Assignment - VIII

Title :- Database Trigger.

Problem statement :-
Write a database trigger on student table. The system should keep track of the records that are being updated or deleted. The old value of updated 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 mysql commands.

S/W & H/W requirement :-
mysql, 64 bit OS fedora.

Outcomes :-
The student will be able to implement & apply types of database trigger.

Theory :-

A trigger defines an action the database should taken when some database - related event (such as inserts, updates, deletes) occur Triggers are similar to procedures in that they are named PL/SQL blocks.

A procedure is executed explicitly from another block via a procedure call with passing arguments while a trigger is executed implicitly. Whenever the trigger event happens.

Types of triggers :-

There are two types of triggers in oracle • including row level trigger & statement level trigger.

Row level triggers for data related activities. Row 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 is 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 single transaction inserted 500 rows into 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 & are identified by omitting for each row.

Before & After triggers,

Since triggers occur because of events, they may be set to occur immediate -ly before or after those events. The events that execute triggers are database transactions. Triggers can be executed immediately Before or after the statements. Insert, Update, Deletes.

After row level triggers are frequently used in auditing applications, since they do not fire until the row has been modified.

valid trigger types (possible combination for triggers) statement (Insert, delete, update) , Timing (Before, After] , level (row-level , statement-level|

Syntax :-

create or replace triggers update major stats.
After Insert or delete or update on student

Testcase :-

Operation	Actual o/p	Expected o/p	Result
1) Update students set name = 'john' where id = 2.	student exist ~~student~~ status updated	student exist status updated	success
2) Delete from students where id =2.	student deleted Student entered in Alumini	Student deleted student entered in Alumini	Success

conclusion :- In this assignment we learnt to implement & apply row level triggers, as well as statement level triggers.

```
#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;

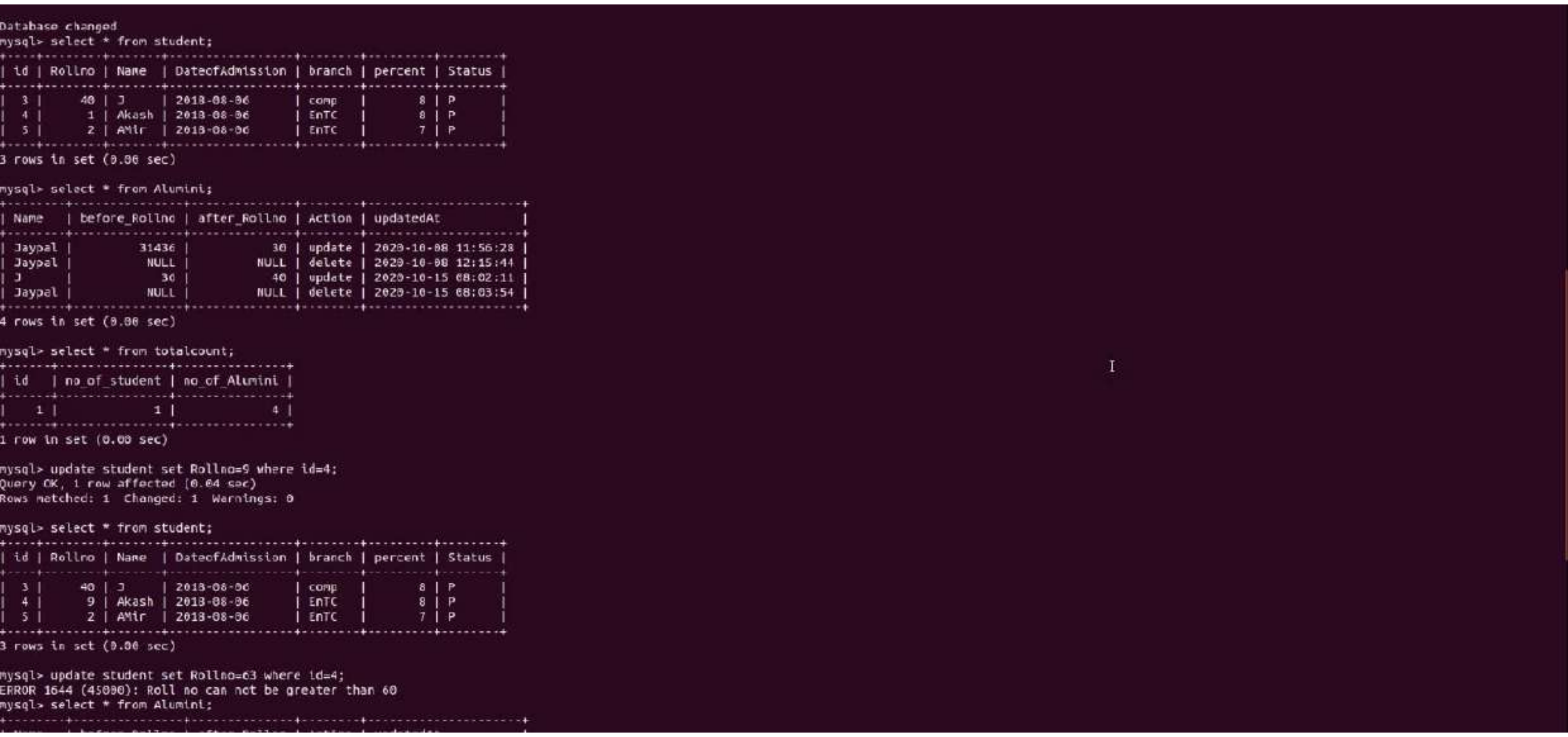

#before delete
DELIMITER $$
create trigger before_student_delete
before delete
on student for each row
begin

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 ;
```



```
Database changed
mysql> select * from student;
+----+--------+-------+-----------------+--------+---------+--------+
| id | Rollno | Name  | DateofAdmission | branch | percent | Status |
+----+--------+-------+-----------------+--------+---------+--------+
|  3 |     40 | J     | 2018-08-06      | comp   |       8 | P      |
|  4 |      1 | Akash | 2018-08-06      | EnTC   |       8 | P      |
|  5 |      2 | AMir  | 2018-08-06      | EnTC   |       7 | P      |
+----+--------+-------+-----------------+--------+---------+--------+
3 rows in set (0.00 sec)

mysql> select * from Alumini;
+--------+---------------+--------------+--------+---------------------+
| Name   | before_Rollno | after_Rollno | Action | updatedAt           |
+--------+---------------+--------------+--------+---------------------+
| Jaypal |         31436 |           30 | update | 2020-10-08 11:56:28 |
| Jaypal |          NULL |         NULL | delete | 2020-10-08 12:15:44 |
| J      |            30 |           40 | update | 2020-10-15 08:02:11 |
| Jaypal |          NULL |         NULL | delete | 2020-10-15 08:03:54 |
+--------+---------------+--------------+--------+---------------------+
4 rows in set (0.00 sec)

mysql> select * from totalcount;
+------+---------------+--------------+
| id   | no_of_student | no_of_Alumini |
+------+---------------+--------------+
|    1 |             1 |            4 |
+------+---------------+--------------+
1 row in set (0.00 sec)

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

mysql> select * from student;
+----+--------+-------+-----------------+--------+---------+--------+
| id | Rollno | Name  | DateofAdmission | branch | percent | Status |
+----+--------+-------+-----------------+--------+---------+--------+
|  3 |     40 | J     | 2018-08-06      | comp   |       8 | P      |
|  4 |      9 | Akash | 2018-08-06      | EnTC   |       8 | P      |
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+----+--------+-------+-----------------+--------+---------+--------+
3 rows in set (0.00 sec)

mysql> update student set Rollno=63 where id=4;
ERROR 1644 (45000): Roll no can not be greater than 60
mysql> select * from Alumini;
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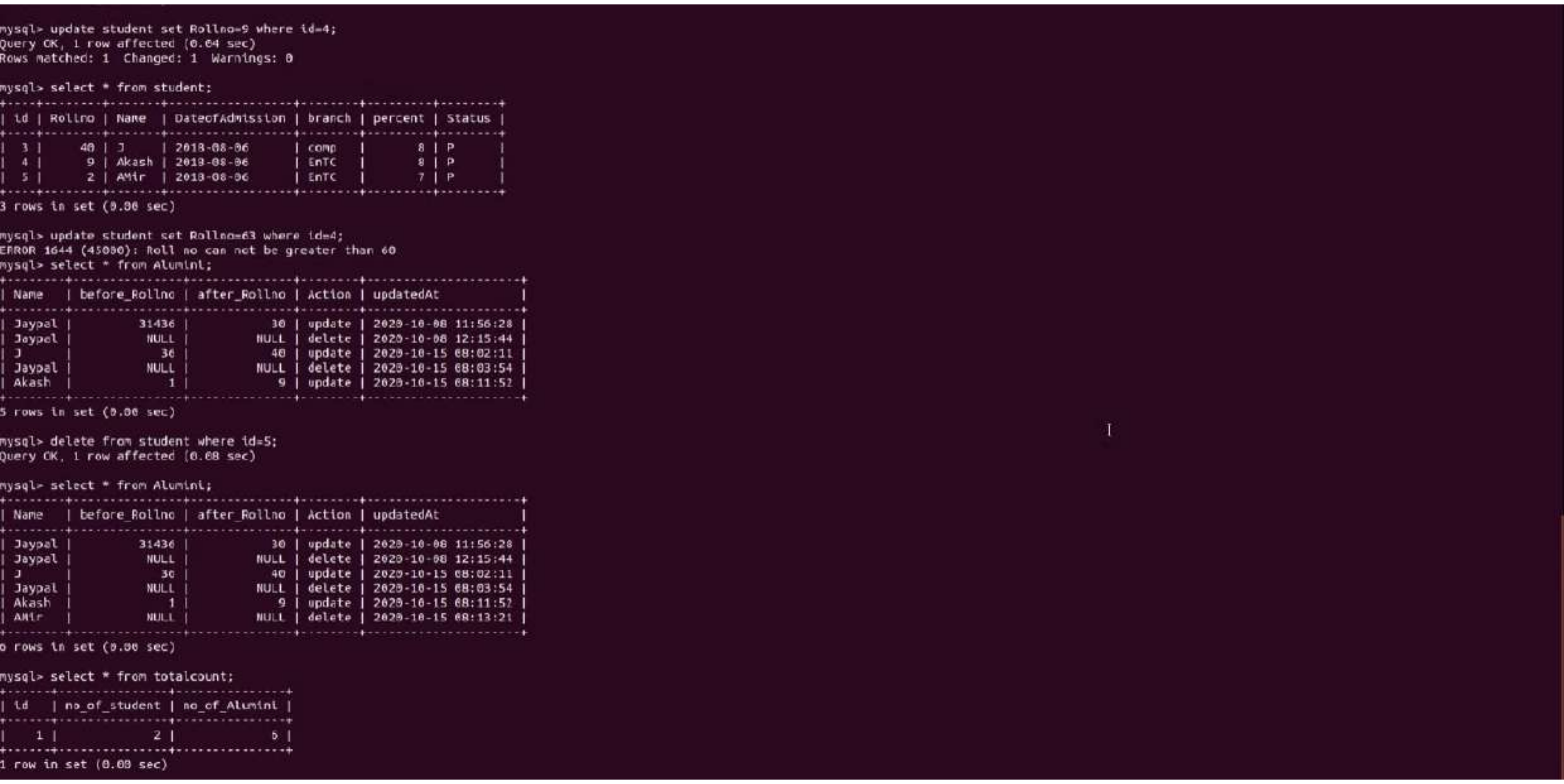
```



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| Akash  |             1 |            9 | update | 2020-10-15 08:11:52 |
+--------+---------------+--------------+--------+---------------------+
5 rows in set (0.00 sec)

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

mysql> select * from Alumini;
+--------+---------------+--------------+--------+---------------------+
| Name   | before_Rollno | after_Rollno | Action | updatedAt           |
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| Jaypal |         31436 |           30 | update | 2020-10-08 11:56:28 |
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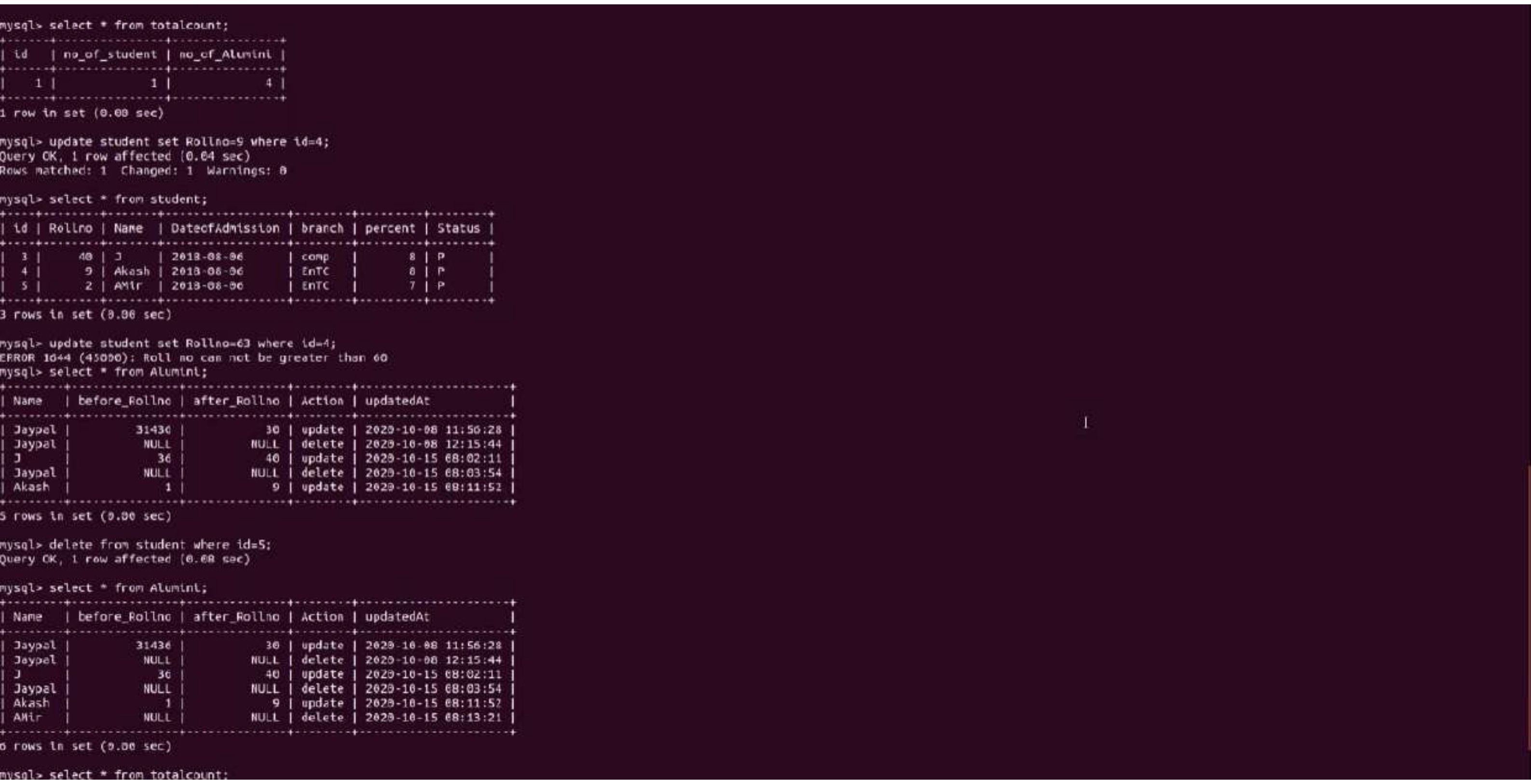
| Akash  |             1 |            9 | update | 2020-10-15 08:11:52 |
| AMir   |          NULL |         NULL | delete | 2020-10-15 08:13:21 |
+--------+---------------+--------------+--------+---------------------+
6 rows in set (0.00 sec)

mysql> select * from totalcount;
+------+----------------+---------------+
| id   | no_of_student  | no_of_Alumini |
+------+----------------+---------------+
|    1 |              2 |             6 |
+------+----------------+---------------+
1 row in set (0.00 sec)
```



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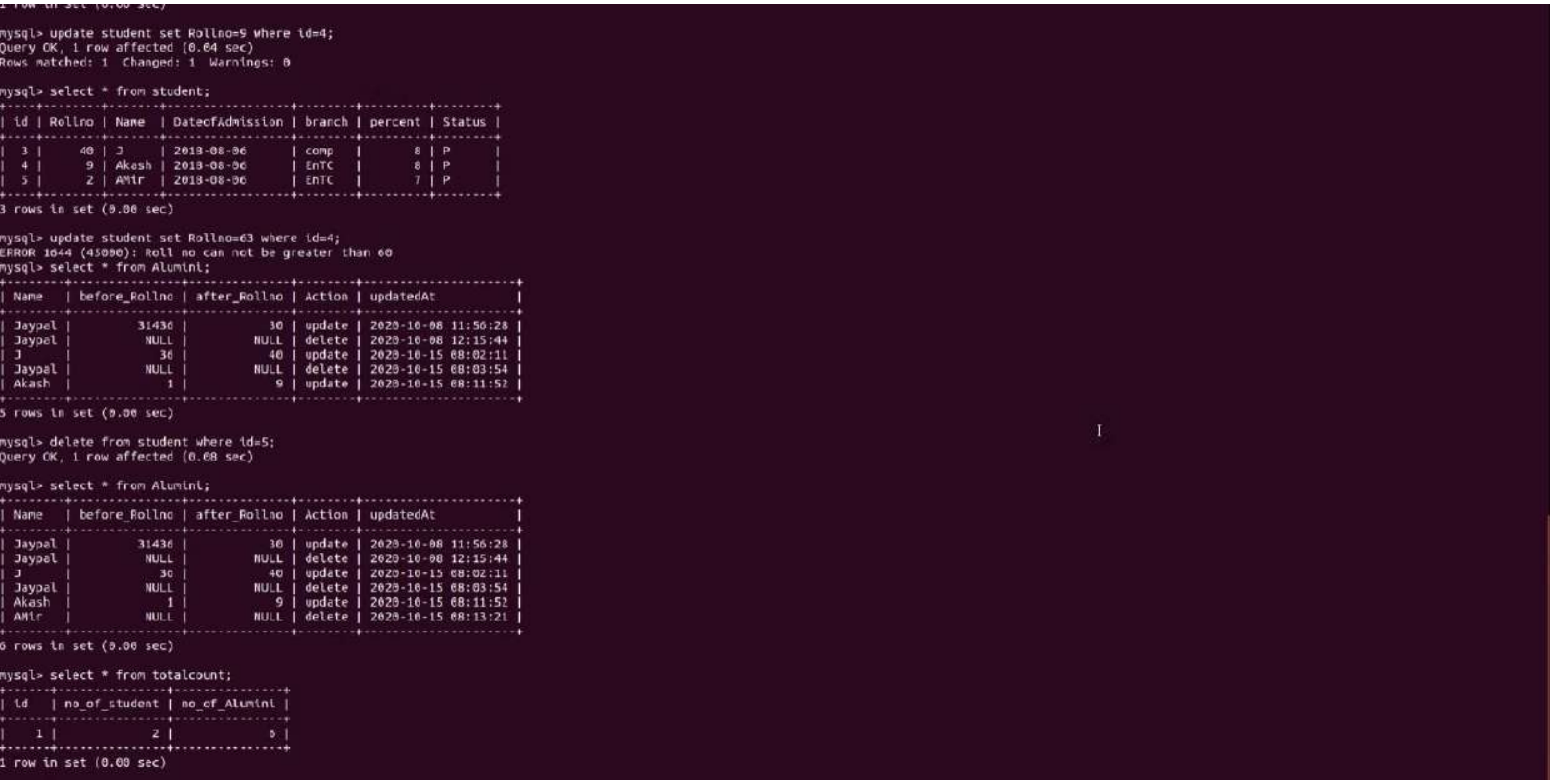

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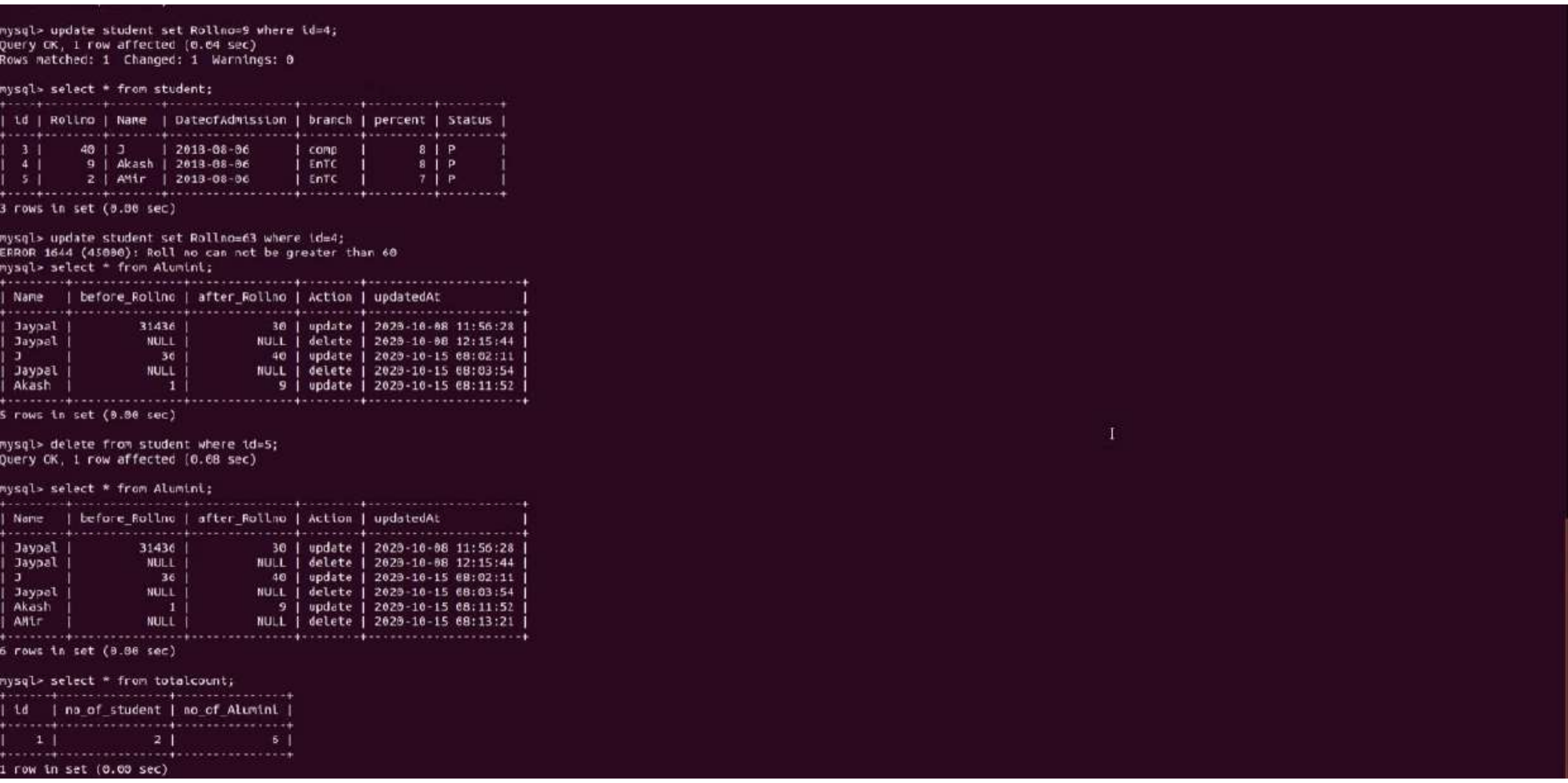

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