

## Dbms -Cycle 2

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

### PROGRAM 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||l;

END LOOP;

IF t = s THEN

dbms\_output.Put\_line(t || ' is palindrome');

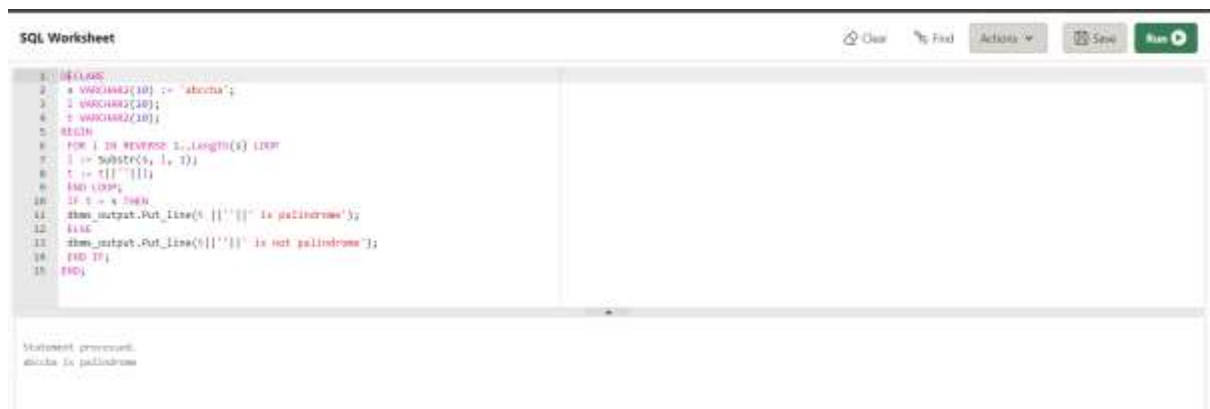
ELSE

dbms\_output.Put\_line(t || ' is not palindrome');

END IF;

END;

### OUTPUT



The screenshot shows an SQL Worksheet interface. The top bar includes buttons for 'Clear', 'Find', 'Actions', 'Save', and 'Run'. The main area contains the following PL/SQL code:

```
1 DECLARE
2   s VARCHAR2(10) := 'abccba';
3   l VARCHAR2(20);
4   t VARCHAR2(10);
5 BEGIN
6   FOR i IN REVERSE 1..Length(s) LOOP
7     l := Substr(s, i, 1);
8     t := t||l||l;
9   END LOOP;
10  IF t = s THEN
11    dbms_output.Put_line(t || ' is palindrome');
12  ELSE
13    dbms_output.Put_line(t || ' is not palindrome');
14  END IF;
15 END;
```

Below the code, the output is displayed: 'abccba is palindrome'.

- 2) 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.

### **PROGRAM CODE**

```
DECLARE
a INTEGER:=12;
b INTEGER:=9;
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 a value is '||a||' and b value is '||b);
IF MOD(b,2) !=0 THEN
cube:=a * a * a;
DBMS_OUTPUT.PUT_LINE('Cube is :'||cube);
ELSE
DBMS_OUTPUT.PUT_LINE('first number is even');
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**



The screenshot shows an SQL Worksheet with a PL/SQL program and its output. The program declares variables a, b, and temp, and performs a swap of a and b. It then outputs the swapped values, calculates the cube of a, and outputs the result. Finally, it outputs the square roots of a and b.

```
1 DECLARE
2   a NUMBER:=12;
3   b NUMBER:=9;
4   temp NUMBER:=0;
5   c NUMBER;
6   cube NUMBER;
7   b:=10;
8   IF a > b THEN
9     temp:=a;
10    a:=b;
11    b:=temp;
12    DBMS_OUTPUT.PUT_LINE('After swapping the a value is '||a||' and b value is '||b||);
13  IF MOD(9,2) =0 THEN
14    cube:=a * a * a;
15    DBMS_OUTPUT.PUT_LINE('cube is '||cube||);
16  ELSE
17    DBMS_OUTPUT.PUT_LINE('first number is even');
18  END IF;
19  EXIT a < b THEN
20    c:=a **b;
21    DBMS_OUTPUT.PUT_LINE('Power is : '||c||);
22  EXIT a=b THEN
23    DBMS_OUTPUT.PUT_LINE('Square root of a is : '||(SQRT(a)));
24    DBMS_OUTPUT.PUT_LINE('Square root of b is : '||(SQRT(b)));
25  END IF;
26 END;
```

Statement processed.  
After swapping the a value is 9 and b value is 12  
first number is even

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

## PROGRAM 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



```
1 DECLARE
2   a NUMBER:=0;
3   b NUMBER:=1;
4   c NUMBER;
5 BEGIN
6   DBMS_OUTPUT.PUT_LINE(''||b||'');
7   FOR i IN 1..10 LOOP
8     c:=a+b;
9     DBMS_OUTPUT.PUT_LINE(''||c||'');
10    a:=b;
11    b:=c;
12  END LOOP;
13 DBMS_OUTPUT.PUT_LINE('');
14 END;
```

Statement processed:  
SQL270812104

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.

### PROGRAM CODE

```
create table employee(emp_no int,emp_name varchar(20),emp_post
```

```
varchar(20),emp_salary decimal(10,2));
```

```
insert into employee values(103,'Rahul','MD',25000);
```

```
insert into employee values(105,'Ravi','HR',20000);
```

```
insert into employee values(107,'Rani','Accountant',15000);
```

```
insert into employee values(109,'Rema','Clerk',10000);
```

```
insert into employee values(201,'Ramu','Peon',5000);
```

Declare

```
emno employee.emp_no%type;
```

```
salary employee.emp_salary%type;
```

```
emp_rec employee%rowtype;
```

```
begin
```

```
emno:=109;
```

```
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;

## output



The screenshot shows an SQL Worksheet interface with a PL/SQL script and its output. The script defines an employee table, inserts data, and then updates the salary of employee 100 by 10% if it's less than 7500, otherwise it prints 'No more increment'. It then selects the employee record and prints its details.

```
1 create table employee(emp_no int,emp_name varchar(20),emp_post
2 varchar(20),emp_salary decimal(10,2));
3 insert into employee values(100,'Ravi','RD',25000);
4 insert into employee values(105,'Davi','RD',28000);
5 insert into employee values(107,'Davi','Accountant',15000);
6 insert into employee values(109,'Ravi',' Clerk',10000);
7 insert into employee values(201,'Ravi','Pilot',3000);
8
9 create employee emp_rec%type;
10 salary employee emp_salary%type;
11 emp_rec employee%rowtype;
12
13 begin
14     emno:=100;
15     select emp_salary into salary from employee where emp_no=emno;
16     if salary<7500 then
17         update employee set emp_salary=emp_salary * 1.1/100 where
18         emp_no=emno;
19     else
20         dbms_output.put_line('No more increment');
21     end if;
22
23     select * into emp_rec from employee where emp_no=emno;
24
25     dbms_output.put_line('Employee num: '||emp_rec.emp_no);
26     dbms_output.put_line('Employee name: '||emp_rec.emp_name);
27     dbms_output.put_line('Employee post: '||emp_rec.emp_post);
28     dbms_output.put_line('Employee salary: '||emp_rec.emp_salary);
29 end;
```

Table created.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

Statement processed.

No more increment

Employee num: 100

Employee name: Ravi

Employee post: Clerk

Employee salary: 10000

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);

## **PROGRAM CODE**

```
create table class(cls_id int,cls_name varchar(20),cls_std int);
```

```
insert into class values(201,'mca',60);
```

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

```
insert into class values(203,'bca',57);
```

```
insert into class values(204,'bca',59);
```

```
insert into class values(205,'mca',62);
```

```
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;
```

```
DECLARE
```

```
c NUMBER(5);
```

```
BEGIN
```

```
c:=total_std();
```

```
DBMS_OUTPUT.PUT_LINE('Total students in MCA department is:'||c);
```

```
END;
```

## **Output**

```

1 create table class(cls_id int,cls_name varchar(20),cls_std int);
2 insert into class values(201,'MCA',80);
3 insert into class values(202,'MCA',80);
4 insert into class values(203,'BCA',57);
5 insert into class values(204,'BCA',55);
6 insert into class values(205,'MCA',82);
7 CREATE OR REPLACE FUNCTION total_std
8 RETURN NUMBER IS
9     total NUMBER:=0;
10 BEGIN
11     SELECT sum(cls_std) INTO total FROM class WHERE cls_name='MCA';
12     RETURN total;
13 END;
14 DECLARE
15     c NUMBER(5);
16 BEGIN
17     c:=total_std();
18     DBMS_OUTPUT.PUT_LINE('Total students in MCA department is: '||c);
19 END;

```

```

Table created.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

```

```

Function created.

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.

### PROGRAM CODE

```

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

```

```

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

```

```

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

```

```

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

```

```

insert into emp values(104,'anitha',7500,'analyst');

```

```

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 = 104;

```

```

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 = 104;
DBMS_OUTPUT.PUT_LINE ('Name: '||emp1.emp_name);
DBMS_OUTPUT.PUT_LINE ('employee number: '||emp1.emp_no);
DBMS_OUTPUT.PUT_LINE ('salary: '|| emp1.salary);
DBMS_OUTPUT.PUT_LINE ('department: '|| emp1.emp_dpt);
END;

```

```

DECLARE
BEGIN
    increSalary();
END;

```

## Output

SQL Worksheet

Clear

Find

Actions

Save

Run

```

1 CREATE OR REPLACE PROCEDURE increSalary
2 IS
3 emp1 emp%rowtype;
4 sal emp.salary%type;
5 dpt emp.emp_dpt%type;
6 BEGIN
7 SELECT salary,emp_dpt INTO sal,dpt FROM emp WHERE emp_no = 104;
8 IF dpt = 'clerk' THEN
9 UPDATE emp SET salary = salary+salary* 5/100 ;
10 ELSIF dpt = 'salesman' THEN
11 UPDATE emp SET salary = salary+salary* 7/100 ;
12 ELSIF dpt = 'analyst' THEN
13 UPDATE emp SET salary = salary+salary* 10/100 ;
14 ELSIF dpt = 'manager' THEN
15 UPDATE emp SET salary = salary+salary* 20/100 ;
16 ELSE
17 DBMS_OUTPUT.PUT_LINE ('NO INCREMENT');
18 END IF;
19 SELECT * INTO emp1 FROM emp WHERE emp_no = 104;
20 DBMS_OUTPUT.PUT_LINE ('Name: '||emp1.emp_name);
21 DBMS_OUTPUT.PUT_LINE ('employee number: '||emp1.emp_no);
22 DBMS_OUTPUT.PUT_LINE ('salary: '|| emp1.salary);
23 DBMS_OUTPUT.PUT_LINE ('department: '|| emp1.emp_dpt);
24 END;
25
26 create table emp(emp_no int,emp_name varchar(20),salary int,emp_dpt varchar(20));
27 insert into emp values(101,'arun',10000,'salesman');
28 insert into emp values(102,'ajay',4500,'manager');
29 insert into emp values(103,'anand',7500,'clerk');
30 insert into emp values(104,'anilna',7500,'analyst');
31
32 DECLARE
33 BEGIN
34 increSalary();
35 END;

```

SQL Worksheet

Clear

Find

Actions

Save

Run

Table created.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.



Procedure created.
Statement processed. Name: m1111a employee number: 100 salary: 8100 department: analyst

- 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),dsdt 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 dsdt = '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

SQL Worksheet

Close Find Actions Save Run

```

1 create table emp(emp_no int,emp_name varchar(20),salary int,emp_dpt varchar(20),dept varchar(20));
2 insert into emp values(101,'arun',50000,'sales','president');
3 insert into emp values(102,'arun',6500,'Ac','president');
4 insert into emp values(103,'ammu',7500,'HR','manager');
5 insert into emp values(104,'snitha',7500,'Ac','sen grade');
6 insert into emp values(105,'anitha.c',7500,'HR','president');
7

```

Table created.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

```

1 DECLARE
2     total_rows number(2);
3     emp1 EMP%cursor;
4 BEGIN
5
6     UPDATE emp SET salary = salary + salary * 50/100 where dept = 'president';
7     IF sql%found THEN
8         dbms_output.put_line('no employee salary updated');
9     ELSE sql%notfound THEN
10        total_rows := sql%rowcount;
11        dbms_output.put_line('total rows || ' employee salary details updated');
12    END IF;
13 END;
14

```

Statement processed.

1 employee salary details updated

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

Download CSV

0 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('Total number of rows :'||emp1%rowcount);
close emp1;
end;

```

## output

```

SQL Worksheet
1 create table emp(emp_no varchar(20),emp_name varchar(20),salary int,emp_dpt varchar(20),gender varchar(10));
2 insert into emp values('001','arun',50000,'sales','male');
3 insert into emp values('002','sandeep',65000,'Ac','male');
4 insert into emp values('003','amita',7500,'HR','female');
5 insert into emp values('004','nitika',7500,'Ac','female');
6 insert into emp values('005','nitika',7500,'HR','female');
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```

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,'uvwxy','cp','21-jan-2006','juosoop',' issued');

```

```

SELECT * FROM book;

```

## Output

The screenshot displays two instances of the 'SQL Worksheet' interface. The top instance shows the successful execution of a 'CREATE TABLE' statement for a table named 'book'. The bottom instance shows the successful execution of a 'CREATE OR REPLACE TRIGGER' statement for a trigger named 'before insert ON book'. Both instances show the SQL code in the editor and a confirmation message below it.

**SQL Worksheet 1**

```

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

```

Table created.

**SQL Worksheet 2**

```

1 CREATE OR REPLACE TRIGGER before insert ON book
2 BEFORE INSERT
3 FOR EACH ROW
4 DECLARE
5     temp date;
6 BEGIN
7     select sysdate into temp from dual;
8     IF inserting THEN
9         IF :new.publishedDate < add_months(temp, -180) THEN
10             :new.status:='cannot be issued' ;
11         END IF;
12     END IF;
13 END;
14

```

Trigger created.

SQL Worksheet

Close Find Actions Save Run

```

1 insert into book values( 2511, 'abcd', 'cp', '21-Jan-2000', 'john', 'issued');
2 insert into book values( 2512, 'efgh', 'cp', '30-Mar-2010', 'malik', 'present in the library');
3 insert into book values( 2513, 'ijkl', 'cp', '21-June-2011', 'sara', 'sent for binding');
4 insert into book values( 2514, 'mnop', 'cp', '01-Aug-2010', 'johns', 'issued');
5 insert into book values( 2515, 'pqrs', 'cp', '21-Jan-2004', 'jaggy', 'can not be issued');
6 insert into book values( 2516, 'vwxyz', 'cp', '21-Jan-2006', 'jagdeep', 'issued');
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84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

```

```

1 select * from book;

```

ACCESSION_NO	TITLE	PUBLISHER	PUBLISHDATE	AUTHOR	STATUS
2511	abcd	cp	21-Jan-00	John	issued
2512	efgh	cp	30-Mar-10	malik	present in the library
2513	ijkl	cp	21-Jun-11	sara	sent for binding
2514	mnop	cp	01-Aug-10	Johns	issued
2515	pqrst	cp	21-Jan-04	Jaggy	cannot be issued
2516	vwxyz	cp	21-Jan-06	Jagdeep	cannot be issued

Download CSV  
0 rows collected.

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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

SQL Worksheet

Clear Find Actions Save Run

```
1 create table inventory(pidid number primary key, pdtname varchar(30), qty int, rorder_level number);
2
3
```

Table created.

```
1 CREATE OR REPLACE TRIGGER checking
2 before insert ON inventory
3 FOR EACH ROW
4 declare
5 BEGIN
6 if inserting then
7 if row.qty > row.rorder_level then
8 row.rorder_level:=0;
9 end IF;
10 end IF;
11 end;
12
13
```

Trigger created.

```
1 insert into inventory values(101,'pencil',100,150);
2 insert into inventory values(112,'tap',50,100);
3 insert into inventory values(121,'marker',200,150);
4 insert into inventory values(151,'notbook',500,250);
5 select * from inventory;
```

1 row(s) inserted.  
2 row(s) inserted.  
3 row(s) inserted.

PIDID	PDTNAME	QTY	REORDER_LEVEL
101	pencil	100	150
112	tap	50	100
121	marker	200	0
151	notbook	500	0

Download CSV  
4 rows selected