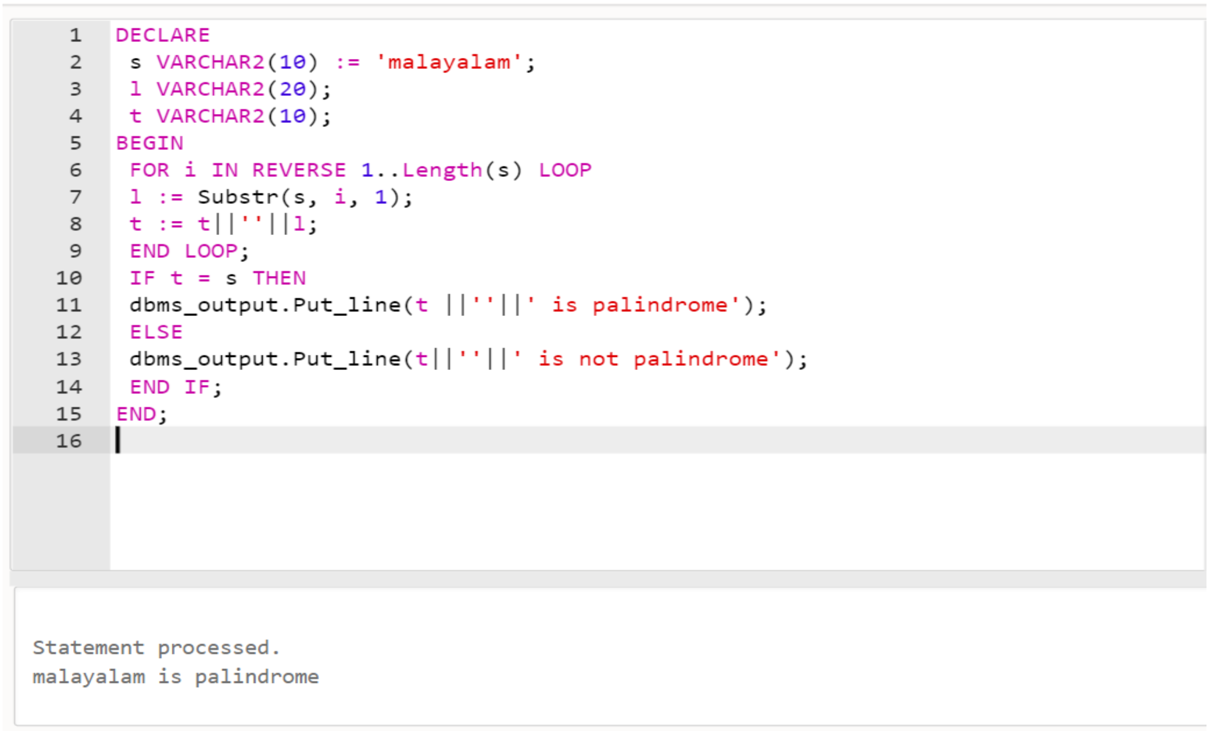
1) Write a PL/SQL code to accept the text and reverse the given text. Check the text is palindrome or not.

PL/SQL CODE:

```
DECLARE
 s VARCHAR2(10) := 'abccba';
 l VARCHAR2(20);
 t VARCHAR2(10);
BEGIN
 FOR i IN REVERSE 1..Length(s) LOOP
 l := Substr(s, i, 1);
 t := t||''||l;
 END LOOP;
 IF t = s THEN
 dbms_output.Put_line(t ||''||' is palindrome');
 ELSE
 dbms_output.Put_line(t||''||' is not palindrome');
 END IF;
END;
```

OUTPUT:



```
DECLARE
 s VARCHAR2(10) := 'malayalam';
 l VARCHAR2(20);
 t VARCHAR2(10);
BEGIN
 FOR i IN REVERSE 1..Length(s) LOOP
 l := Substr(s, i, 1);
 t := t||''||l;
 END LOOP;
 IF t = s THEN
 dbms_output.Put_line(t ||''||' is palindrome');
 ELSE
 dbms_output.Put_line(t||''||' is not palindrome');
 END IF;
END;
```

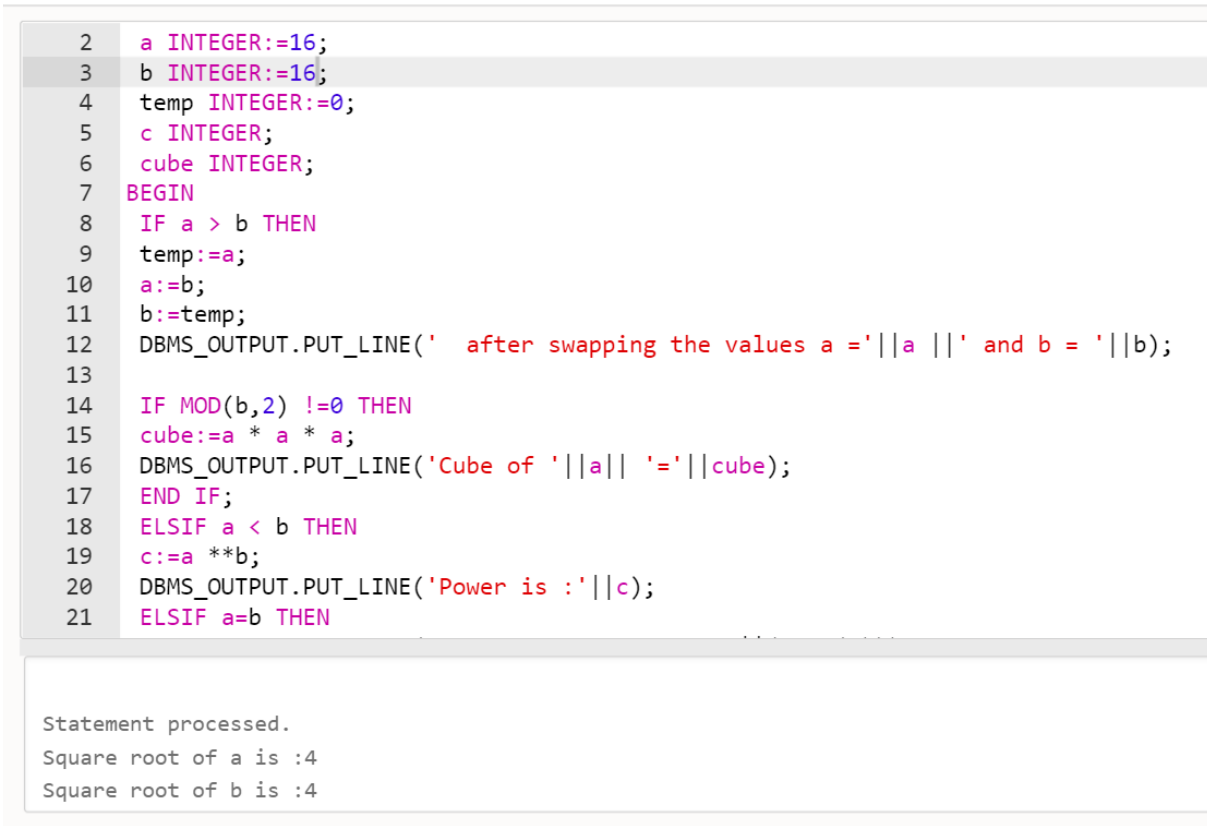
```
Statement processed.
malayalam is palindrome
```

Write a program to read two numbers; If the first no > 2nd no, then swap the numbers; if the first number is an odd number, then find its cube; if first no < 2nd no then raise it to its power; if both the numbers are equal, then find its sqrt.

PL/SQL CODE:

```
DECLARE
 a INTEGER:=16;
 b INTEGER:=16;
 temp INTEGER:=0;
 c INTEGER;
 cube INTEGER;
BEGIN
 IF a > b THEN
 temp:=a;
 a:=b;
 b:=temp;
 DBMS_OUTPUT.PUT_LINE('  after swapping the values a ='||a ||' and b = '||b);

 IF MOD(b,2) !=0 THEN
 cube:=a * a * a;
 DBMS_OUTPUT.PUT_LINE('Cube of '||a|| '='||cube);
 END IF;
 ELSIF a < b THEN
 c:=a **b;
 DBMS_OUTPUT.PUT_LINE('Power is :'||c);
 ELSIF a=b THEN
 DBMS_OUTPUT.PUT_LINE('Square root of a is :'||(SQRT(a)));
 DBMS_OUTPUT.PUT_LINE('Square root of b is :'||(SQRT(b)));
 END IF;
END;
```

OUTPUT



```
 a INTEGER:=16;
 b INTEGER:=16;
 temp INTEGER:=0;
 c INTEGER;
 cube INTEGER;
BEGIN
 IF a > b THEN
 temp:=a;
 a:=b;
 b:=temp;
 DBMS_OUTPUT.PUT_LINE('  after swapping the values a ='||a ||' and b = '||b);

 IF MOD(b,2) !=0 THEN
 cube:=a * a * a;
 DBMS_OUTPUT.PUT_LINE('Cube of '||a|| '='||cube);
 END IF;
 ELSIF a < b THEN
 c:=a **b;
 DBMS_OUTPUT.PUT_LINE('Power is :'||c);
 ELSIF a=b THEN
```

```
Statement processed.
Square root of a is :4
Square root of b is :4
```

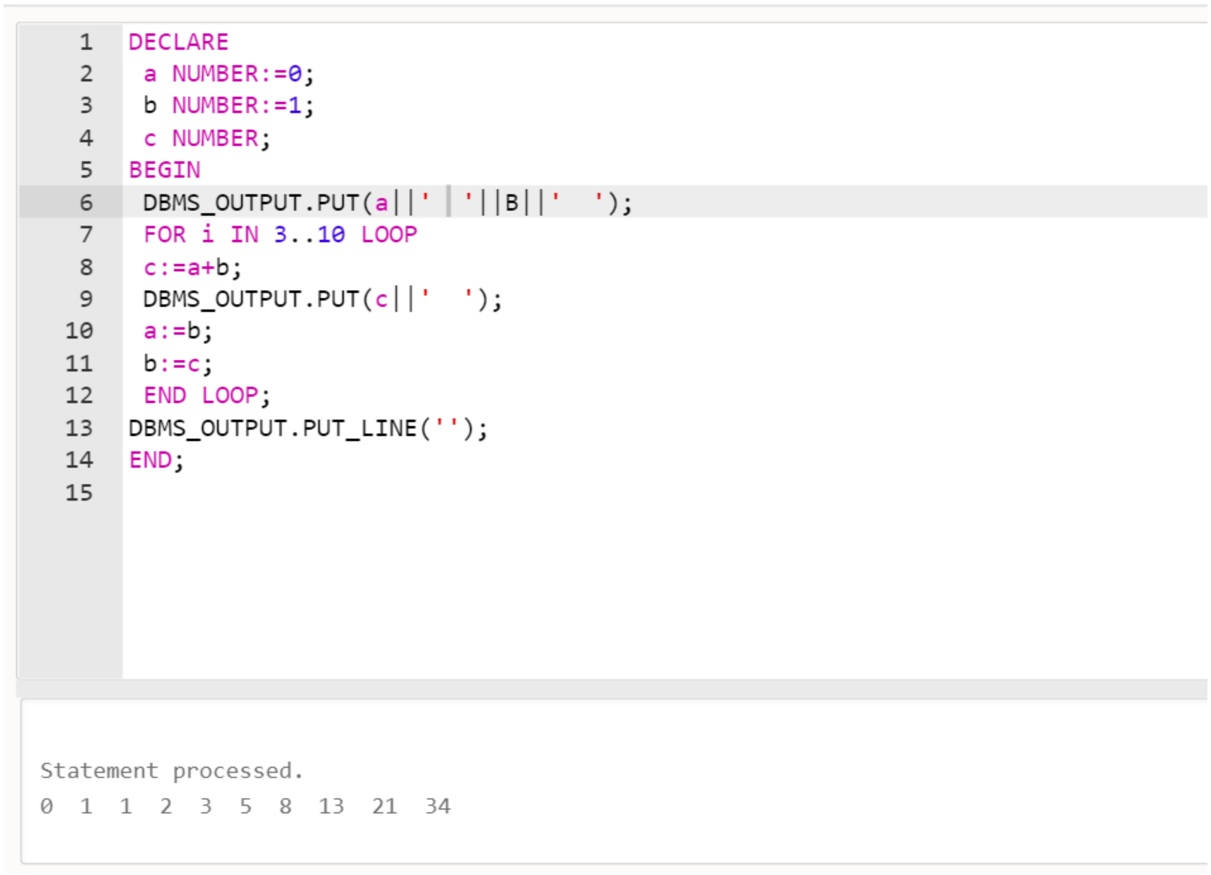
3) Write a program to generate first 10 terms of the Fibonacci series

PL/SQL CODE:

```
DECLARE
 a NUMBER:=0;
 b NUMBER:=1;
 c NUMBER;
BEGIN
 DBMS_OUTPUT.PUT(a||' '||B||' ');
 FOR I IN 3..10 LOOP
 c:=a+b;
 DBMS_OUTPUT.PUT(c||' ');
 a:=b;
 b:=c;
 END LOOP;
DBMS_OUTPUT.PUT_LINE('');
```

END;

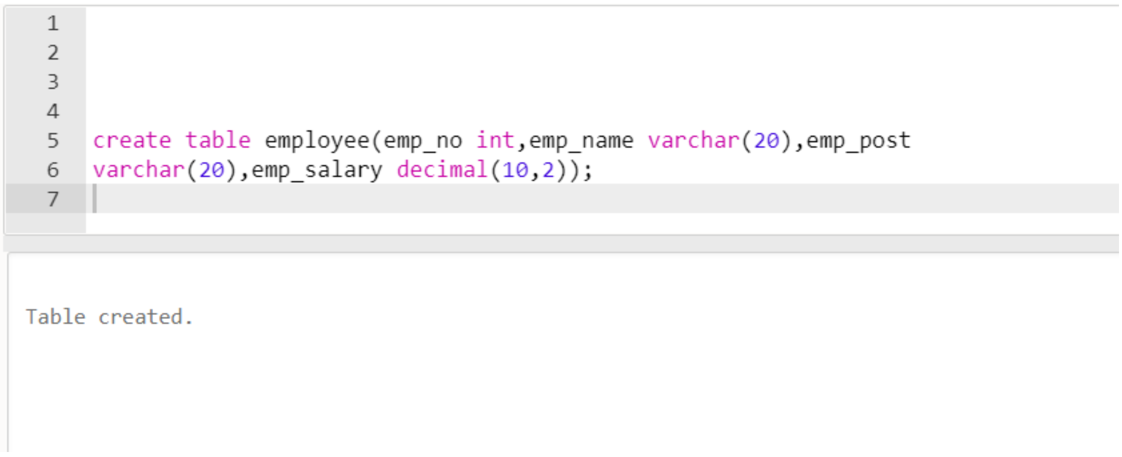
OUTPUT



```
DECLARE
 a NUMBER:=0;
 b NUMBER:=1;
 c NUMBER;
BEGIN
 DBMS_OUTPUT.PUT(a||' '||B||'  ');
 FOR i IN 3..10 LOOP
 c:=a+b;
 DBMS_OUTPUT.PUT(c||'  ');
 a:=b;
 b:=c;
 END LOOP;
DBMS_OUTPUT.PUT_LINE('');
END;
```

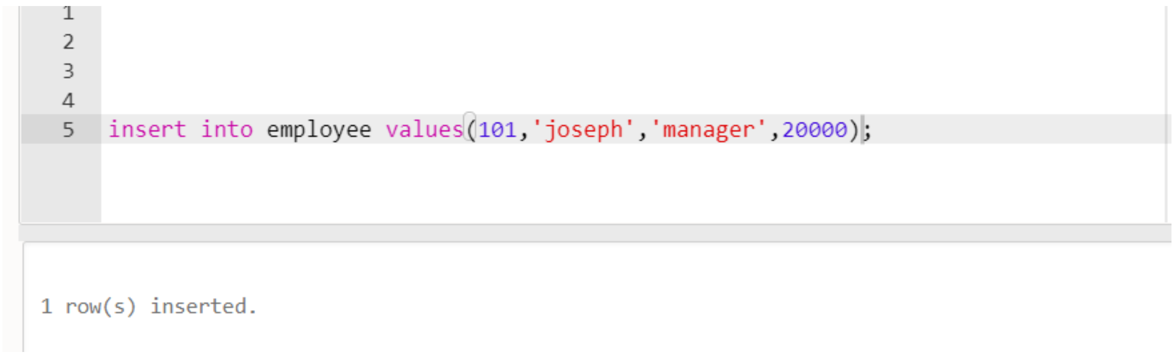
```
Statement processed.
0  1  1  2  3  5  8  13  21  34
```

4) Write a PL/SQL program to find the salary of an employee in the EMP table (Get the empno from the user). Find the employee drawing minimum salary. If the minimum salary is less than 7500, then give an increment of 15%. Also create an emp %rowtype record. Accept the empno from the user, and display all the information about the employee.



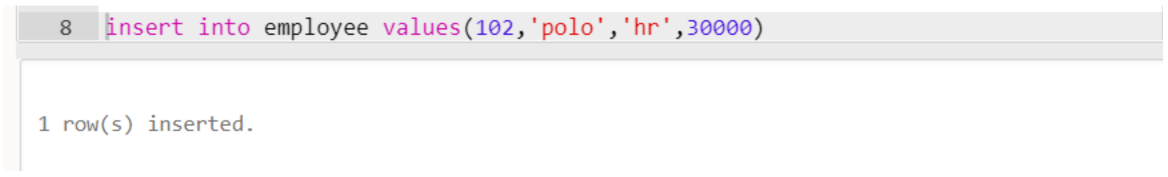
```
create table employee(emp_no int,emp_name varchar(20),emp_post
varchar(20),emp_salary decimal(10,2));
```

```
Table created.
```



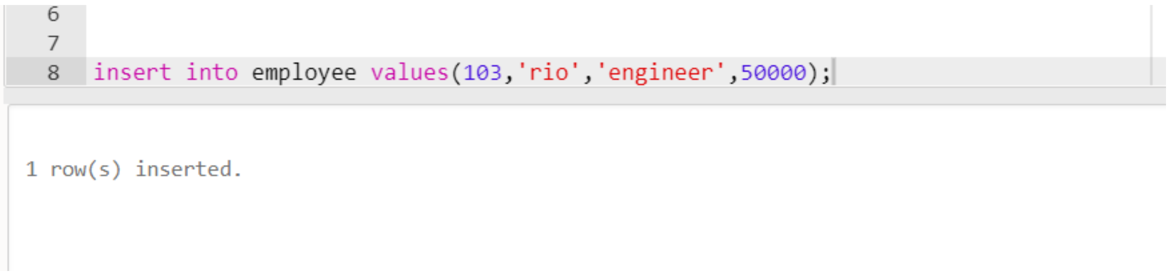
```sql
insert into employee values(101,'joseph','manager',20000);
```

```
1 row(s) inserted.
```



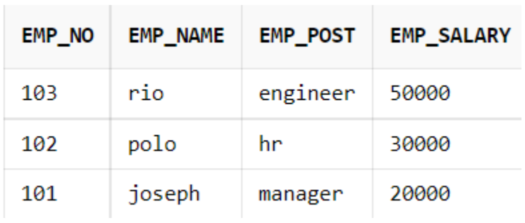
```sql
insert into employee values(102,'polo','hr',30000)
```

```
1 row(s) inserted.
```

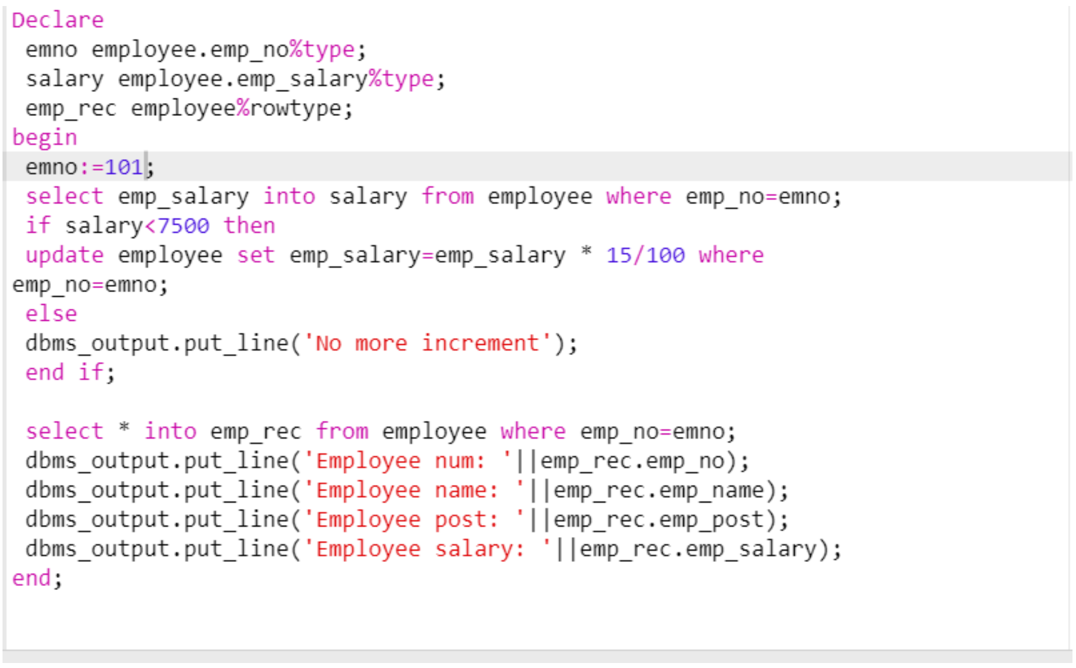


```sql
insert into employee values(103,'rio','engineer',50000);
```

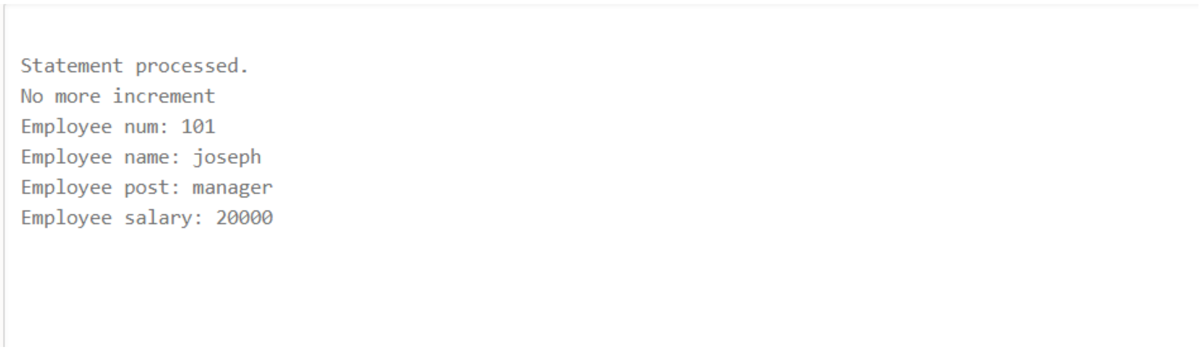
```
1 row(s) inserted.
```



EMP_NO	EMP_NAME	EMP_POST	EMP_SALARY
103	rio	engineer	50000
102	polo	hr	30000
101	joseph	manager	20000

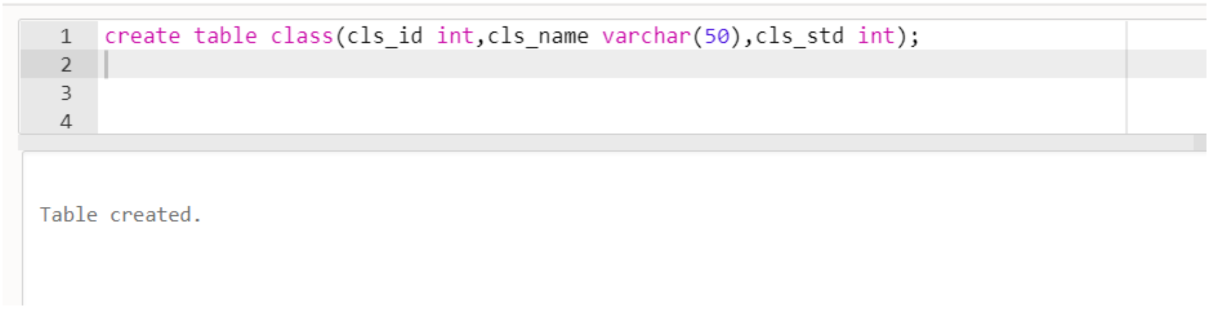


```
Declare
 emno employee.emp_no%type;
 salary employee.emp_salary%type;
 emp_rec employee%rowtype;
begin
 emno:=101;
 select emp_salary into salary from employee where emp_no=emno;
 if salary<7500 then
 update employee set emp_salary=emp_salary * 15/100 where
emp_no=emno;
 else
 dbms_output.put_line('No more increment');
 end if;

 select * into emp_rec from employee where emp_no=emno;
 dbms_output.put_line('Employee num: '||emp_rec.emp_no);
 dbms_output.put_line('Employee name: '||emp_rec.emp_name);
 dbms_output.put_line('Employee post: '||emp_rec.emp_post);
 dbms_output.put_line('Employee salary: '||emp_rec.emp_salary);
end;
```



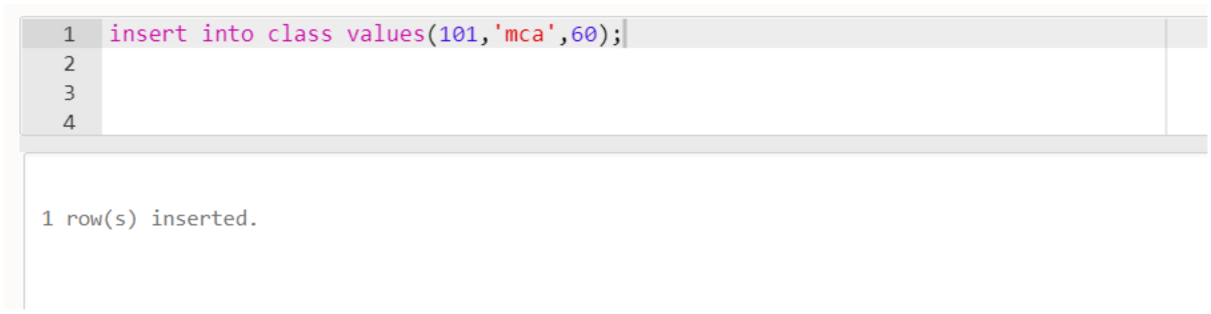
```
Statement processed.
No more increment
Employee num: 101
Employee name: joseph
Employee post: manager
Employee salary: 20000
```

5) Write a PL/SQL function to find the total strength of students present in different classes of the MCA department using the table Class(ClassId, ClassName, Strength);

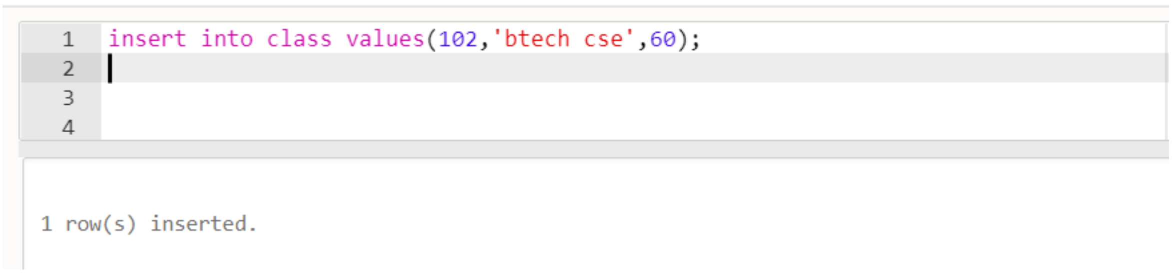


```
create table class(cls_id int,cls_name varchar(50),cls_std int);
```

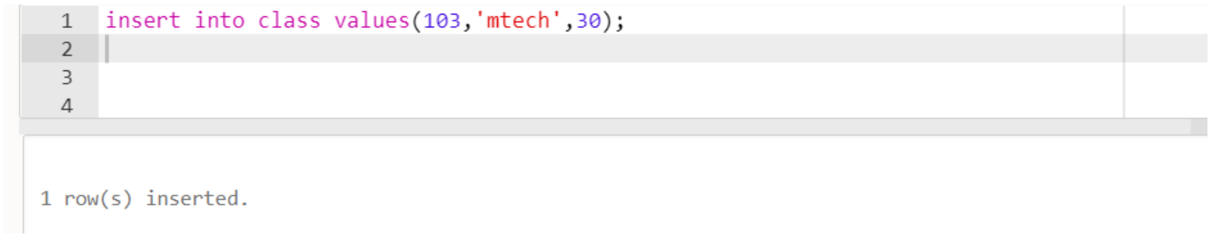
```
Table created.
```


```
insert into class values(101,'mca',60);
```

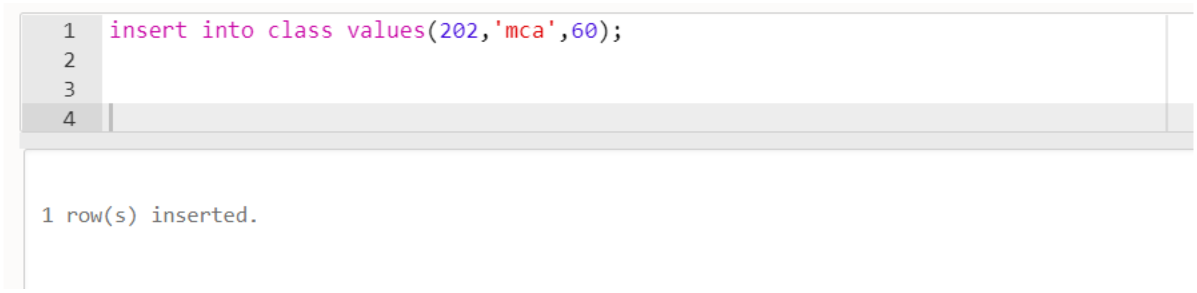
```
1 row(s) inserted.
```


```
insert into class values(102,'btech cse',60);
```

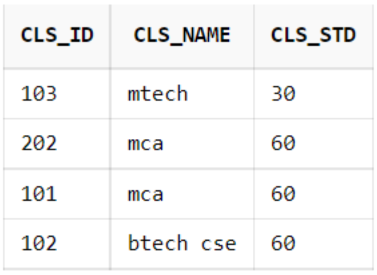
```
1 row(s) inserted.
```


```
insert into class values(103,'mtech',30);
```

```
1 row(s) inserted.
```


```
insert into class values(202,'mca',60);
```

```
1 row(s) inserted.
```



CLS_ID	CLS_NAME	CLS_STD
103	mtech	30
202	mca	60
101	mca	60
102	btech cse	60

```
CREATE OR REPLACE FUNCTION total_std
    RETURN NUMBER IS
    total NUMBER(5):=0;
    BEGIN
        SELECT sum(cls_std) INTO total FROM class WHERE cls_name='mca';
    RETURN total;
    END;
```

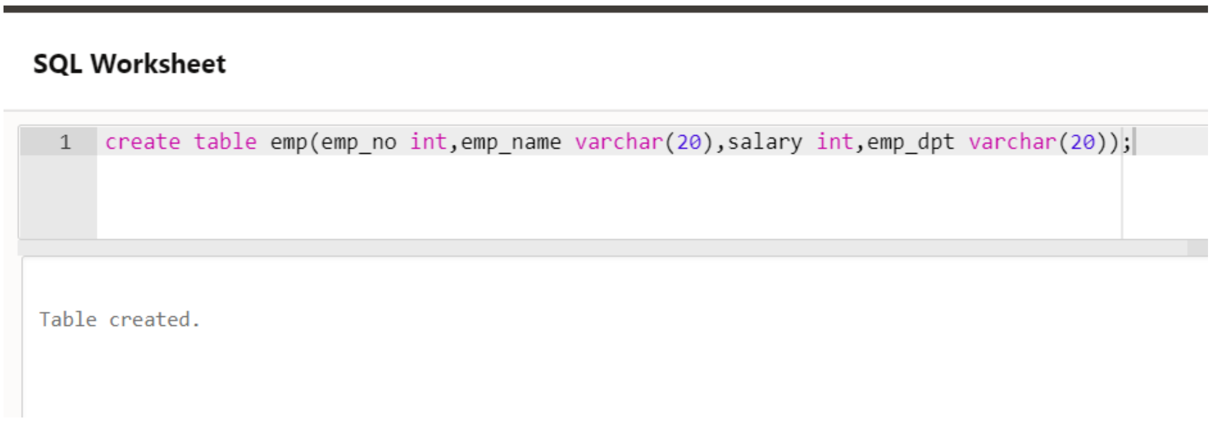
```
Function created.
```

```
DECLARE
    c NUMBER(5);
BEGIN
    c:=total_std();
    DBMS_OUTPUT.PUT_LINE('Total students in MCA department is:'||c);
END;
```

```
Statement processed.
Total students in MCA department is:120
```

6) Write a PL/SQL **procedure** to increase the salary for the specified employee. Using empno in the employee table based on the following criteria: increase the salary by 5% for clerks, 7% for salesman, 10% for analyst and 20 % for manager. Activate using PL/SQL block.

TABLE CREATION

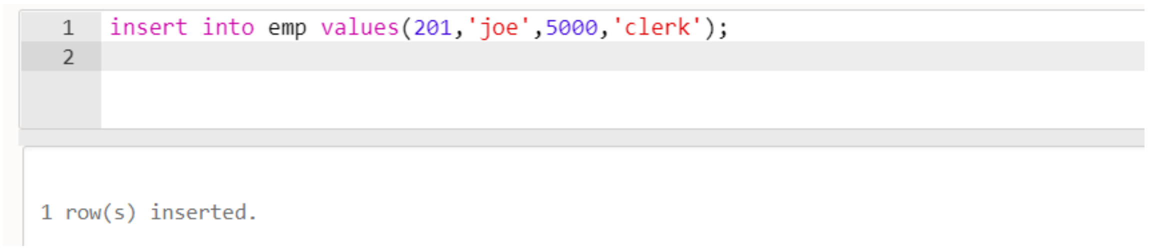


SQL Worksheet

```
create table emp(emp_no int,emp_name varchar(20),salary int,emp_dpt varchar(20));
```

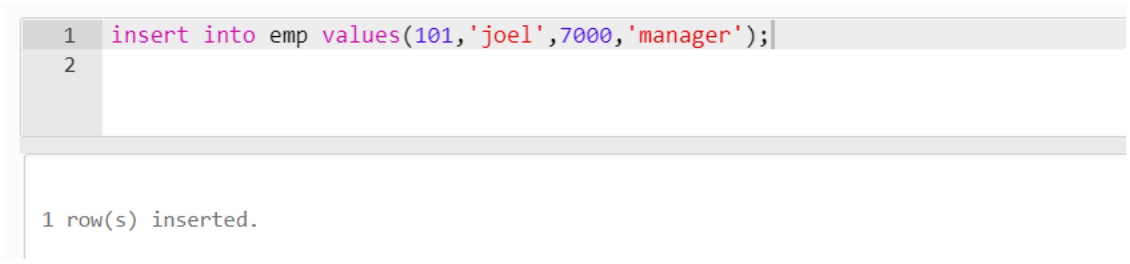
```
Table created.
```

VALUE INSERTION



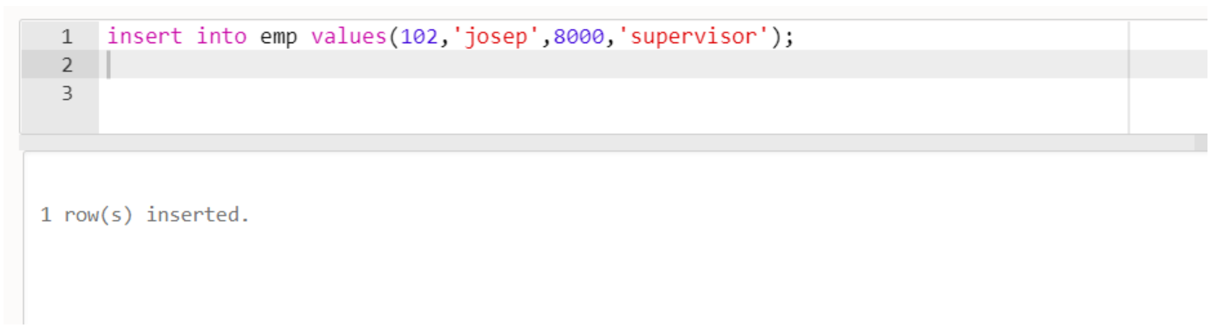
```
insert into emp values(201,'joe',5000,'clerk');
```

```
1 row(s) inserted.
```



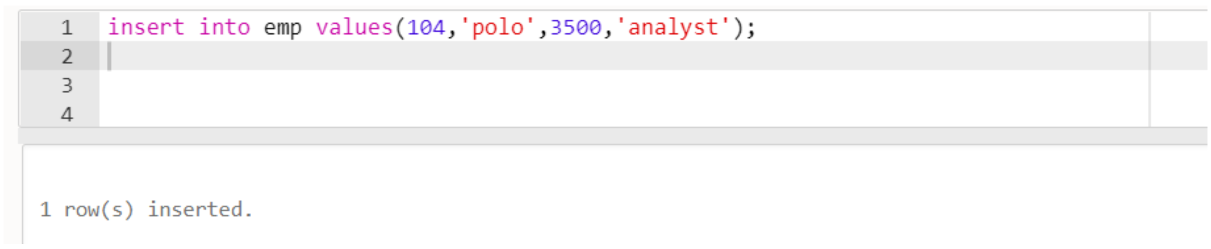
```sql
insert into emp values(101,'joel',7000,'manager');
```

```
1 row(s) inserted.
```



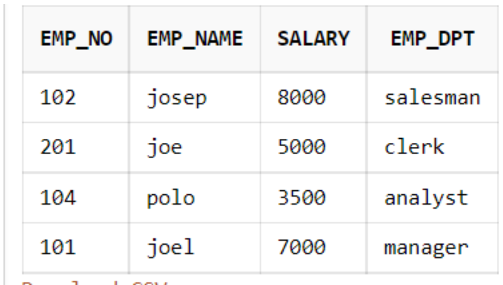
```sql
insert into emp values(102,'josep',8000,'supervisor');
```

```
1 row(s) inserted.
```



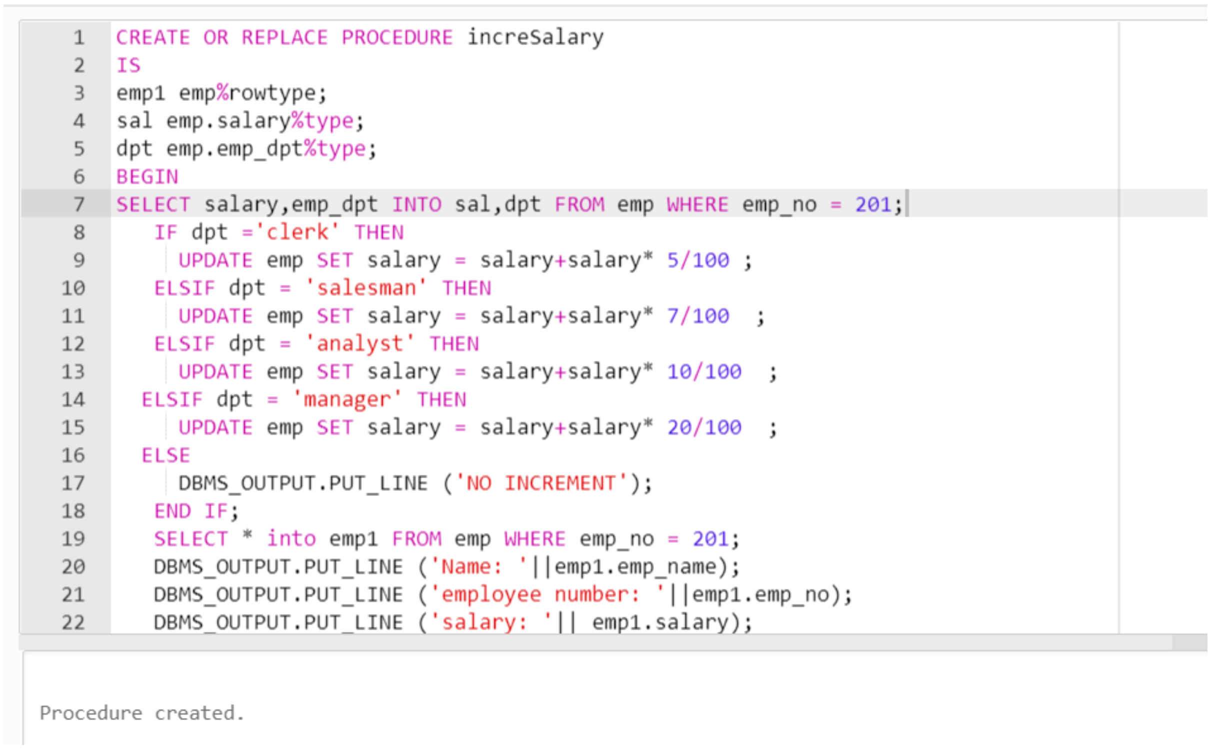
```sql
insert into emp values(104,'polo',3500,'analyst');
```

```
1 row(s) inserted.
```



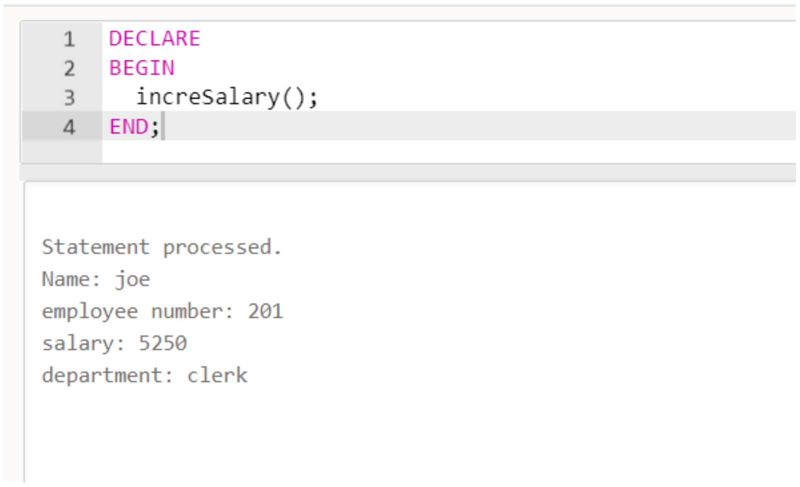
EMP_NO	EMP_NAME	SALARY	EMP_DPT
102	josep	8000	salesman
201	joe	5000	clerk
104	polo	3500	analyst
101	joel	7000	manager

PROCEDURE



```
CREATE OR REPLACE PROCEDURE increSalary
IS
emp1 emp%rowtype;
sal emp.salary%type;
dpt emp.emp_dpt%type;
BEGIN
SELECT salary,emp_dpt INTO sal,dpt FROM emp WHERE emp_no = 201;
   IF dpt ='clerk' THEN
     UPDATE emp SET salary = salary+salary* 5/100 ;
   ELSIF dpt = 'salesman' THEN
     UPDATE emp SET salary = salary+salary* 7/100  ;
   ELSIF dpt = 'analyst' THEN
     UPDATE emp SET salary = salary+salary* 10/100  ;
  ELSIF dpt = 'manager' THEN
     UPDATE emp SET salary = salary+salary* 20/100  ;
  ELSE
     DBMS_OUTPUT.PUT_LINE ('NO INCREMENT');
   END IF;
   SELECT * into emp1 FROM emp WHERE emp_no = 201;
   DBMS_OUTPUT.PUT_LINE ('Name: '||emp1.emp_name);
   DBMS_OUTPUT.PUT_LINE ('employee number: '||emp1.emp_no);
   DBMS_OUTPUT.PUT_LINE ('salary: '|| emp1.salary);
```

```
Procedure created.
```



```
DECLARE
BEGIN
  increSalary();
END;
```

```
Statement processed.
Name: joe
employee number: 201
salary: 5250
department: clerk
```

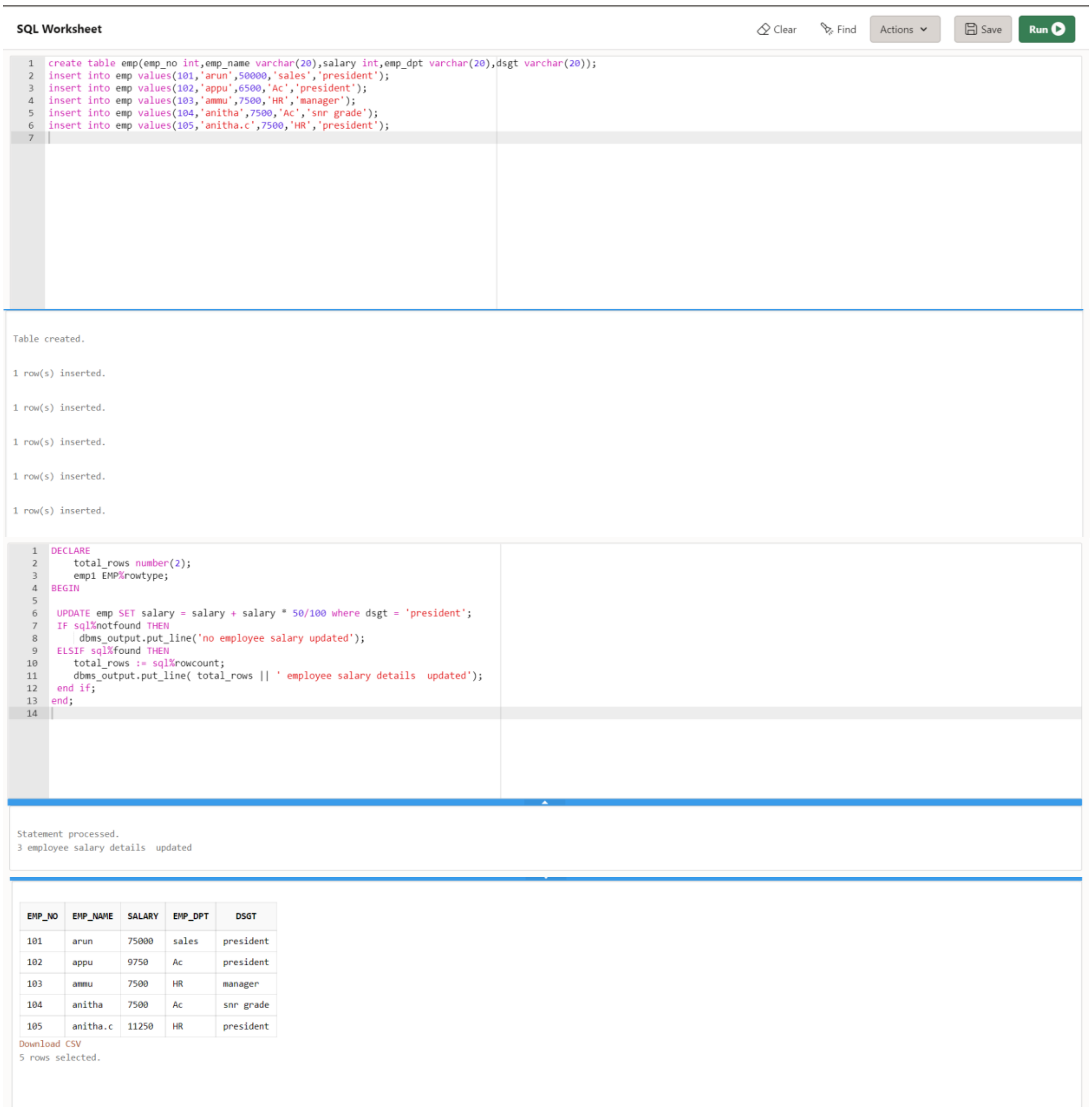
7) Create a **cursor** to modify the salary of ‘president’ belonging to all departments by 50%

PROGRAM CODE

create table emp(emp_no int,emp_name varchar(20),salary int,emp_dpt varchar(20),dsgt varchar(20));

```
insert into emp values(101,'arun',50000,'sales','president');

insert into emp values(102,'appu',6500,'Ac','president');

insert into emp values(103,'ammu',7500,'HR','manager');

insert into emp values(104,'anitha',7500,'Ac','snr grade');

insert into emp values(105,'anitha.c',7500,'HR','president');


DECLARE

   total_rows number(2);

   emp1 EMP%rowtype;

BEGIN


 UPDATE emp SET salary = salary + salary * 50/100 where dsgt = 'president';

 IF sql%notfound THEN

    dbms_output.put_line('no employee salary updated');

 ELSIF sql%found THEN

   total_rows := sql%rowcount;

   dbms_output.put_line( total_rows || ' employee salary details  updated');

 end if;

end;
```

output



```
create table emp(emp_no int,emp_name varchar(20),salary int,emp_dpt varchar(20),dsgt varchar(20));
insert into emp values(101,'arun',50000,'sales','president');
insert into emp values(102,'appu',6500,'Ac','president');
insert into emp values(103,'ammu',7500,'HR','manager');
insert into emp values(104,'anitha',7500,'Ac','snr grade');
insert into emp values(105,'anitha.c',7500,'HR','president');
```

```
Table created.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

```
DECLARE
    total_rows number(2);
    emp1 EMP%rowtype;
BEGIN

 UPDATE emp SET salary = salary + salary * 50/100 where dsgt = 'president';
 IF sql%notfound THEN
     dbms_output.put_line('no employee salary updated');
 ELSIF sql%found THEN
    total_rows := sql%rowcount;
    dbms_output.put_line( total_rows || ' employee salary details  updated');
 end if;
end;
```

```
Statement processed.
3 employee salary details  updated
```

EMP_NO	EMP_NAME	SALARY	EMP_DPT	DSGT
101	arun	75000	sales	president
102	appu	9750	Ac	president
103	ammu	7500	HR	manager
104	anitha	7500	Ac	snr grade
105	anitha.c	11250	HR	president

Download CSV
5 rows selected.

8) Write a **cursor** to display list of Male and Female employees whose name starts with S.

PROGRAM CODE

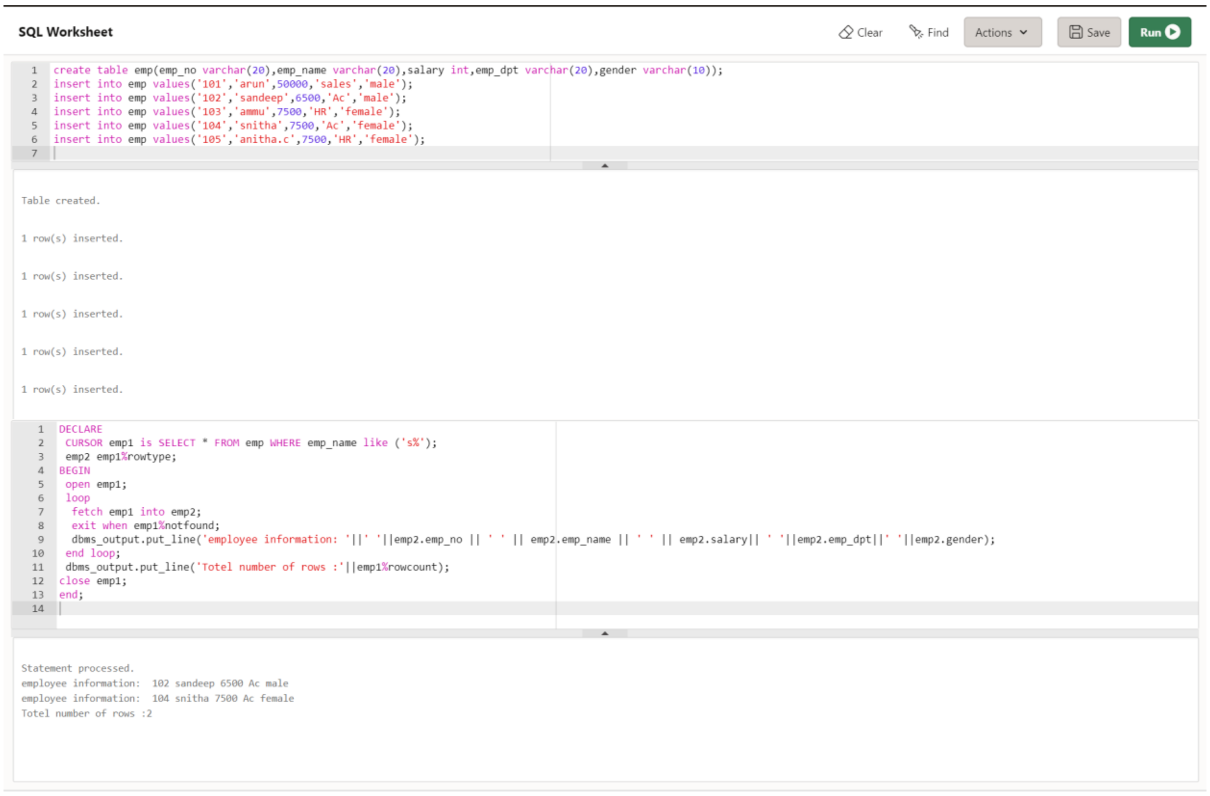
create table emp(emp_no varchar(20),emp_name varchar(20),salary int,emp_dpt varchar(20),gender varchar(10));

insert into emp values('101','arun',50000,'sales','male');

insert into emp values('102','sandeep',6500,'Ac','male');

```
insert into emp values('103','ammu',7500,'HR','female');

insert into emp values('104','snitha',7500,'Ac','female');

insert into emp values('105','anitha.c',7500,'HR','female');

DECLARE

 CURSOR emp1 is SELECT * FROM emp WHERE emp_name like ('s%');

 emp2 emp1%rowtype;

BEGIN

 open emp1;

 loop

  fetch emp1 into emp2;

  exit when emp1%notfound;

  dbms_output.put_line('employee   information:   '||'   '||emp2.emp_no   ||   '   '   ||
emp2.emp_name || ' ' || emp2.salary|| ' '||emp2.emp_dpt||' '||emp2.gender);

 end loop;

 dbms_output.put_line('Totel number of rows :'||emp1%rowcount);

close emp1;

end;
```

OUTPUT



```
create table emp(emp_no varchar(20),emp_name varchar(20),salary int,emp_dpt varchar(20),gender varchar(10));
insert into emp values('101','arun',50000,'sales','male');
insert into emp values('102','sandeep',6500,'Ac','male');
insert into emp values('103','ammu',7500,'HR','female');
insert into emp values('104','snitha',7500,'Ac','female');
insert into emp values('105','anitha.c',7500,'HR','female');
```

```
Table created.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

```
DECLARE
 CURSOR emp1 is SELECT * FROM emp WHERE emp_name like ('s%');
 emp2 emp1%rowtype;
BEGIN
 open emp1;
 loop
  fetch emp1 into emp2;
  exit when emp1%notfound;
  dbms_output.put_line('employee information: '||' '||emp2.emp_no || ' ' || emp2.emp_name || ' ' || emp2.salary|| ' '||emp2.emp_dpt||' '||emp2.gender);
 end loop;
 dbms_output.put_line('Totel number of rows :'||emp1%rowcount);
close emp1;
end;
```

```
Statement processed.
employee information:  102 sandeep 6500 Ac male
employee information:  104 snitha 7500 Ac female
Totel number of rows :2
```

9) Create the following tables for Library Information System: Book : (accession-no, title, publisher, publishedDate, author, status). Status could be issued, present in the library, sent for binding, and cannot be issued. Write a **trigger** which sets the status of a book to "cannot be issued", if it is published 15 years back.

PROGRAM CODE

```
create table book(accession_no int , title varchar(20), publisher varchar(20), publishedDate date, author varchar(20), status varchar(30));

CREATE OR REPLACE TRIGGER search1

 before insert  ON book

 FOR EACH ROW

 declare

  temp date;

BEGIN

 select sysdate into temp from dual;
 if inserting  then
  if :new.publishedDate < add_months(temp, -180) then
       :new.status:='cannot be issued' ;
  end if;
 end if;
end;
```

insert into book values(2511,'abcd','cp','21-jan-2009','john','issued');

insert into book values(2512,'efhj','cp','30-mar-2010','malik','present in the library');

insert into book values(2513,'hijk','cp','21-june-2011','sonu','sent for binding');

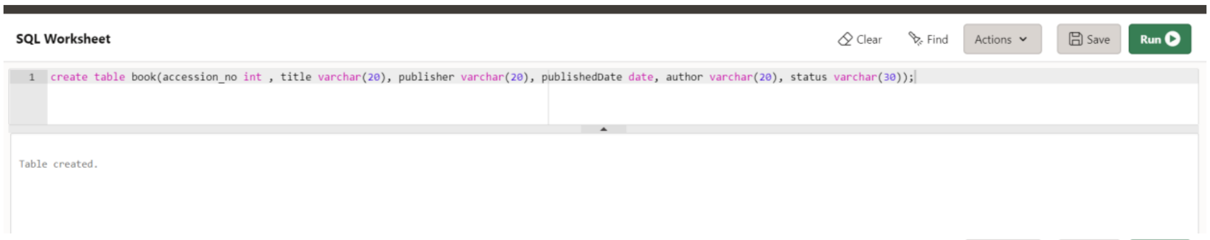
insert into book values(2514,'lmno','cp','01-sep-2016','johns','issued');

insert into book values(2515,'pqrst','cp','21-jan-2004','joppy','can not be issued');

insert into book values(2516,'uvwx','cp','21-jan-2006','juosoop',' issued');

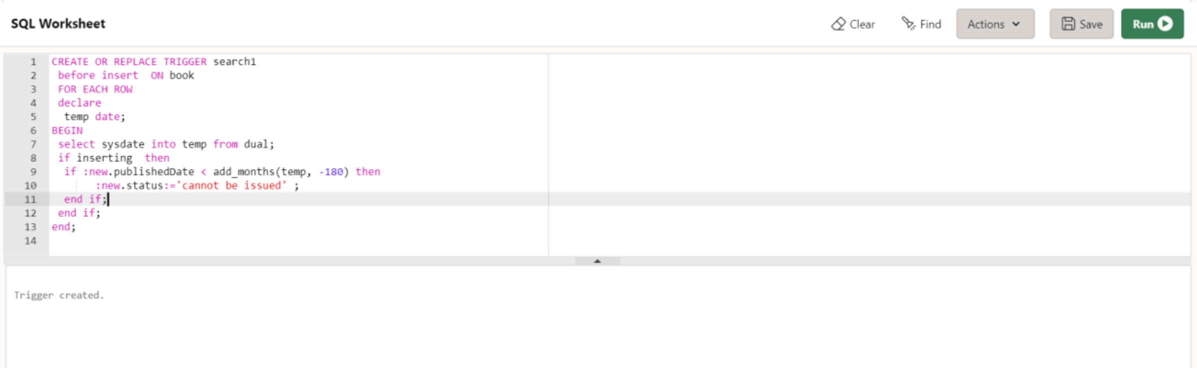
SELECT * FROM book;

<u>**Output**</u>



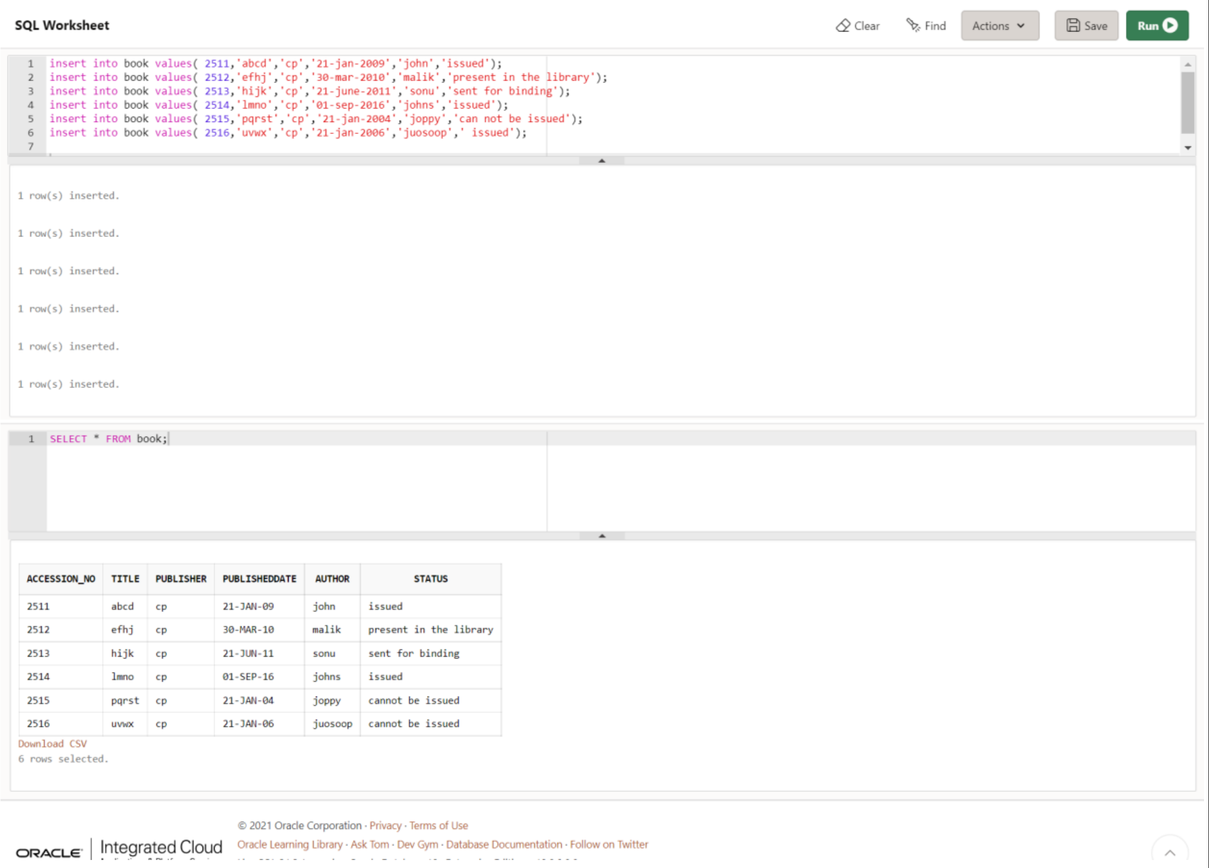
```
create table book(accession_no int , title varchar(20), publisher varchar(20), publishedDate date, author varchar(20), status varchar(30));
```

```
Table created.
```



```
CREATE OR REPLACE TRIGGER search1
 before insert  ON book
 FOR EACH ROW
 declare
  temp date;
BEGIN
 select sysdate into temp from dual;
 if inserting  then
  if :new.publishedDate < add_months(temp, -180) then
       :new.status:='cannot be issued' ;
  end if;
 end if;
end;
```

```
Trigger created.
```



```
insert into book values( 2511,'abcd','cp','21-jan-2009','john','issued');
insert into book values( 2512,'efhj','cp','30-mar-2010','malik','present in the library');
insert into book values( 2513,'hijk','cp','21-june-2011','sonu','sent for binding');
insert into book values( 2514,'lmno','cp','01-sep-2016','johns','issued');
insert into book values( 2515,'pqrst','cp','21-jan-2004','joppy','can not be issued');
insert into book values( 2516,'uvwx','cp','21-jan-2006','juosoop',' issued');
```

```
1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.
```

```
SELECT * FROM book;
```

ACCESSION_NO	TITLE	PUBLISHER	PUBLISHEDDATE	AUTHOR	STATUS
2511	abcd	cp	21-JAN-09	john	issued
2512	efhj	cp	30-MAR-10	malik	present in the library
2513	hijk	cp	21-JUN-11	sonu	sent for binding
2514	lmno	cp	01-SEP-16	johns	issued
2515	pqrst	cp	21-JAN-04	joppy	cannot be issued
2516	uvwx	cp	21-JAN-06	juosoop	cannot be issued

Download CSV
6 rows selected.

10) Create a table Inventory with fields pdtid, pdtname, qty and reorder_level. Create a **trigger** control on the table for checking whether qty<reorder_level while inserting values.

PROGRAM CODE

create table inventory(pdtid number primary key, pdtname varchar(10), qty int,reorder_level number);

```
CREATE OR REPLACE TRIGGER checking
 before insert  ON inventory
 FOR EACH ROW
declare
BEGIN
 if inserting  then
  if :new.qty > :new.reorder_level then
       :new.reorder_level:=0;
  end if;
 end if;
```

end;

insert into inventory values(101,'pencil',100,150);

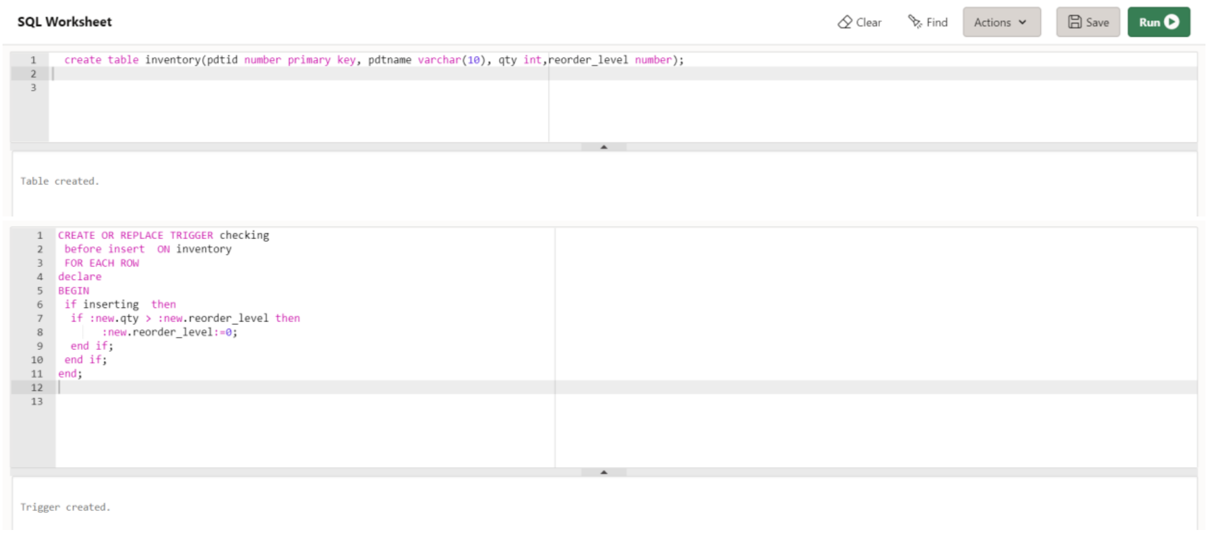
insert into inventory values(112,'tap',50,100);

insert into inventory values(121,'marker',200,150);

insert into inventory values(151,'notbook',500,250);

select * from inventory;

OUTPUT



```
 create table inventory(pdtid number primary key, pdtname varchar(10), qty int,reorder_level number);
```

```
Table created.
```

```
CREATE OR REPLACE TRIGGER checking
 before insert  ON inventory
 FOR EACH ROW
declare
BEGIN
 if inserting  then
  if :new.qty > :new.reorder_level then
       :new.reorder_level:=0;
  end if;
 end if;
end;
```

```
Trigger created.
```