PL/SQL

NOTE: For some of the programs which are based on tables, you may need to create related tables before execution of the respective programs.

Introduction(Basic Program):

SQL>Write a program to display welcome message.

```
BEGIN
DBMS_OUTPUT.PUT_LINE('HAI');
DBMS_OUTPUT.PUT_LINE('WELCOME');
DBMS_OUTPUT.PUT_LINE('PL/SQL PROGRAMS');
END;
```

OUTPUT:

```
HAI
WELCOME
PL/SQL PROGRAMS

PL/SQL procedure successfully completed
```

1) PL/SQL Code using Basic Variable, Anchored Declarations, and Usage of Assignment Operation

a) Write a program to find sum of two integer numbers.

SQL>

```
DECLARE
A NUMBER;
B NUMBER;
 C NUMBER;
 BEGIN
A:=100;
B:=200;
C:=A+B;
DBMS_OUTPUT.PUT_LINE('THE SUM OF TWO INTEGERS IS:  '||C);
END;
```

OUTPUT:

```
THE SUM OF TWO INTEGERS IS:  300

PL/SQL procedure successfully completed.
```

b) Write a program to accept empno,ename,sal & calculate bonus on the following condition 20% on ann_sal.

SQL>

```
DECLARE
EMPNO NUMBER;
ENAME VARCHAR2(20);
SAL NUMBER(7,2);
ANU_SAL NUMBER(10,2);
BONUS NUMBER(10,2);
BEGIN
EMPNO:=1234;
ENAME:='Ravi';
SAL:=18000;
ANU_SAL:=SAL*12;
BONUS:=ANU_SAL*20/100;
DBMS_OUTPUT.PUT_LINE('EMPNO: '||EMPNO);
DBMS_OUTPUT.PUT_LINE('ENAME: '||ENAME);
DBMS_OUTPUT.PUT_LINE('SAL:  '||SAL);
DBMS_OUTPUT.PUT_LINE('BONUS: '||BONUS);
END;
```

OUTPUT:

```
EMPNO: 1234
ENAME: ravi
SAL: 18000
BONUS: 43200
Statement processed.
```

c) Write a program to accept product no,pname,quantity,price & calculate total,discount(20% on total),net bill.

SQL>

```
DECLARE
PRODNO NUMBER;
PNAME VARCHAR2(20);
QUAN NUMBER(3);
PRICE NUMBER(7,2);
TOTAL NUMBER(7,2);
DISCOUNT NUMBER(7,2);
NET NUMBER(7,2);
BEGIN
PRODNO:=1234;
PNAME:='Chocolates';
QUAN:=10;
PRICE:=100;
TOTAL:=QUAN*PRICE;
DISCOUNT:=TOTAL*20/100;
```

```
NET:=TOTAL-DISCOUNT;
DBMS_OUTPUT.PUT_LINE('PRODNO: '||PRODNO);
DBMS_OUTPUT.PUT_LINE('PNAME: '||PNAME);
DBMS_OUTPUT.PUT_LINE('QUANTITY: '||QUAN);
DBMS_OUTPUT.PUT_LINE('PRICE: '||PRICE);
DBMS_OUTPUT.PUT_LINE('TOTAL: '||TOTAL);
DBMS_OUTPUT.PUT_LINE('DISCOUNT: '||DISCOUNT);
DBMS_OUTPUT.PUT_LINE('NET BALANCE: '||NET);
END;
```

OUTPUT:

PRODNO: 1234

PNAME: Chocolates

QUANTITY: 10

PRICE: 100

TOTAL: 1000

DISCOUNT: 200

NET BALANCE: 800

2. Write a PL/SQL block using SQL and Control Structures in PL/SQL

a)Write a program to accept empno,sal,calculate bonus based on the following conditions

Salary	Bonus
>=10000	20% on ann_sal
>=5000&<10000	15% on ann_sal
>=3000&<5000	12% on ann_sal
>=1500&<3000	10% on ann_sal
>1500	8% on ann_sal

SQL>

```
DECLARE
  EMPNO NUMBER;
  SAL NUMBER(7,2);
  ANU_SAL NUMBER(7,2);
  BONUS NUMBER(7,2);
  BEGIN
  EMPNO:=1234;
  SAL:=8000;
  ANU_SAL:=SAL*12;
  IF SAL>=10000 THEN
  BONUS:=ANU_SAL*20/100;
  ELSIF SAL>=5000 AND SAL<10000 THEN
  BONUS:=ANU_SAL*15/100;
```

```
ELSIF SAL>=3000 AND SAL<5000 THEN
BONUS:=ANU_SAL*12/100;
ELSIF SAL>=1500 AND SAL<3000 THEN
BONUS:=ANU_SAL*10/100;
ELSE
BONUS:=ANU_SAL*8/100;
END IF;
DBMS_OUTPUT.PUT_LINE('EMPNO: '||EMPNO);
DBMS_OUTPUT.PUT_LINE('SAL: '||SAL);
DBMS_OUTPUT.PUT_LINE('ANU_SAL: '||ANU_SAL);
DBMS_OUTPUT.PUT_LINE('BONUS: '||BONUS);
END;
```

OUTPUT:

```
EMPNO: 1234
SAL: 8000
ANU_SAL: 96000
BONUS: 14400
Statement processed.
```

b)Write a Program to print numbers from 10-1.

SQL>

```
DECLARE
I NUMBER;
BEGIN
DBMS_OUTPUT.PUT_LINE('THE NUMBERS ARE');
FOR I IN REVERSE 1..10 LOOP
DBMS_OUTPUT.PUT_LINE(I);
END LOOP;
END;
```

OUTPUT:

```
THE NUMBERS ARE
10
9
8
7
6
5
4
3
2
1

PL/SQL procedure successfully completed.
```

c) Write a Program to accept a date & print next 7 days along with day.

SQL>

```
DECLARE
DA DATE;
I NUMBER;
BEGIN
DA:='10-04-2010';
FOR I IN 1..7 LOOP
DBMS_OUTPUT.PUT_LINE('THE DATE IS:'||DA);
DA:=DA+1;
END LOOP;
 END;
```

OUTPUT:

```
THE DATE IS:10/04/2010
THE DATE IS:10/05/2010
THE DATE IS:10/06/2010
THE DATE IS:10/07/2010
THE DATE IS:10/08/2010
THE DATE IS:10/09/2010
THE DATE IS:10/10/2010
Statement processed
```

d)Write a Program to display dept details

Note: Create a table with name DEPT and columns DEPTNO,DNAME,LOC with data inserted into it before running the below program and write ouptut according to the data inserted.

SQL> CREATE TABLE DEPT(

```
deptno varchar(20),
dname varchar(20),
loc varchar(20)
);
```

SQL> INSERT INTO DEPT values(101,”Kakinada”,”Development”);

```
INSERT INTO DEPT values(102,’Ongole’,’Designing’);
INSERT INTO DEPT values(103,’Guntur’,’sales’);
);
```

SQL>

```
DECLARE
CURSOR EC IS SELECT * FROM DEPT;
BEGIN
FOR V_EC IN EC
LOOP
DBMS_OUTPUT.PUT_LINE('DEPTNO='||V_EC.DEPTNO);
DBMS_OUTPUT.PUT_LINE('DNAME='||V_EC.DNAME);
DBMS_OUTPUT.PUT_LINE('LOC='||V_EC.LOC);
END LOOP;
END;
```

Output:

```
DEPTNO=101
DNAME=Ongole
LOC=Designing
DEPTNO=103
DNAME=Guntur
LOC=Sales
DEPTNO=102
DNAME=Kakinada
LOC=Development
```

3. Write a PL/SQL Code using Cursors, Exceptions and Composite Data Types

a)Write a Program to calc bonus for all emps insert into bonus table

```
SQL>CREATE TABLE EMP(EMPNO NUMBER(5) PRIMARY KEY,ESAL NUMBER(5));

SQL>  INSERT INTO EMP(EMPNO,ESAL) VALUES(7698,2850)
 SQL>   INSERT INTO EMP(EMPNO,ESAL) VALUES(7839,5000)
SQL>  INSERT INTO EMP(EMPNO,ESAL) VALUES(7499,1760)
SQL>  INSERT INTO EMP(EMPNO,ESAL) VALUES(7782,2450)
SQL>  INSERT INTO EMP(EMPNO,ESAL) VALUES(7566,2975)
SQL>  INSERT INTO EMP(EMPNO,ESAL) VALUES(7654,1375)
```

SQL> CREATE TABLE BONUS1(EMPNO NUMBER(5) PRIMARY KEY,BONUS_AMT NUMBER(10,3),ADD_AMT NUMBER(10,3),ISS_DATE DATE);

SQL>

```
DECLARE
CURSOR EC IS SELECT EMPNO,ESAL FROM EMP;
V_EC EC%ROWTYPE;
ANN_SAL NUMBER(10,2);
B BONUS1%ROWTYPE;
BEGIN
OPEN EC;
LOOP
FETCH EC INTO V_EC;
EXIT WHEN EC%NOTFOUND;
ANN_SAL :=V_EC.ESAL*12;
B.BONUS_AMT := ANN_SAL*0.2;
INSERT INTO BONUS1(EMPNO,BONUS_AMT,ADD_AMT,ISS_DATE)
VALUES(V_EC.EMPNO,B.BONUS_AMT,1000,SYSDATE);
END LOOP;
CLOSE EC;
END;
```

SQL> SELECT *FROM BONUS1;

OUTPUT:

EMPNO	BONUS_AMT	ADD_AMT	ISS_DATE
7698	6840	1000	02/07/2023
7654	3300	1000	02/07/2023
7499	4224	1000	02/07/2023
7782	5880	1000	02/07/2023
7839	12000	1000	02/07/2023
7566	7140	1000	02/07/2023

4. Write a PL/SQL Code using Procedures, Functions, and Packages FORMS

a)Write a program with Procedure to print Min of two numbers in PL/SQL

NOTE: Run both sql1,sql2 commands in each section one after another,not at a time.

SQL1>

```
CREATE OR REPLACE PROCEDURE min(x IN number, y IN number, z OUT number)
IS
BEGIN
IF x<y THEN
z:=x;
ELSE
z:=y;
END IF;
END;
```

SQL2>

```
DECLARE
a number;
b number;
c number;
BEGIN
a:=125;
b:=40;
min(a,b,c);
dbms_output.put_line(c);
END;
```

OUTPUT:40

Statement processed.

b)Write a program with Procedure to print Square of a number in PL/SQL.

SQL1>

```
CREATE OR REPLACE PROCEDURE square(x IN OUT number)
IS
BEGIN
x:=x*x;
END;
```

SQL2>

```
DECLARE
a number;
BEGIN
a:=10;
square(a);
dbms_output.put_line('Square of 10 is: '||a);
END;
```

OUTPUT:
Square of 10 is: 100
Statement processed.