ASSIGNMENT NO. 10

Aim

Write a database trigger (Row level and statement level)

Objective

To study and implement database trigger

Theory

- Stored programs that are executed in response to some kind of event that occurs in database.
- Triggers fires in response to a DML statement (insert, update delete) on specified table.
- Powerful mechanism for ensuring the integrity of data

```
Create trigger trigger_name
{before|after}
{update|insert|delete}
On table_name
For each row
Trigger statements
```

- Before|after specifies weather triger fires before of after the DML statement itself has been executed.
- Update|insert|delete specifies DML statement to which trigger is associated
- On table_name associates the trigger with a specific table
- For each row indicates that the trigger will be executed once for every row affected by the DML statement
- With after we are not able to modify the values about to modify the values about to be inserted into or updated with the table in question

Example of Row Level Trigger

```
Create trigger acctbalance
before update on account
For each row
Begin
Declare dummy int;
If new.balance< 0 then
Set new.balance=null;
End if;
End $$
```

Example of Statement Level Trigger

```
Create trigger acctbalance
before update on account
when new.balance< 0
Begin
Update account set new.balance = null where accno=new.accno;
End if;
End $$
```

```
CREATE TABLE employees_audit (
   id int(11) NOT NULL AUTO_INCREMENT,
employeeNumberint(11) NOT NULL,
lastnamevarchar(50) NOT NULL,
changedondatetime DEFAULT NULL,
   action varchar(50) DEFAULT NULL,
   PRIMARY KEY (id)
);
```

```
DELIMITER $$
CREATE TRIGGER before_employee_update
   BEFORE UPDATE ON employees
   FOR EACH ROW BEGIN

   INSERT INTO employees_audit
   SET action = 'update',
employeeNumber = OLD.emp_no,
lastname = OLD.lastname,
changedon = NOW();
END$$
DELIMITER ;
```

Output

- Row level and statement level trigger.

References:

1. Raghu Ramkrishanan, Johannes Gehrke 4 th Edition “Database Management Systems” 2. AviSilberschatz , Henry F. Korth , S. Sudarshan, “Database System Concepts, Sixth Edition”, ISBN-13: 978-93-3290-138-4, MCGraw Hill

Frequently Asked Questions

Q. No	Questions	BT	CO
1	Explain trigger concept?	2	2
2	Explain EER features?	2	2

Guidelines for Students

The experiments should be completed and get checked by the concerned teacher in the lab on or before the date of submission. After which the experiment will not be signed.

Every experiment must be included in the file in following format.

a. **Aim**: In this section write complete objective of the program you are going to make in the lab. This section specifies the complete description of the including problem analysis, input description, method used, fundamental concept and desired output format.

b. **Theory**: Write brief theory related to practical.

c. **Algorithm**: Write Algorithm for given task.

d. **Input**: Write input test data/ or program that are used to test program objective to see whether program is achieving the given objective or not.

e. **Output**: describe the results in few lines

f. **Conclusion**: Write complete conclusion whether what the student has learned from this experiment.

g. **Source Code**: Submit in the form of soft copies.

- **Marking criteria.**
  - Experiment completion (Timely)
  - Lab file (neatness and regularity)
  - Viva (from time to time)
  - Mock Practical Exam
  - Exam (end term): Practical + Viva
- **Assessment Methodology**
  - Timely completion of assignment- 2marks
  - Program demonstration- 4 marks
  - Viva-voce -2 marks
  - Timely submission of journal- 2 marks