

# 15IT302J-DATABASE MANAGEMENT SYSTEMS

DATE -31 /8/19  
EXPERIMENT NO – 9,10  
NAME -NANDISH SHAH  
REG NO - RA1711008010143

## Exception Handling in PL/SQL

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- 9. Display the name of that manager who has joined the organization in the year 1999. if there is no output or if there is more than one output then instead of giving error the program must give proper message.**

```
SQL> set serveroutput on;  
SQL> select * from emp where empno=7788;
```

| EMPNO | ENAME | JOB     | MGR  | HIREDATE  | SAL  |
|-------|-------|---------|------|-----------|------|
| 7788  | scott | analyst | 7566 | 09-DEC-82 | 3050 |

```
SQL> ed;  
Wrote file afiedt.buf
```

```
1 DECLARE  
2 vname emp.ename % TYPE;  
3 vjob emp.job % TYPE;  
4 error_msg VARCHAR(100);  
5 error_code NUMBER;  
6 BEGIN  
7 SELECT ename,job INTO vname,vjob FROM emp WHERE hiredate  
8 BETWEEN '01-jan-09' AND '31-dec-09';  
9 dbms_output.put_line(vname||' '||vjob);  
10 EXCEPTION  
11 WHEN no_data_found THEN  
12 dbms_output.put_line('no employee hired in 09');  
13 WHEN too_many_rows THEN  
14 dbms_output.put_line('more than one manager has joined in 09');  
15 WHEN others THEN  
16 error_msg:=SUBSTR(sqlerrm,1,100);  
17 error_code:=SQLCODE;  
18 dbms_output.put_line('error during block execution');  
19 dbms_output.put_line(error_msg||' '||error_code);  
20* END;  
21 /
```

no employee hired in 09

PL/SQL procedure successfully completed.

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### SUBPROGRAMS IN PL/SQL USING PROCEDURES & FUNCTIONS

#### **10.A Create a procedure incr and increase the salary of employee.**

SQL> ed;

Wrote file afiedt.buf

```
1 CREATE or REPLACE PROCEDURE incr ( e_id NUMBER, amt NUMBER) IS
2     vsalary      NUMBER;
3     salary_missing    EXCEPTION;
4 BEGIN
5     SELECT sal INTO vsalary FROM emp WHERE empno = e_id;
6     IF vsalary IS NULL THEN
7         RAISE      salary_missing;
8     ELSE
9         UPDATE emp SET sal = sal + amt WHERE empno = e_id;
10    END IF;
11 EXCEPTION
12    WHEN salary_missing THEN
13        dbms_output.put_line( e_id || 'has salary as NULL');
14    WHEN NO_DATA_FOUND THEN
15        dbms_output.put_line( e_id || 'no such NUMBER');
16* END incr;
17 /
```

Procedure created.

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---

SQL> EXECUTE incr(7902,3000);

PL/SQL procedure successfully completed.

SQL> SELECT \* FROM emp WHERE empno=7876;

| EMPNO | ENAME | JOB | MGR | HIREDATE | SAL |
|-------|-------|-----|-----|----------|-----|
|-------|-------|-----|-----|----------|-----|

---

| COMM | DEPTNO |
|------|--------|
|------|--------|

---

|      |       |       |      |           |      |
|------|-------|-------|------|-----------|------|
| 7876 | adams | clerk | 7788 | 12-JAN-83 | 1100 |
|------|-------|-------|------|-----------|------|

20

SQL> EXECUTE incr(7876,1100);

PL/SQL procedure successfully completed.

SQL> SELECT \* FROM emp WHERE empno=7876;

| EMPNO | ENAME | JOB | MGR | HIREDATE | SAL |
|-------|-------|-----|-----|----------|-----|
|-------|-------|-----|-----|----------|-----|

---

| COMM | DEPTNO |
|------|--------|
|------|--------|

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7876 adams          clerk          7788 12-JAN-83          2200

20

## FUNCTION

**10.B Create a function to calculate the bonus of particular employee. The function returns the value of the bonus amount.**

SQL> set serveroutput on;

SQL> ed;

Wrote file afiedt.buf

1 CREATE OR REPLACE FUNCTION bonus(id emp.empno%type)

2 RETURN number is

3 bsal emp.sal%type;

4 cc emp.comm%type;

5 amt number;

6 BEGIN

7 select sal, comm into bsal, cc from emp where empno=id;

8 amt := bsal + nvl(cc,0)+ 5000;

9 RETURN(amt);

10\* END bonus;

SQL> /

Function created.

SQL> ed;

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---

Wrote file afiedt.buf

```
1 BEGIN
2     dbms_output.put_line (bonus(7369));
3* END;
SQL> /
6175
```

## PACKAGE PROGRAM

**11. Create a package with subprogram to display the bonus amount for employee.**

### **PACKAGE DECLARATION**

SQL> ed;  
Wrote file afiedt.buf

```
1 CREATE OR REPLACE PACKAGE emp_bonus AS
2 PROCEDURE calc_bonus (date_hired emp.hiredate%TYPE, bonus number);
3* END emp_bonus;
4 /
```

Package created.

### **PACKAGE BODY:**

SQL> ed;  
Wrote file afiedt.buf

```
1 CREATE OR REPLACE PACKAGE BODY emp_bonus AS
2 PROCEDURE calc_bonus (date_hired emp.hiredate%TYPE, bonus number ) IS
3 BEGIN
```

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```
4 DBMS_OUTPUT.PUT_LINE ('Employees hired on ' || date_hired || ' get bonus:-' || bonus);  
5 END;  
6* END emp_bonus;  
SQL> /
```

Package body created.

### **PL/SQL block with package:**

```
SQL> ed;  
Wrote file afiedt.buf  
  
1 DECLARE  
2 dd emp.hiredate%type;  
3 id emp.empno%type;  
4 bonus number;  
5 BEGIN  
6 select hiredate, sal+comm into dd, bonus from emp where empno=&id;  
emp_bonus.calc_bonus(dd, bonus+1000);  
7* END;  
SQL> /
```

Enter value for id: 7369

```
old 6: select hiredate, sal+comm into dd, bonus from emp where empno=&id;  
emp_bonus.calc_bonus(dd, bonus+1000);
```

```
new 6: select hiredate, sal+comm into dd, bonus from emp where empno=7369;  
emp_bonus.calc_bonus(dd, bonus+1000);
```

Employees hired on 17-DEC-80 get bonus:-2175

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PL/SQL procedure successfully completed.

## TRIGGER

**12. Write a trigger total sal to maintain a derived column totalsal that stores total salary of all members in a department.**

1.Alter a table dept with an additional column totalsal

SQL> alter table dept add totalsal varchar(20);

Table altered.

2.UPDATE dept by totalsal

SQL> update dept set totalsal=(select sum(sal) from emp where emp.deptno=dept.deptno);

4 rows updated.

SQL> select \* from dept;

| DEPTNO | DNAME | LOC | TOTSAL |
|--------|-------|-----|--------|
|--------|-------|-----|--------|

---

|    |            |          |      |
|----|------------|----------|------|
| 10 | accounting | new york | 8750 |
|----|------------|----------|------|

|    |          |        |       |
|----|----------|--------|-------|
| 20 | research | dallas | 15025 |
|----|----------|--------|-------|

|    |       |         |      |
|----|-------|---------|------|
| 30 | sales | chicago | 9400 |
|----|-------|---------|------|

|    |            |        |  |
|----|------------|--------|--|
| 40 | operations | boston |  |
|----|------------|--------|--|

3.Create the TRIGGER

SQL> ed;

Wrote file afiedt.buf

1 CREATE OR REPLACE TRIGGER total\_salary

2 AFTER DELETE OR INSERT OR UPDATE OF deptno,sal ON emp

3 FOR EACH ROW

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---

```
4 BEGIN
5 IF DELETING OR(UPDATING AND:old.deptno=:new.deptno)
6 THEN
7  UPDATE dept SET totals=totsal-:old.sal
8 WHERE deptno=:old.deptno;
9 END IF;
10 IF INSERTING OR(UPDATING AND:old.deptno=:new.deptno)
11 THEN
12 UPDATE dept SET totals=totsal+:new.sal
13 WHERE deptno=:new.deptno;
14 END IF;
15 IF UPDATING AND :old.deptno=:new.deptno AND:old.sal!=:new.sal
16 THEN
17 UPDATE dept SET totals=totsal-:old.sal+:new.sal
18 WHERE deptno=:new.deptno;
19 END IF;
20 IF(:new.sal<500 OR :new.sal>5000)
21 THEN
22 RAISE_APPLICATION_ERROR(-20230,'salary out of range');
23 END IF;
24* END;
25 /
```

Trigger created.

### 4. With delete option on emp



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---

SQL> select \* from dept;

| DEPTNO | DNAME      | LOC      | TOTSAL |
|--------|------------|----------|--------|
| 10     | accounting | new york | 8750   |
| 20     | research   | dallas   | 15025  |
| 30     | sales      | chicago  | 9400   |
| 40     | operations | boston   |        |

SQL> delete from emp where empno=7900;

1 row deleted.

SQL> select \* from dept;

| DEPTNO | DNAME      | LOC      | TOTSAL |
|--------|------------|----------|--------|
| 10     | accounting | new york | 8750   |
| 20     | research   | dallas   | 15025  |
| 30     | sales      | chicago  | 8450   |
| 40     | operations | boston   |        |

### 5. With insert option on emp

SQL> select \* from dept;

| DEPTNO | DNAME | LOC | TOTSAL |
|--------|-------|-----|--------|
|--------|-------|-----|--------|

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10 accounting      new york   8750  
20 research        dallas    15025  
30 sales            chicago   8450  
40 operations       boston

SQL> insert into emp values(8000,'Karthik','dbaprgm',7782,'12-aug-08',800,500,30);

1 row created.

SQL> select \* from dept;

| DEPTNO | DNAME | LOC | TOTSAL |
|--------|-------|-----|--------|
|--------|-------|-----|--------|

|    |            |          |       |
|----|------------|----------|-------|
| 10 | accounting | new york | 8750  |
| 20 | research   | dallas   | 15025 |
| 30 | sales      | chicago  | 9250  |
| 40 | operations | boston   |       |

SQL> insert into emp values(8000,'Karthik','dbaprgm',7782,'12-aug-08',8000,500,30);

SQL> insert into emp values(8000,'Karthik','dbaprgm',7782,'12-aug-08',8000,500,30);

insert into emp values(8000,'Karthik','dbaprgm',7782,'12-aug-08',8000,500,30)

\*

ERROR at line 1:

ORA-20230: salary out of range

ORA-06512: at "NANDU.TOTAL\_SALARY", line 19

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### 6.With update option on emp

SQL> select \* from dept;

| DEPTNO | DNAME      | LOC      | TOTSAL |
|--------|------------|----------|--------|
| 10     | accounting | new york | 8750   |
| 20     | research   | dallas   | 15025  |
| 30     | sales      | chicago  | 9250   |
| 40     | operations | boston   |        |

SQL> update emp set sal=800 where empno=7876;

1 row updated.

SQL> select \* from dept;

| DEPTNO | DNAME      | LOC      | TOTSAL |
|--------|------------|----------|--------|
| 10     | accounting | new york | 8750   |
| 20     | research   | dallas   | 12225  |
| 30     | sales      | chicago  | 9250   |
| 40     | operations | boston   |        |