UPES

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&
Energy Studies
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BATCH: 1

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Semester: 3

Experiment 17: To understand the concepts of Trigger.

Objective: Students will be able to implement the concept of trigger.

1. **CREATE TRIGGER SALARY_VIOLATION BEFORE INSERT OR UPDATE OF SALARY, SUPERVISOR_SSN ON EMPLOYEE of experiment 3.**

   INPUT:

```sql
1   CREATE OR REPLACE TRIGGER SALARY_VIOLATION
2   BEFORE INSERT OR UPDATE OF SALARY, SUPER_SSN ON EMPLOYEE
3   FOR EACH ROW
4   DECLARE
5       min_salary CONSTANT NUMBER := 30000; -- Minimum allowable salary
6       max_salary CONSTANT NUMBER := 200000; -- Maximum allowable salary
7       supervisor_count NUMBER; -- To hold the count of supervisors
8   BEGIN
9       -- Check if the salary is within the valid range
10      IF :NEW.SALARY < min_salary OR :NEW.SALARY > max_salary THEN
11          RAISE_APPLICATION_ERROR(-20001, 'Salary must be between 30,000 and 200,000.');
12      END IF;
13
14      -- Check if the supervisor's SSN is valid (exists in EMPLOYEE table or is NULL)
15      IF :NEW.SUPER_SSN IS NOT NULL THEN
16          SELECT COUNT(*)
17          INTO supervisor_count
18          FROM EMPLOYEE
19          WHERE SSN = :NEW.SUPER_SSN;
20
21          IF supervisor_count = 0 THEN
22              RAISE_APPLICATION_ERROR(-20002, 'Supervisor SSN must reference an existing employee or be NULL.');
23          END IF;
24      END IF;
25  END;
26  /
```

   Valid Insert:

```sql
1   INSERT INTO EMPLOYEE (Fname, Minit, Lname, Ssn, Bdate, Address, Sex, Salary, Super_ssn, Dno)
2   VALUES ('Alice', 'A', 'Doe', '111223333', DATE '1990-01-01', '123 Main St', 'F', 50000, '333445555', 5);
3   |
```

   Results   Explain   Describe   Saved SQL   History

   ```
   1 row(s) inserted.
   ```

   Invalid Insert:

```sql
1   INSERT INTO EMPLOYEE (Fname, Minit, Lname, Ssn, Bdate, Address, Sex, Salary, Super_ssn, Dno)
2   VALUES ('Bob', 'B', 'Smith', '444556666', DATE '1992-02-02', '456 Elm St', 'M', 25000, '333445555', 5);
3   |
```

   Results   Explain   Describe   Saved SQL   History

   ```
   ORA-20001: Salary must be between 30,000 and 200,000.
   ORA-06512: at "WKSP_AKSHATBALTI.SALARY_VIOLATION", line 8
   ORA-04088: error during execution of trigger 'WKSP_AKSHATBALTI.SALARY_VIOLATION'
   ```

Invalid Update:

```
1   UPDATE EMPLOYEE
2   SET SUPER_SSN = '999999999'
3   WHERE Ssn = '111223333';
```

Results   Explain   Describe   Saved SQL   History

```
ORA-04091: table WKSP_AKSHATBALTI.EMPLOYEE is mutating, trigger/function may not
see it
ORA-06512: at "WKSP_AKSHATBALTI.SALARY_VIOLATION", line 13
ORA-04088: error during execution of trigger 'WKSP_AKSHATBALTI.SALARY_VIOLATION'


1. UPDATE EMPLOYEE
2. SET SUPER_SSN = '999999999'
3. WHERE Ssn = '111223333';
```