CSE 2003

DATABASE MANAGEMENT SYSTEM

ORACLE

DATABASE

Cyclesheet – 3

PART 1

L11+L12 | SJT419

FALL SEMESTER 2020-21

by

SHARADINDU ADHIKARI

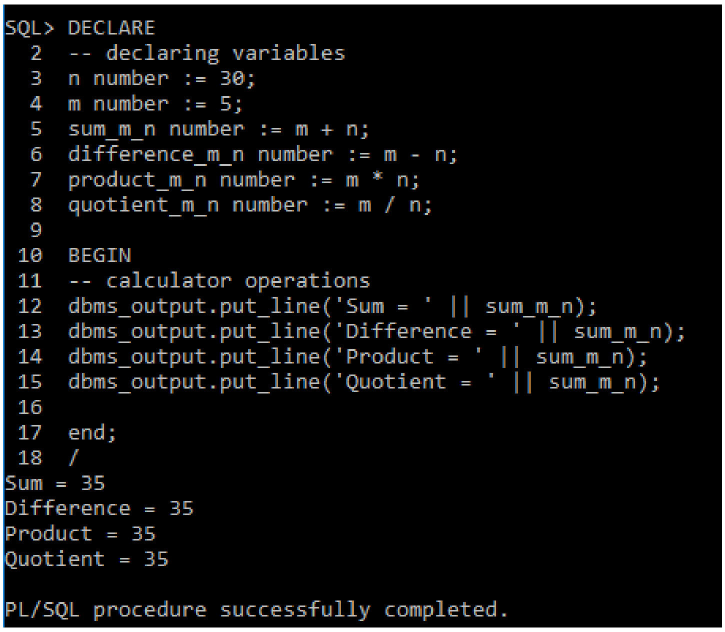
19BCE2105

PART 1

PL/SQL Program

#1. Write a PL/SQL program to implement a simple calculator.

```
DECLARE
-- declaring variables
n number := 30;
m number := 5;
sum_m_n number := m + n;
difference_m_n number := m - n;
product_m_n number := m * n;
quotient_m_n number := m / n;

BEGIN
-- calculator operations
dbms_output.put_line('Sum = ' || sum_m_n);
dbms_output.put_line('Difference = ' || sum_m_n);
dbms_output.put_line('Product = ' || sum_m_n);
dbms_output.put_line('Quotient = ' || sum_m_n);

end;
/
```

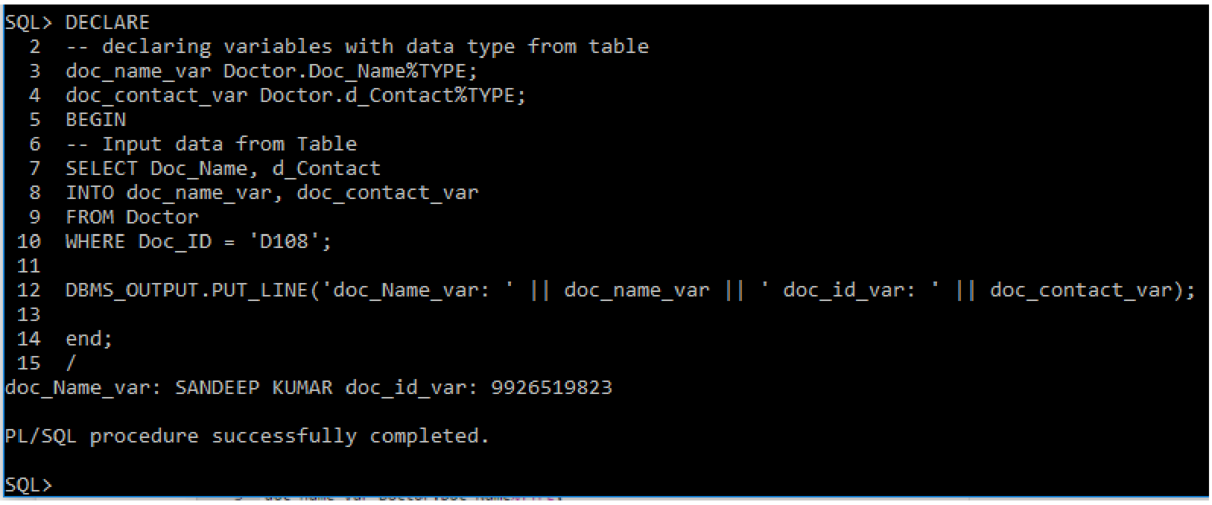


```
SQL> DECLARE
     -- declaring variables
     n number := 30;
     m number := 5;
     sum_m_n number := m + n;
     difference_m_n number := m - n;
     product_m_n number := m * n;
     quotient_m_n number := m / n;

     BEGIN
     -- calculator operations
     dbms_output.put_line('Sum = ' || sum_m_n);
     dbms_output.put_line('Difference = ' || sum_m_n);
     dbms_output.put_line('Product = ' || sum_m_n);
     dbms_output.put_line('Quotient = ' || sum_m_n);

     end;
     /
Sum = 35
Difference = 35
Product = 35
Quotient = 35

PL/SQL procedure successfully completed.
```

#2. Write a PL/SQL program to practice reading the record from a table into local variables using different data types and %TYPE and display the same using locally declared variables.

```
DECLARE
-- declaring variables with data type from table
doc_name_var Doctor.Doc_Name%TYPE;
doc_contact_var Doctor.d_Contact%TYPE;

BEGIN
-- Input data from Table
SELECT Doc_Name, d_Contact
INTO doc_name_var, doc_contact_var
```

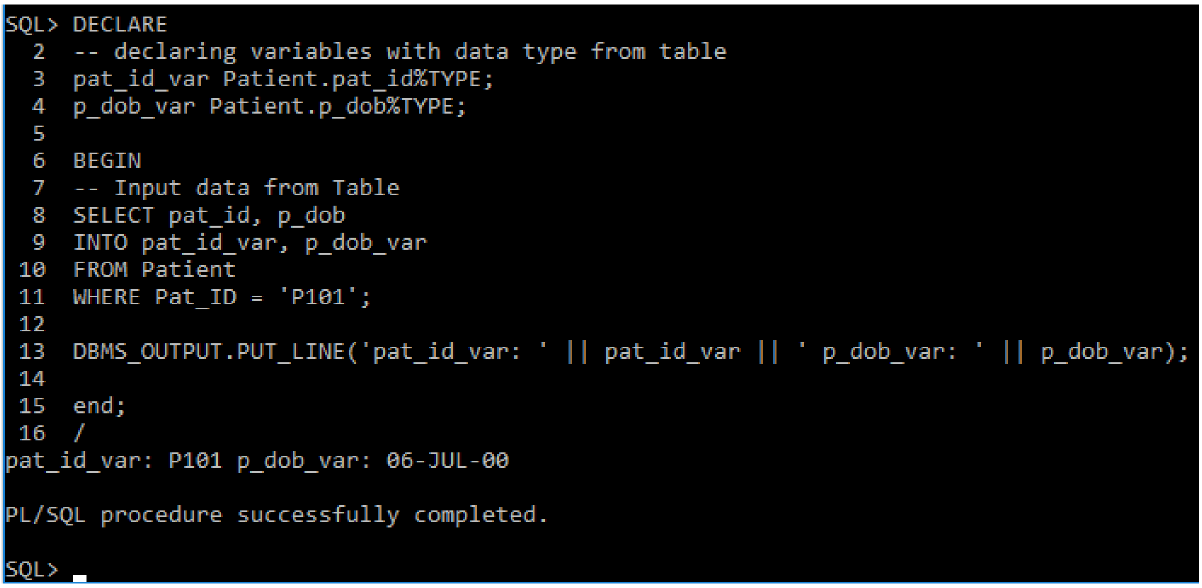
```
FROM Doctor
WHERE Doc_ID = 'D108';

DBMS_OUTPUT.PUT_LINE('doc_Name_var: ' || doc_name_var || ' doc_id_var: ' ||
doc_contact_var);

end;
/
```



```
SQL> DECLARE
-- declaring variables with data type from table
doc_name_var Doctor.Doc_Name%TYPE;
doc_contact_var Doctor.d_Contact%TYPE;
BEGIN
-- Input data from Table
SELECT Doc_Name, d_Contact
INTO doc_name_var, doc_contact_var
FROM Doctor
WHERE Doc_ID = 'D108';

DBMS_OUTPUT.PUT_LINE('doc_Name_var: ' || doc_name_var || ' doc_id_var: ' || doc_contact_var);

end;
/
doc_Name_var: SANDEEP KUMAR doc_id_var: 9926519823

PL/SQL procedure successfully completed.

SQL>
```

query contd…

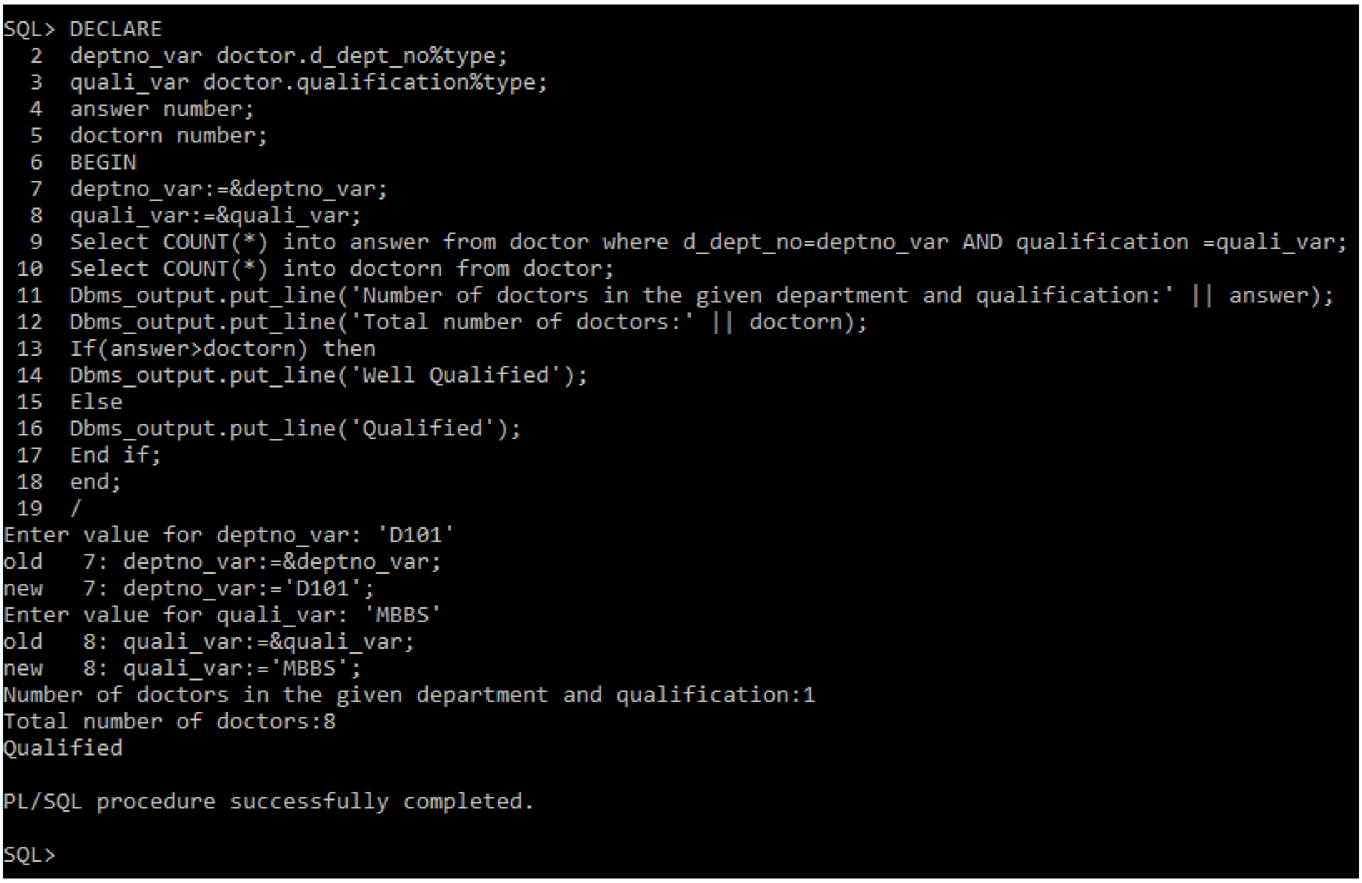
```
DECLARE
-- declaring variables with data type from table
pat_id_var Patient.pat_id%TYPE;
p_dob_var Patient.p_dob%TYPE;

BEGIN
-- Input data from Table
SELECT pat_id, p_dob
INTO pat_id_var, p_dob_var
FROM Patient
WHERE Pat_ID = 'P101';
DBMS_OUTPUT.PUT_LINE('pat_id_var: ' || pat_id_var || ' p_dob_var: ' || p_dob_var);

end;
/
```



```
SQL> DECLARE
-- declaring variables with data type from table
pat_id_var Patient.pat_id%TYPE;
p_dob_var Patient.p_dob%TYPE;

BEGIN
-- Input data from Table
SELECT pat_id, p_dob
INTO pat_id_var, p_dob_var
FROM Patient
WHERE Pat_ID = 'P101';

DBMS_OUTPUT.PUT_LINE('pat_id_var: ' || pat_id_var || ' p_dob_var: ' || p_dob_var);

end;
/
pat_id_var: P101 p_dob_var: 06-JUL-00

PL/SQL procedure successfully completed.

SQL>
```

#3. Write a PL/SQL program to find the number of doctors in a given department with a given qualification (read values for department and qualification from user during runtime). If number is more than the number of doctors in that department with other qualifications then display 'Well qualified' else 'Qualified'.

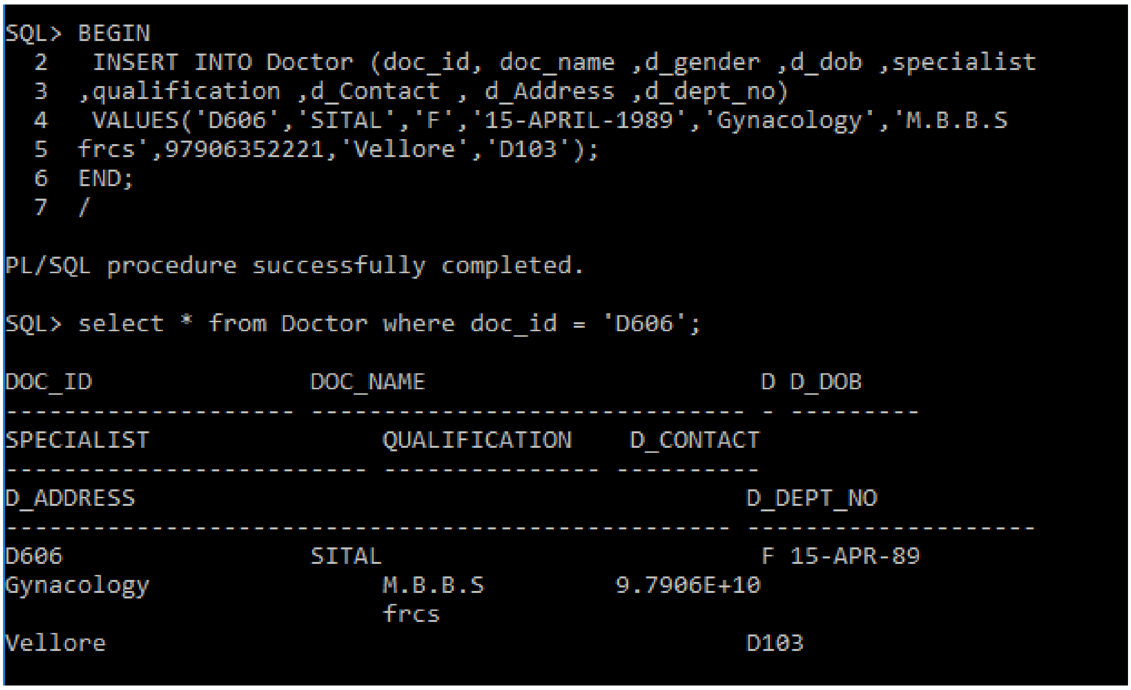
```
DECLARE
deptno_var doctor.d_dept_no%type;
quali_var doctor.qualification%type;
answer number;
doctorn number;


BEGIN
deptno_var:=&deptno_var;
quali_var:=&quali_var;
Select COUNT(*) into answer from doctor where d_dept_no=deptno_var AND qualification
=quali_var;
Select COUNT(*) into doctorn from doctor;
Dbms_output.put_line('Number of doctors in the given department and qualification:'
|| answer);
Dbms_output.put_line('Total number of doctors:' || doctorn);
If(answer>doctorn) then
Dbms_output.put_line('Well Qualified');
Else
Dbms_output.put_line('Well Qualified');
End if;

end;
/
```



```
SQL> DECLARE
  2  deptno_var doctor.d_dept_no%type;
  3  quali_var doctor.qualification%type;
  4  answer number;
  5  doctorn number;
  6  BEGIN
  7  deptno_var:=&deptno_var;
  8  quali_var:=&quali_var;
  9  Select COUNT(*) into answer from doctor where d_dept_no=deptno_var AND qualification =quali_var;
 10  Select COUNT(*) into doctorn from doctor;
 11  Dbms_output.put_line('Number of doctors in the given department and qualification:' || answer);
 12  Dbms_output.put_line('Total number of doctors:' || doctorn);
 13  If(answer>doctorn) then
 14  Dbms_output.put_line('Well Qualified');
 15  Else
 16  Dbms_output.put_line('Qualified');
 17  End if;
 18  end;
 19  /
Enter value for deptno_var: 'D101'
old   7: deptno_var:=&deptno_var;
new   7: deptno_var:='D101';
Enter value for quali_var: 'MBBS'
old   8: quali_var:=&quali_var;
new   8: quali_var:='MBBS';
Number of doctors in the given department and qualification:1
Total number of doctors:8
Qualified

PL/SQL procedure successfully completed.

SQL>
```

#4. Write a PL/SQL program to insert records into any of the tables in your database.

```
BEGIN
INSERT INTO Doctor (doc_id, doc_name ,d_gender ,d_dob,specialist,qualification,
d_Contact , d_Address ,d_dept_no)
VALUES('D606','SITAL','F','15-APRIL-1989','Gynacology','M.B.B.S
frcs',97906352221,'Vellore','D103');

END;
/
```



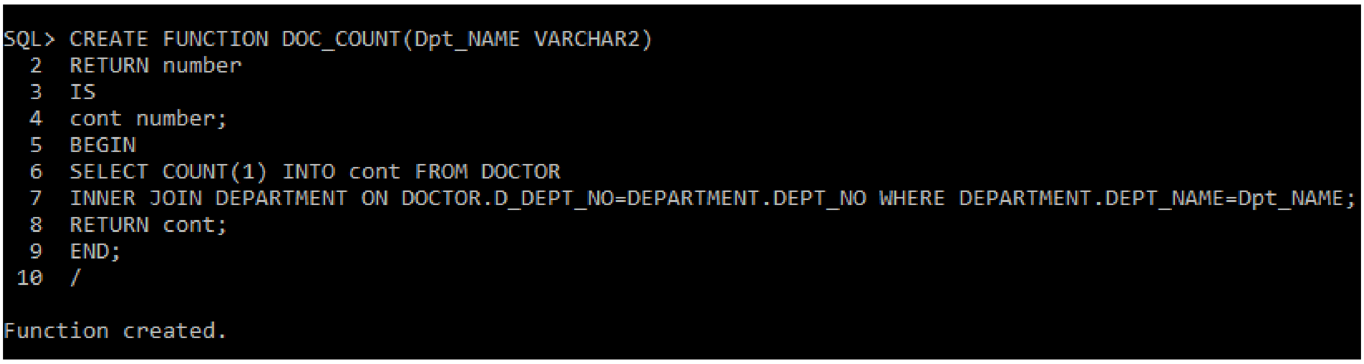
```
SQL> BEGIN
   INSERT INTO Doctor (doc_id, doc_name ,d_gender ,d_dob ,specialist
  ,qualification ,d_Contact , d_Address ,d_dept_no)
   VALUES('D606','SITAL','F','15-APRIL-1989','Gynacology','M.B.B.S
  frcs',97906352221,'Vellore','D103');
  END;
  /

PL/SQL procedure successfully completed.

SQL> select * from Doctor where doc_id = 'D606';

DOC_ID               DOC_NAME                       D D_DOB
-------------------- ------------------------------ - ---------
SPECIALIST                QUALIFICATION    D_CONTACT
------------------------- -------------- ----------
D_ADDRESS                                          D_DEPT_NO
-------------------------------------------------- --------------------
D606                 SITAL                          F 15-APR-89
Gynacology                M.B.B.S         9.7906E+10
                          frcs
Vellore                                            D103
```

#5. Create a function to find the factorial of a given number.

```
declare

-- declare variable num , fact
-- and temp of datatype number
num number := 4;
fact number := 1;
temp number;

begin

temp :=num;
-- here we check condition
-- with the help of while loop
while( temp>0 )
loop
fact := fact*temp;
temp := temp-1;

end loop;

dbms_output.put_line('factorial of '|| num || ' is ' || fact);

end;
/
```

#6. Create a function DOC_COUNT to find the number of doctors in the given department. Use the department name as the input parameter for the function.

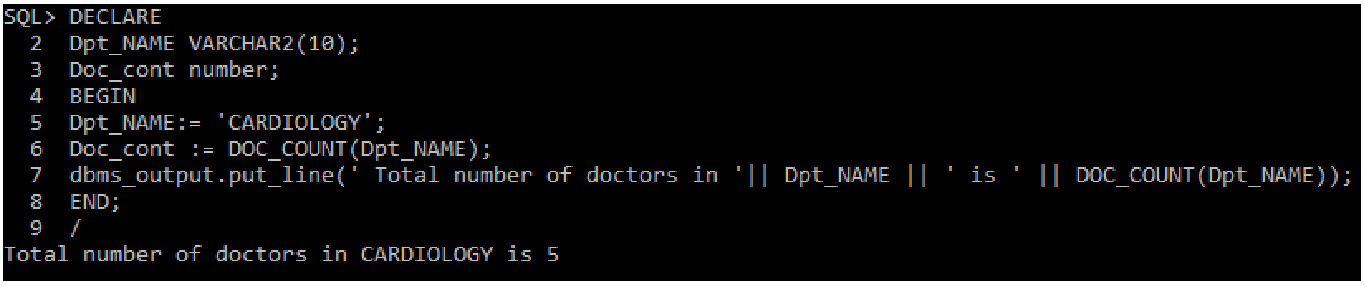
```
CREATE FUNCTION DOC_COUNT(Dpt_NAME VARCHAR2)
RETURN number
IS
cont number;
BEGIN
SELECT COUNT(1) INTO cont FROM DOCTOR
INNER JOIN DEPARTMENT ON DOCTOR.D_DEPT_NO=DEPARTMENT.DEPT_NO WHERE
DEPARTMENT.DEPT_NAME=Dpt_NAME;
RETURN cont;
END;
/
```



```
SQL> CREATE FUNCTION DOC_COUNT(Dpt_NAME VARCHAR2)
  2  RETURN number
  3  IS
  4  cont number;
  5  BEGIN
  6  SELECT COUNT(1) INTO cont FROM DOCTOR
  7  INNER JOIN DEPARTMENT ON DOCTOR.D_DEPT_NO=DEPARTMENT.DEPT_NO WHERE DEPARTMENT.DEPT_NAME=Dpt_NAME;
  8  RETURN cont;
  9  END;
 10  /

Function created.
```

query contd…

```
DECLARE
Dpt_NAME VARCHAR2(10);
Doc_cont number;
BEGIN
Dpt_NAME:= 'CARDIOLOGY';
Doc_cont := DOC_COUNT(Dpt_NAME);
dbms_output.put_line(' Total number of doctors in '|| Dpt_NAME || ' is ' ||
DOC_COUNT(Dpt_NAME));
END;
/
```



```
SQL> DECLARE
  2  Dpt_NAME VARCHAR2(10);
  3  Doc_cont number;
  4  BEGIN
  5  Dpt_NAME:= 'CARDIOLOGY';
  6  Doc_cont := DOC_COUNT(Dpt_NAME);
  7  dbms_output.put_line(' Total number of doctors in '|| Dpt_NAME || ' is ' || DOC_COUNT(Dpt_NAME));
  8  END;
  9  /
Total number of doctors in CARDIOLOGY is 5
```