Assignment-VIII

Title: Database Trigger.

Problem stedement:

Write a database trigger on student table. The system should keep track of the necords that are being updated or deleted. The old value of applated or deleted records should be added in Alumini table Student (Roll no, Name, Date of Admission, branch, percent, status).

Objective:
- Understand the concept of data:
- base triggers
- Understand the mysel commands.

8/w & H/w requirement 1-myscer, 64 bit 05 federa.

Outcomes:

The student will be able to emplement & apply types of database tregger.

A traigger defines an action the database should taken when some database-related event (such as priserts, updates, deletes) occur Inggers are similar to proadures in that they are rained Pl/sec

A procedure is executed explicitly from another black via a procedure call with passing arguments while a trigger Ps executed emphicitly whenever the trigger event happens.

Types of triggers!

There are tood types

of triggers in aracle o including raw
level trigger & statement level trigger

Row level triggers for data related activities. Pour level triggers execute once for each row in a translation Row level triggers are most common type of triggers. They are often used in data auditing applications Row level trigger es identified by the for each row clase in the create trigger command.

Statement level triggers for transaction related activities. Statement level triggers for execute once for each transaction. For example, If a a single transaction inserted 500 rows ento the customer table then statement level trigger on that table would only be executed once Statement level triggers are the defaut type of triggers created of are each row Before & After triggers, sence triggers occur because of events, they may be set to occur immediate -ly before or after those events. The events that coecute triggers are database transactions. Inggers on be executed immediately Before ar after the statements. Insert Opdate Deleter, After row level triggers are frequently used for auditing applications, since they do not fine until the row has been

modified.

valid trigger telpes (possible combination fer tniggers) statement (Insert, delet updates, Firning (Before, After), level (now level, statement-level) Syntax: create or replace triggers update major After Insert er delete orupelate onstuden Test case: Actual Operation Expected Result OP OP Dupdate students set name = 'john' student student Succes exist exist Stadent where i'd = 2. status status updated updented 29 Delete from Student student deleted students where Success deleted Student Student id =2, enterned in entered in Alamini Alumini conclusion: In this assignment we learn t to implement & apply row level triggers, as well as statement

```
#before update
DELIMITER $$
create trigger before_student_update
before update
on student for each row
begin
declare errorMessage varchar(200);
set errorMessage ='Roll no can not be greater than 60';
if new.Rollno >60 then
signal sqlstate '45000'
set message_text =errorMessage;
end if:
end$$
DELIMITER;
drop trigger before_student_update;
#After Update
DELIMITER $$
create trigger after_student_update
after update
on student for each row
begin
insert into Alumini (Name, before_Rollno, after_Rollno, Action) values
(old.Name,old.Rollno,new.Rollno,'update');
end$$
DELIMITER;
drop trigger after_student_update;
#before delete
DELIMITER $$
create trigger before_student_delete
before delete
on student for each row
begin
insert into Alumini (Name, Action) values (old. Name, 'delete');
end$$
DELIMITER;
drop trigger after_student_delete;
DELIMITER $$
create trigger after_student_delete
```

after delete

```
on student for each row
begin
declare no_student int;
declare no_alumini int;
declare rowcount int;
select count(*) into no_student from student;
select count(*) into no_alumini from Alumini;
select count(*) into rowcount from totalcount;
if rowcount<1 then
insert into totalcount(id,no_of_student,no_of_Alumini) values(1,no_student,no_alumini);
else
update totalcount set no_of_student=no_student,no_of_Alumini=no_alumini where id=1;
end if;
end$$
DELIMITER;
```

nysql> update student set Rollno-9 where id-4; Query OK, 1 row affected (0.64 sec) Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from student;

Ld		Rollno		Nane		DateofAdmission		branch	1	percent	Status
	ï	40	T	3	Ī	2018-08-06	ï	сопр	ï	8	P
				Akash		2019-08-06	Ť	EnTC	i	8	
		2		AMir		2018-08-06	Ť	EnTC	i	7 [P

3 rows in set (0.00 sec) mysql> update student set Rollno=63 where id=4; ERROR 1644 (43000): holl no can not be greater than 60 mysql> select * from Alumini;

Name	before_Rollnc	after_Rollno	Action	updatedAt
*				
Jaypal	31436	30	update	2020-10-08 11:56:28
Jaypel	NULL	HULL	delete	2020-10-08 12:15:44
]]	36	40	update	2020-10-15 68:02:11
Jaypal	NULL I	NULL	delete	2029-10-15 68:03:54
Akash	1	9	update	2020-16-15 68:11:52
			+	

5 rows in set (0.00 sec)

mysql> delete from student where id=5; Query CK, 1 row affected (0.08 sec)

į	Name	before_Rollno	after_Rollno	Action	updatedAt
i	Jaypal	31436	30	update	2020-10-08 11:56:28
ľ	Jaypal	NULL	NULL	delete	2020-10-08 12:15:44
i	3	30	40	update	Z020-10-15 08:02:11
i	Jaypal	NULL	NULL	delete	2020-10-15 68:03:54
Ĺ	Akash	1 1	9	update	2020-10-15 68:11:52
ı.	AHIT	NULL	NULL	delete	2020-10-15 68:13:21

o rows in set (0.00 sec)

mysql> select * from totalcount;

Ld	no_of_student	no_of_Alumini
1		

1 row in set (0.03 sec)

| id | no_of_student | no_of_Alumint |
| 1 | 1 | 4 |
1 row in set (0.00 sec)
nysql> update student set Rollno-9 where id=4;
Duery CK, 1 row affected (0.64 sec)
Rows matched: 1 Changed: 1 Warnings: 0 Dury OK, 1 row affected (6.64 sec)
Rows matched: 1 Changed: 1 Warnings: 8

mysql= select * from student;

id	Rollno	Name	Datecfadwission	branch	percent	Status				
id	Rollno	Name	Datecfadwission	branch	percent	Status				
id	Rollno	Name	Datecfadwission	branch	percent	Status				
id	Rollno	Name	Datecfadwission	branch	percent	Status				
id	Rollno	Name	Datecfadwission	branch	percent	Status				
id	Rollno	Name	Entro	Rollno	Status	Rollno	Rollno	Rollno	Rollno	Rollno
Saws in set (8.86 sec)										
mysql	select * from Alumini;									
Name	before_Rollno	after_Rollno	Action	updatedAt						
Jaypal	31436	30	update	2029-10-08	12:15:44					
Jaypal	NULL	NULL	delete	2029-10-15	68:03:54					
Jaypal	NULL	NULL	delete	2029-10-15	68:03:54					
Jaypal	NULL	NULL	delete	2029-10-15	68:03:15					
Akash	1	9	update	2029-10-15	68:03:54					
Oury Ok, 1 row affected (6.68 sec)										
mysql = select * from Alumini;	Jaypal	31436	Jaypal	MULL	J	30	J	30	J	Jaypal

mysql> update student set Rollno=9 where id=4; Query CK, 1 row affected (0.04 sec) Rows matched: 1 Changed: 1 Warnings; 0

mysql> select * from student;

id	Rollno		Nane		${\tt Date} of {\tt Admission}$		branch	percent		Status
3 1	40	ï	3	ï	2013-08-96	ï	сопр	8	ï	P I
1 4 1			Akesh		2013-08-06	î	EnTC	8	Ť	P I
5 1	2		AMIT		2018-08-06	i	ENTC		i.	P 1
					et Rollno=63 wher l no can not be o			in 60		
	select									

ļ	Name	before_Rollnc	after_Rollno	Acti	on updatedAt	1
ï	Jaypel	31436	30	upda	te 2020-10-08	11:56:28
i	Jaypal	NULL	NULL	dele	te 2020-10-08	12:15:44
i	1	36	40	I upda	te 2020-10-15	68:02:11
ï	Jaypal	NULL	NULL	dele	te 2020-10-15	68:03:54
i	Akash	1	9	upda	te 2028-18-15	68:11:52
÷						

5 rows in set (9.00 sec)

mysql> delete from student where ld=5; Query OK, 1 row affected (0.68 sec)

mysql> select * from Alumini;

į	Name	before_Rollnc	after_Rollno	Action	updatedAt
ĭ	Jaypal	31436	36	update	2020-10-08 11:56:28
ì	Jaypal	NULL	NULL	delete	2020-10-08 12:15:44
i		30	40	update	2020-10-15 68:02:11
i	Jaypal	NULL	NULL	delete	2020-16-15 68:03:54
ľ	Akash	1 1		update	2020-10-15 68:11:52
١	AMER	NULL	NULL	delete	2020-10-15 68:13:21

6 rows in set (0.00 sec)

mysql> select * from totalcount;

Ld	no_of_stu	dent	no of A	dumint
1		2		5
1 row i	n set (0.00	sec)	Addisorbati	

mysgl> update student set Rollno=9 where id=4; Query CK, 1 row affected (0.04 sec) Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from student;

Ld	Rollno		DateofAdmission				
3	40		2013-08-06	У	cone I	1	
					EnTC	i i	
		AMIT	2013-08-06	ľ	EnTC		

3 rows in set (9.06 sec) nysql> update student set Rollno=63 where id=4; ERROR 1644 (45086): Roll no can not be greater than 60 nysql- select * from Alumini;

Jaypal	31436	30	update	2628-18-88	11:56:28
Jaypal	NULL	NULL	delete	2620-10-08	12:15:44
3	36	40	update	2020-10-15	68:02:11
Jaypal	NULL	HULL	delete	2020-10-15	68:03:54
Akash	1	9	update	2020-10-15	68:11:52

nysql> delete from student where id=5; Query GK, i row affected (0.68 sec) nysql> select * from Alumini;

	before_Rollno			updatedAt
Jaypal Jaypal	j NULL	NULL	delete	2620-16-08 11:56:28 2620-16-08 12:15:44
] Jaypal	NULL	NULL	delete	2020-10-15 68:02:11 2020-10-15 68:03:54
Akash AMIr	I NULL			2025-10-15 08:11:52 2025-10-15 08:13:21

6 rows in set (9.96 sec)

	no_of_student	
1	2	

1 row in set (0.00 sec)