

--JOURNAL COMPILATION

/*

AIM:To write and execute PL/SQL blocks (with exception handling)
including PL/SQL subprograms using Oracle 11g.

PROBLEM STATEMENT:Use EMPLOYEE table established in Experiment-01 to
create and execute the anonymous PL/SQL block queries.
The schema for the EMPLOYEE table is -
EMPLOYEE (EID, FNAME, LNAME, BIRTHDATE, GENDER, SSN,
HIREDATE, SALARY, DEPARTMENT, DESIGNATION)

*/

----- QUERY-01 -----

/*

Write a SQL code to write and execute an anonymous PL/SQL block that will insert 10
tuples into TEST_TBL.
Ensure to commit the populated records. Test the insertion in TEST_TBL by displaying
its contents.

*/

```
SQL> CREATE TABLE TEST_TBL(
2  REC_NO NUMBER(3),
3  CURR_DT DATE,
4  CONSTRAINT TEST_TBL_PK PRIMARY KEY (REC_NO),
5  CONSTRAINT TEST_TBL_CHK_RANGE CHECK (REC_NO BETWEEN 101 AND 999)
6  );
```

Table created.

```
SQL> DECLARE
2      BASE_CNT CONSTANT INT :=100;
3      CNT INT;
4  BEGIN
5      FOR CNT IN 1 .. 10 LOOP
6          INSERT INTO TEST_TBL(REC_NO,CURR_DT)
7              VALUES(BASE_CNT+CNT,SYSDATE);
8      END LOOP;
9      COMMIT;
10 END;
11 /
```

PL/SQL procedure successfully completed.

SQL> SELECT * FROM TEST_TBL;

REC_NO CURR_DT

101 11-APR-17

102 11-APR-17

103 11-APR-17

104 11-APR-17

105 11-APR-17

106 11-APR-17
 107 11-APR-17
 108 11-APR-17
 109 11-APR-17
 110 11-APR-17

10 rows selected.

SQL> CREATE TABLE EMPP AS SELECT EID,FNAME||' '||LNAME AS ENAME,HIREDATE,SALARY FROM
 EMPLOYEE WHERE 1=2;

Table created.

SQL> DESC EMPP;

Name	Null?	Type
EID	NOT NULL	NUMBER(4)
ENAME		VARCHAR2(21)
HIREDATE	NOT NULL	DATE
SALARY	NOT NULL	NUMBER(7,2)

SQL> SELECT COUNT(*) FROM EMPP;

COUNT(*)

 0

1 row selected.

SQL> SELECT CONSTRAINT_NAME FROM USER_CONSTRAINTS WHERE TABLE_NAME LIKE 'EMPP';

CONSTRAINT_NAME

 SYS_C0012395
 SYS_C0012394
 SYS_C0012393

3 rows selected.

----- QUERY-02 -----
 /*
 Write a SQL code to write and execute an anonymous PL/SQL block that will use %TYPE
 variables to populate
 the EMPP table with corresponding tuples in EMPLOYEE table.
 */

SQL> DECLARE
 2 EMPID EMPLOYEE.EID%TYPE;

```

3  ENAME VARCHAR2(40);
4  HDATE EMPLOYEE.HIREDATE%TYPE;
5  SAL EMPLOYEE.SALARY%TYPE;
6  CNT INT;
7  LCNT INT;
8  BASE_CNT CONSTANT INT :=7100;
9  BEGIN
10 SELECT COUNT(*) INTO CNT FROM EMPLOYEE;
11 FOR LCNT IN 1..CNT LOOP
12     SELECT EID,(FNAME||' '||LNAME),HIREDATE,SALARY INTO
13     EMPID,ENAME,HDATE,SAL FROM EMPLOYEE
14     WHERE EID=BASE_CNT+LCNT;
15     INSERT INTO EMPP VALUES(EMPID,ENAME,HDATE,SAL);
16 END LOOP;
17 END;
18 /

```

PL/SQL procedure successfully completed.

SQL> SELECT * FROM EMPP;

EID	ENAME	HIREDATE	SALARY
7101	SAMANTHA JONES	08-NOV-94	16500
7102	ALBERT GREENFIELD	12-JUL-98	14200
7103	JULIA MARIN	01-DEC-99	13320
7104	MARTINA JACOBSON	15-NOV-96	15550
7105	ALEXANDER LLOYD	01-FEB-94	17500
7106	WILLIAM SMITHFIELD	23-JUN-96	15660
7107	EUGENE SABATINI	10-OCT-94	16500
7108	JAMES WASHINGTON	22-AUG-98	14000
7109	LARRY GOMES	18-MAY-99	13650

9 rows selected.

SQL> ROLLBACK;

Rollback complete.

```

----- QUERY-03 -----
/*
Write a SQL code to write and execute an anonymous PL/SQL block that will use %ROWTYPE
variables
to populate the EMPP table with corresponding tuples in EMPLOYEE table.
*/
-----
SQL> DECLARE
2  EMP_REC EMPLOYEE%ROWTYPE;
3  CNT INT;

```

```

4  LCNT INT;
5  BASE_CNT CONSTANT INT :=7100;
6  BEGIN
7  SELECT COUNT(*) INTO CNT FROM EMPLOYEE;
8  FOR LCNT IN 1..CNT LOOP
9      SELECT * INTO EMP_REC FROM EMPLOYEE WHERE EID=BASE_CNT+LCNT;
10     INSERT INTO EMPP VALUES(EMP_REC.EID,EMP_REC.FNAME||'
'||EMP_REC.LNAME,EMP_REC.HIREDATE,EMP_REC.SALARY);
11  END LOOP;
12  END;
13  /

```

PL/SQL procedure successfully completed.

SQL> SELECT * FROM EMPP;

EID	ENAME	HIREDATE	SALARY
7101	SAMANTHA JONES	08-NOV-94	16500
7102	ALBERT GREENFIELD	12-JUL-98	14200
7103	JULIA MARIN	01-DEC-99	13320
7104	MARTINA JACOBSON	15-NOV-96	15550
7105	ALEXANDER LLOYD	01-FEB-94	17500
7106	WILLIAM SMITHFIELD	23-JUN-96	15660
7107	EUGENE SABATINI	10-OCT-94	16500
7108	JAMES WASHINGTON	22-AUG-98	14000
7109	LARRY GOMES	18-MAY-99	13650

9 rows selected.

```

----- QUERY-04 -----
/*
Write a SQL code to write and execute an anonymous PL/SQL block that will display the
contents
of EMPP table without using declared variables. You should format the output using
RPAD() and/or LPAD(),
while including proper headers in the result.
*/

```

```

SQL> --VAL IS BY DEFAULT ASSUMING A ROWTYPE
SQL> BEGIN
2  DBMS_OUTPUT.PUT_LINE('EID      ENAME      HIREDATE      SALARY ');
3  FOR VAL IN(SELECT EID,ENAME,HIREDATE,SALARY FROM EMPP) LOOP
4      DBMS_OUTPUT.PUT_LINE(RPAD(VAL.EID,8,' ')||' '||RPAD(VAL.ENAME,20,' ')||'
'||RPAD(VAL.HIREDATE,12,' ')||' '||LPAD(VAL.SALARY,6,' '));
5  END LOOP;
6  END;
7  /

```

EID	ENAME	HIREDATE	SALARY
-----	-------	----------	--------

7101	SAMANTHA JONES	08-NOV-94	16500
7102	ALBERT GREENFIELD	12-JUL-98	14200
7103	JULIA MARIN	01-DEC-99	13320
7104	MARTINA JACOBSON	15-NOV-96	15550
7105	ALEXANDER LLOYD	01-FEB-94	17500
7106	WILLIAM SMITHFIELD	23-JUN-96	15660
7107	EUGENE SABATINI	10-OCT-94	16500
7108	JAMES WASHINGTON	22-AUG-98	14000
7109	LARRY GOMES	18-MAY-99	13650

PL/SQL procedure successfully completed.

```

----- QUERY-05 -----
/*
Write a SQL query to find the Oracle Database version and the PL/SQL version running
currently
on your machine. Use V$VERSION view of Oracle. Write a SQL code to write and execute an
anonymous
PL/SQL block that will display the current time-stamp of the system. Also display the
time-stamp 3 hours before.
*/

```

```

SQL> SELECT BANNER FROM V$VERSION;

```

BANNER

```

-----
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production

```

```

PL/SQL Release 12.1.0.2.0 - Production

```

```

CORE      12.1.0.2.0      Production

```

```

TNS for 64-bit Windows: Version 12.1.0.2.0 - Production

```

```

NLSRTL Version 12.1.0.2.0 - Production

```

5 rows selected.

```

SQL> BEGIN
  2  DBMS_OUTPUT.PUT_LINE(SYSTIMESTAMP);
  3  DBMS_OUTPUT.PUT_LINE(SYSTIMESTAMP- interval '3' hour);
  4  END;
  5  /
11-APR-17 12.08.16.036000000 AM +05:30
10-APR-17 09.08.16.036000000 PM +05:30

```

PL/SQL procedure successfully completed.

```

----- QUERY-06 -----
/*
Write a SQL code to write and execute an anonymous PL/SQL block that will display the
system date.
Use exception (exception TVALUE_ERROR) to check if the variable holding the system date
is large enough in size.
Re-execute the block with appropriate modification to test the exception.
*/
-----
SQL> DECLARE
  2  D VARCHAR2(5);
  3  BEGIN
  4  D:=TO_CHAR(SYSDATE);
  5  DBMS_OUTPUT.PUT_LINE(D);
  6  EXCEPTION
  7  WHEN VALUE_ERROR THEN
  8  DBMS_OUTPUT.PUT_LINE('VALUE ERROR OCCURED');
  9  END;
 10 /
VALUE ERROR OCCURED

```

PL/SQL procedure successfully completed.

```

SQL> DECLARE
  2  D VARCHAR2(50);
  3  BEGIN
  4  D:=TO_CHAR(SYSDATE);
  5  DBMS_OUTPUT.PUT_LINE(D);
  6  EXCEPTION
  7  WHEN VALUE_ERROR THEN
  8  DBMS_OUTPUT.PUT_LINE(' VALUE ERROR OCCURED');
  9  END;
 10 /
11-APR-17

```

PL/SQL procedure successfully completed.

```

----- QUERY-07 -----
/*
Write a SQL code to write and execute an anonymous PL/SQL block that will check (say,
for employee number 7103)
whether an employee is entitled to receive the longevity bonus. Longevity bonus is
given to employees who has
been with the company for at least 20 years.Now, re-execute the block to extend
longevity bonus to employees
with 15 years of service.
*/
-----
SQL> DECLARE
  2  EMPREC EMPLOYEE%ROWTYPE;
  3  BASE_CNT CONSTANT INT :=7100;
  4  CYEAR NUMBER;
  5  HYEAR NUMBER;
  6  YEARDIFF NUMBER;
  7  CNT INT;

```

```

8  LCNT INT;
9  YEARCNT INT :=20;
10 BEGIN
11 SELECT EXTRACT(YEAR FROM SYSDATE) INTO CYEAR FROM DUAL;
12 SELECT COUNT(*) INTO CNT FROM EMPLOYEE;
13 <<TWICELOOPER>>
14 DBMS_OUTPUT.PUT_LINE('EMPLOYEE WORKING WITH COMPANY FOR ATLEAST '||YEARCNT||'
YEARS');
15 FOR LCNT IN 1 .. CNT LOOP
16     SELECT * INTO EMPREC FROM EMPLOYEE WHERE EID=BASE_CNT+LCNT;
17     SELECT EXTRACT(YEAR FROM EMPREC.HIREDATE) INTO HYEAR FROM DUAL;
18     YEARDIFF:=CYEAR-HYEAR;
19     IF YEARDIFF >=YEARCNT THEN
20         DBMS_OUTPUT.PUT_LINE(EMPREC.EID||' '||EMPREC.FNAME||' '||EMPREC.LNAME);
21     END IF;
22 END LOOP;
23 IF YEARCNT=20 THEN
24     YEARCNT:=15;
25     GOTO TWICELOOPER;
26 END IF;
27 END;
28 /

```

EMPLOYEE WORKING WITH COMPANY FOR ATLEAST 20 YEARS

7101 SAMANTHA JONES

7104 MARTINA JACOBSON

7105 ALEXANDER LLOYD

7106 WILLIAM SMITHFIELD

7107 EUGENE SABATINI

EMPLOYEE WORKING WITH COMPANY FOR ATLEAST 15 YEARS

7101 SAMANTHA JONES

7102 ALBERT GREENFIELD

7103 JULIA MARIN

7104 MARTINA JACOBSON

7105 ALEXANDER LLOYD

7106 WILLIAM SMITHFIELD

7107 EUGENE SABATINI

7108 JAMES WASHINGTON

7109 LARRY GOMES

PL/SQL procedure successfully completed.

----- QUERY-08 -----

/*

Write a SQL code to write and execute an anonymous PL/SQL block that will locate

the first November-born employee.
*/

```
-----
SQL> DECLARE
  2 EMP_REC EMPLOYEE%ROWTYPE;
  3 CNT INT;
  4 LCNT INT;
  5 MNTH INT;
  6 BASE_CNT CONSTANT INT :=7100;
  7 BEGIN
  8 SELECT COUNT(*) INTO CNT FROM EMPLOYEE;
  9 FOR LCNT IN 1..CNT LOOP
10   SELECT * INTO EMP_REC FROM EMPLOYEE WHERE EID=BASE_CNT+LCNT;
11   SELECT EXTRACT(MONTH FROM EMP_REC.BIRTHDATE) INTO MNTH FROM DUAL;
12   IF MNTH=11 THEN
13     DBMS_OUTPUT.PUT_LINE(EMP_REC.FNAME||' '||EMP_REC.LNAME|| '
'|EMP_REC.BIRTHDATE);
14     EXIT;
15   END IF;
16 END LOOP;
17 END;
18 /
WILLIAM SMITHFIELD 02-NOV-72
```

PL/SQL procedure successfully completed.

```
----- QUERY-09 -----
/*
Write a SQL code to write and execute an anonymous PL/SQL block that will locate the
first
November-born employee, when EMPLOYEE table is searched in reversed order.
*/
-----
```

```
SQL> DECLARE
  2 EMP_REC EMPLOYEE%ROWTYPE;
  3 CNT INT;
  4 LCNT INT;
  5 MNTH INT;
  6 BASE_CNT CONSTANT INT :=7100;
  7 BEGIN
  8 SELECT COUNT(*) INTO CNT FROM EMPLOYEE;
  9 FOR LCNT IN REVERSE 1..CNT LOOP
10   SELECT * INTO EMP_REC FROM EMPLOYEE WHERE EID=BASE_CNT+LCNT;
11   SELECT EXTRACT(MONTH FROM EMP_REC.BIRTHDATE) INTO MNTH FROM DUAL;
12   IF MNTH=11 THEN
13     DBMS_OUTPUT.PUT_LINE(EMP_REC.FNAME||' '||EMP_REC.LNAME|| '
'|EMP_REC.BIRTHDATE);
14     EXIT;
15   END IF;
16 END LOOP;
17 END;
18 /
EUGENE SABATINI 09-NOV-73
```

PL/SQL procedure successfully completed.

```
----- QUERY-10 -----
/*
```


Write a SQL code to write and execute an anonymous PL/SQL block that accept an employee number

from the console and will display employee information for said employee (minimal output -- Employee Number, Name of Employee, Designation, Salary).

A system exception, NO_DATA_FOUND should be caught when the mentioned employee does not exist.

*/

```
-----
SQL> DECLARE
  2 EMPID EMPLOYEE.EID%TYPE;
  3 EREC EMPLOYEE%ROWTYPE;
  4 BEGIN
  5 DBMS_OUTPUT.PUT_LINE('ENTER EMPLOYEE ID:');
  6 EMPID:='&EMPID';
  7 SELECT * INTO EREC FROM EMPLOYEE WHERE EID=EMPID;
  8 DBMS_OUTPUT.PUT_LINE(EREC.EID||' '||EREC.LNAME||' '||EREC.DESIGNATION||'
'|EREC.SALARY);
  9 EXCEPTION
 10   WHEN NO_DATA_FOUND THEN
 11     DBMS_OUTPUT.PUT_LINE('NO RECORD EXIST WITH EID:='||EMPID);
 12 END;
 13 /
```

Enter value for empid: 7101

old 6: EMPID:='&EMPID';

new 6: EMPID:='7101';

ENTER EMPLOYEE ID:

7101 JONES PROFESSOR 16500

PL/SQL procedure successfully completed.

```
----- QUERY-11 -----
/*
Write a SQL code to write and execute an anonymous PL/SQL block that defines
user-defined exceptions - BELOW_PAY_RANGE and ABOVE_PAY_RANGE.
*/
-----
```

SQL> DROP TABLE PAYSCALE;

Table dropped.

```
SQL> CREATE TABLE PAYSCALE(
  2 DESIGNATION VARCHAR(15),
  3 MINPAY NUMBER(5),
  4 MAXPAY NUMBER(5),
  5 CONSTRAINT PAYSCALE_PK PRIMARY KEY (DESIGNATION),
  6 CONSTRAINT PAYSCALE_CHK_DESIGNATION CHECK (DESIGNATION IN('PROFESSOR','SR.
LECTURER','LECTURER','ASST. PROFESSOR'))
  7 );
```

Table created.

SQL> INSERT INTO PAYSCALE VALUES('LECTURER', 12000, 13500);

1 row created.

SQL> INSERT INTO PAYSCALE VALUES('SR. LECTURER', 13000, 15000);

1 row created.

SQL> INSERT INTO PAYSCALE VALUES('ASST. PROFESSOR', 14500, 16500);

1 row created.

SQL> INSERT INTO PAYSCALE VALUES('PROFESSOR', 16000, 19000);

1 row created.

SQL> COMMIT;

Commit complete.

```
SQL> DECLARE
  2 BELOW_PAY_RANGE EXCEPTION;
  3 ABOVE_PAY_RANGE EXCEPTION;
  4 EMPID EMPLOYEE.EID%TYPE;
  5 EXPNO EMPLOYEE.EID%TYPE;
  6 EREC EMPLOYEE%ROWTYPE;
  7 PAYSCALEREC PAYSCALE%ROWTYPE;
  8 EXPMINPAY PAYSCALE.MINPAY%TYPE;
  9 EXPMAXPAY PAYSCALE.MAXPAY%TYPE;
10 BEGIN
11 DBMS_OUTPUT.PUT_LINE('ENTER EID OF THE EMPLOYEE:');
12 EMPID:='&EMPID';
13 SELECT * INTO EREC FROM EMPLOYEE WHERE EID=EMPID;
14 SELECT * INTO PAYSCALEREC FROM PAYSCALE WHERE DESIGNATION=EREC.DESIGNATION;
15     EXPNO:=EREC.EID;
16     EXPMINPAY:=PAYSCALEREC.MINPAY;
17     EXPMAXPAY:=PAYSCALEREC.MAXPAY;
18 IF EREC.SALARY >PAYSCALEREC.MINPAY THEN
19     IF EREC.SALARY < PAYSCALEREC.MAXPAY THEN
20         DBMS_OUTPUT.PUT_LINE(EREC.EID||' RECEIVES SALARY IN SCALE
[ '||PAYSCALEREC.MINPAY||', '||PAYSCALEREC.MAXPAY||' ]');
21     ELSE
22         RAISE ABOVE_PAY_RANGE;
23     END IF;
24 ELSE
25     RAISE BELOW_PAY_RANGE;
26 END IF;
27 EXCEPTION
28     WHEN BELOW_PAY_RANGE THEN
29         DBMS_OUTPUT.PUT_LINE(EXPNO||' Receives Salary Below Scale
[ '||EXPMINPAY||', '||EXPMAXPAY||' ]');
30     WHEN ABOVE_PAY_RANGE THEN
31         DBMS_OUTPUT.PUT_LINE(EXPNO||' Receives Salary Above Scale
[ '||EXPMINPAY||', '||EXPMAXPAY||' ]');
32     WHEN NO_DATA_FOUND THEN
33         DBMS_OUTPUT.PUT_LINE('NO RECORDS FOUND WITH EID:='||EXPNO);
34     WHEN OTHERS THEN
35         DBMS_OUTPUT.PUT_LINE('SOMETHING NOT
CORRECT'||TO_CHAR(SQLCODE)||': '||TO_CHAR(SQLERRM));
36 END;
37 /
```

Enter value for empid: 7106

old 12: EMPID:='&EMPID';

new 12: EMPID:='7106';

ENTER EID OF THE EMPLOYEE:

7106 RECEIVES SALARY IN SCALE [14500,16500]

PL/SQL procedure successfully completed.

----- QUERY-12 -----
/*

Write a SQL code to write and execute an anonymous PL/SQL block that will modify

Query-11** to process

all records of EMPLOYEE table. You need not acquire employee number from console.
You should only report the violations.

*/

```

-----
SQL> DECLARE
  2 EMPID EMPLOYEE.EID%TYPE;
  3 EXPNO EMPLOYEE.EID%TYPE;
  4 EREC EMPLOYEE%ROWTYPE;
  5 PAYSCALEREC PAYSCALE%ROWTYPE;
  6 EXPMINPAY PAYSCALE.MINPAY%TYPE;
  7 EXPMAXPAY PAYSCALE.MAXPAY%TYPE;
  8 CNT INT;
  9 LCNT INT;
10 BASE_CNT CONSTANT INT :=7100;
11 BEGIN
12 SELECT COUNT(*) INTO CNT FROM EMPLOYEE;
13 FOR LCNT IN 1..CNT LOOP
14 EMPID:=BASE_CNT+LCNT;
15 SELECT * INTO EREC FROM EMPLOYEE WHERE EID=EMPID;
16 SELECT * INTO PAYSCALEREC FROM PAYSCALE WHERE DESIGNATION=EREC.DESIGNATION;
17     EXPNO:=EREC.EID;
18     EXPMINPAY:=PAYSCALEREC.MINPAY;
19     EXPMAXPAY:=PAYSCALEREC.MAXPAY;
20 IF EREC.SALARY >PAYSCALEREC.MINPAY THEN
21     IF EREC.SALARY < PAYSCALEREC.MAXPAY THEN
22         DBMS_OUTPUT.PUT_LINE(EREC.EID||' RECEIVES SALARY IN SCALE
['||PAYSCALEREC.MINPAY||','||PAYSCALEREC.MAXPAY||']');
23     ELSE
24         DBMS_OUTPUT.PUT_LINE(EXPNO||' Receives Salary Above Scale
['||EXPMINPAY||','||EXPMAXPAY||']');
25     END IF;
26 ELSE
27         DBMS_OUTPUT.PUT_LINE(EXPNO||' Receives Salary Below Scale
['||EXPMINPAY||','||EXPMAXPAY||']');
28 END IF;
29 END LOOP;
30 EXCEPTION
31     WHEN NO_DATA_FOUND THEN
32         DBMS_OUTPUT.PUT_LINE('NO RECORDS FOUND WITH EID:='||EXPNO);
33     WHEN OTHERS THEN
34         DBMS_OUTPUT.PUT_LINE('SOMETHING NOT
CORRECT'||TO_CHAR(SQLCODE)||':'||TO_CHAR(SQLERRM));
35 END;
36 /
7101 RECEIVES SALARY IN SCALE [16000,19000]

7102 RECEIVES SALARY IN SCALE [13000,15000]

7103 RECEIVES SALARY IN SCALE [12000,13500]

7104 RECEIVES SALARY IN SCALE [14500,16500]

7105 RECEIVES SALARY IN SCALE [16000,19000]

7106 RECEIVES SALARY IN SCALE [14500,16500]

7107 RECEIVES SALARY IN SCALE [16000,19000]

7108 RECEIVES SALARY IN SCALE [13000,15000]

```

prac7edit.txt

7109 Receives Salary Above Scale [12000,13500]

PL/SQL procedure successfully completed.

----- END OF QUERIES-----

SQL> SET FEEDBACK OFF

SQL> SPOOL OFF