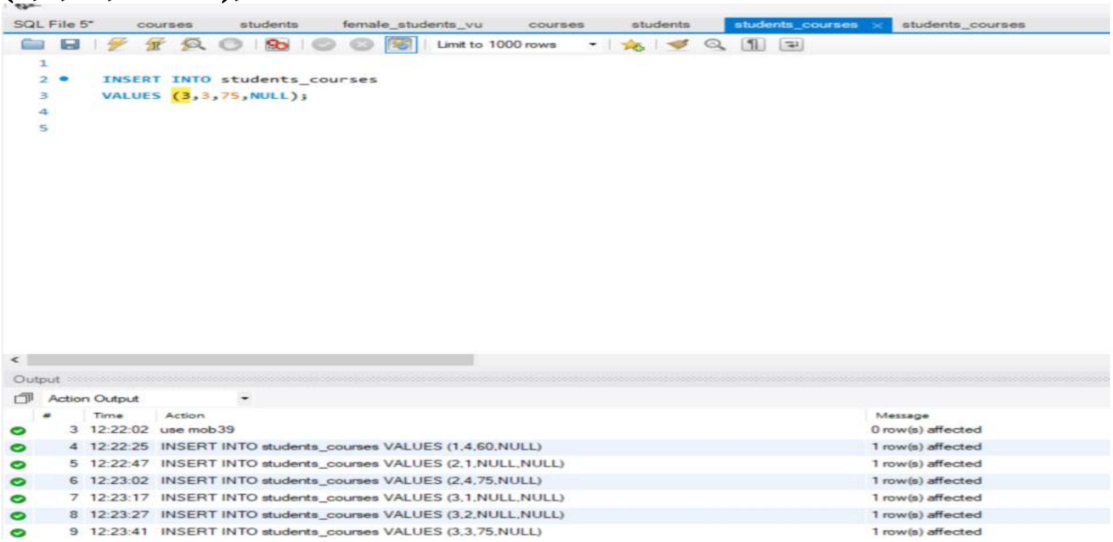
MySQL Labs

MySQL (Day3):

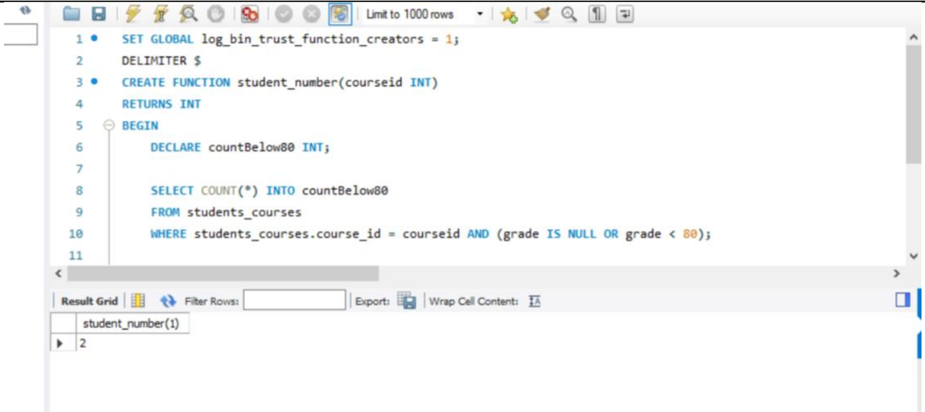
Insert values into students_courses
(1,4,60,NULL),
(2,1,NULL,NULL),
(2,4,75,NULL),
(3,1,NULL,NULL),
(3,2,NULL,NULL),
(3,3,75,NULL);



```
INSERT INTO students_courses
VALUES (3,3,75,NULL);
```

```
#  Time      Action                                                  Message
3  12:22:02  use mob39                                               0 row(s) affected
4  12:22:25  INSERT INTO students_courses VALUES (1,4,60,NULL)       1 row(s) affected
5  12:22:47  INSERT INTO students_courses VALUES (2,1,NULL,NULL)     1 row(s) affected
6  12:23:02  INSERT INTO students_courses VALUES (2,4,75,NULL)       1 row(s) affected
7  12:23:17  INSERT INTO students_courses VALUES (3,1,NULL,NULL)     1 row(s) affected
8  12:23:27  INSERT INTO students_courses VALUES (3,2,NULL,NULL)     1 row(s) affected
9  12:23:41  INSERT INTO students_courses VALUES (3,3,75,NULL)       1 row(s) affected
```

1 ***Create function to calculate the number of students who get grade less than 80 in a certain exam (course id will be sent as a parameter)***



```
SET GLOBAL log_bin_trust_function_creators = 1;
DELIMITER $
CREATE FUNCTION student_number(courseid INT)
RETURNS INT
BEGIN
    DECLARE countBelow80 INT;

    SELECT COUNT(*) INTO countBelow80
    FROM students_courses
    WHERE students_courses.course_id = courseid AND (grade IS NULL OR grade < 80);

```

```
student_number(1)
2
```

```
SET GLOBAL log_bin_trust_function_creators = 1;
DELIMITER $
CREATE FUNCTION student_number(courseid INT)
RETURNS INT
BEGIN
   DECLARE countBelow80 INT;

   SELECT COUNT(students_courses.student_id) INTO countBelow80
   FROM students_courses
   WHERE students_courses.course_id = courseid AND (grade IS NULL OR grade < 80);

   RETURN countBelow80;
END $

DELIMITER ;
Select student_number(1);
```

2 **Create stored procedure to display the names of the absence students of a certain courses.(Absent means has no grades)**

```
drop procedure if exists absentStudents;
delimiter $
CREATE PROCEDURE absentStudents(courseid integer)
BEGIN
Select  students.first_name, students.last_name
from students
 WHERE NOT EXISTS (
        SELECT 1
        FROM students_courses
        WHERE students_courses.student_id = students.student_id AND students_courses.course_id = courseid
    );

END$
delimiter ;
Call absentStudents(1);
```

3 **Create stored procedure to calculate the average grades for certain course.**

```
drop procedure if exists average_score;
delimiter $
CREATE PROCEDURE average_score(courseidparam integer, out avgGrade DECIMAL(5,2))
BEGIN
 SELECT AVG(grade) INTO avgGrade
    FROM students_courses
    WHERE course_id = courseidParam AND grade IS NOT NULL;
END$
delimiter ;


CALL average_score(1, @averageGrade);
SELECT @averageGrade AS 'AverageGradeForCourse';
```

4 **Create trigger to keep track the changes(updates) of the grades in the students_courses table**
(create <u>changes table</u> with the following fields:
id int primary key ,
user varchar(30),

action varchar(40),
old_grade int,
new_grade int,
change_date date).

Test the trigger by updating grade int the "Students_courses" table

Confirm that the row is added in the" change_table"

```
CREATE TABLE IF NOT EXISTS `changes` (
    `id` INT AUTO_INCREMENT PRIMARY KEY,
    `user` VARCHAR(30),
    `action` VARCHAR(40),
    `old_grade` INT,
    `new_grade` INT,
    `change_date` DATE
) ENGINE = INNODB;


DELIMITER $
CREATE TRIGGER Grades_updates
AFTER UPDATE ON students_courses
FOR EACH ROW
BEGIN
    IF OLD.grade != NEW.grade THEN
        INSERT INTO changes
        VALUES (USER(), 'Update Grade', OLD.grade, NEW.grade,
CURDATE());
    END IF;
END;
$
DELIMITER ;
```

5 ***Create event to delete the changes tables every 5 minute***

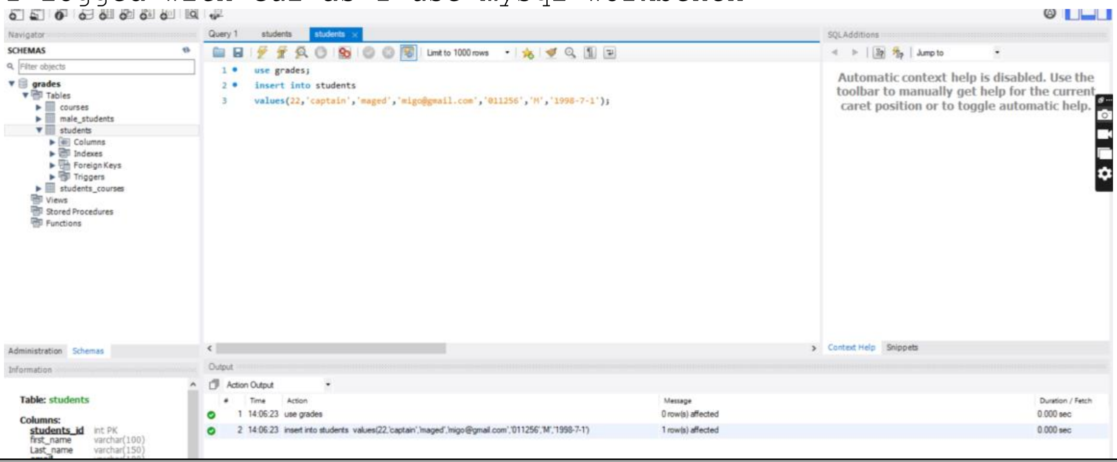
```
CREATE EVENT delete_changes
ON SCHEDULE EVERY 5 minute
DO
DELETE FROM changes;
```

6 **Create a user with your name and give him the privilege to access the grades database**

```
CREATE USER  'Gamal' ;
GRANT all
ON grades.*
TO Gamal ;
```

7 **Connect to mysql using the user you created and try to insert one record in the courses table.**

I logged with Gui as I use mysql workbench



```
use grades;
insert into students
values(22,'captain','maged','migo@gmail.com','011256','M','1998-7-1');
```

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

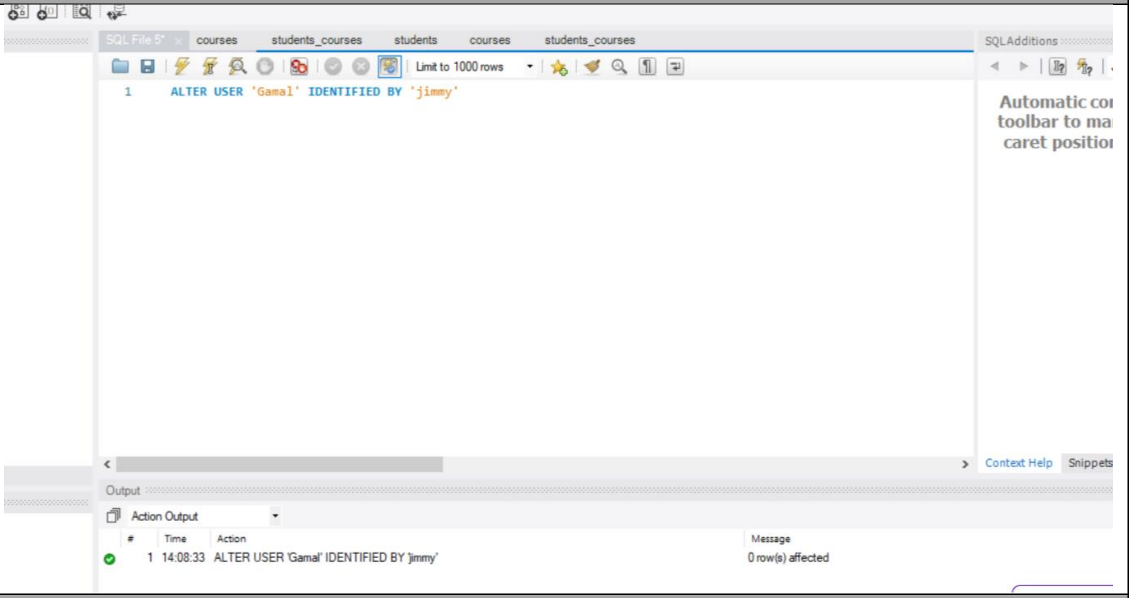
```
#  Time      Action                                                                                      Message             Duration / Fetch
1  14:06:23  use grades                                                                                  0 row(s) affected   0.000 sec
2  14:06:23  insert into students values(22,'captain','maged','migo@gmail.com','011256','M','1998-7-1')  1 row(s) affected   0.000 sec
```

Table: students

Columns:

```
students_id  int PK
first_name   varchar(100)
Last_name    varchar(150)
```

8 **Change your password.**



```
ALTER USER 'Gamal' IDENTIFIED BY 'jimmy'
```

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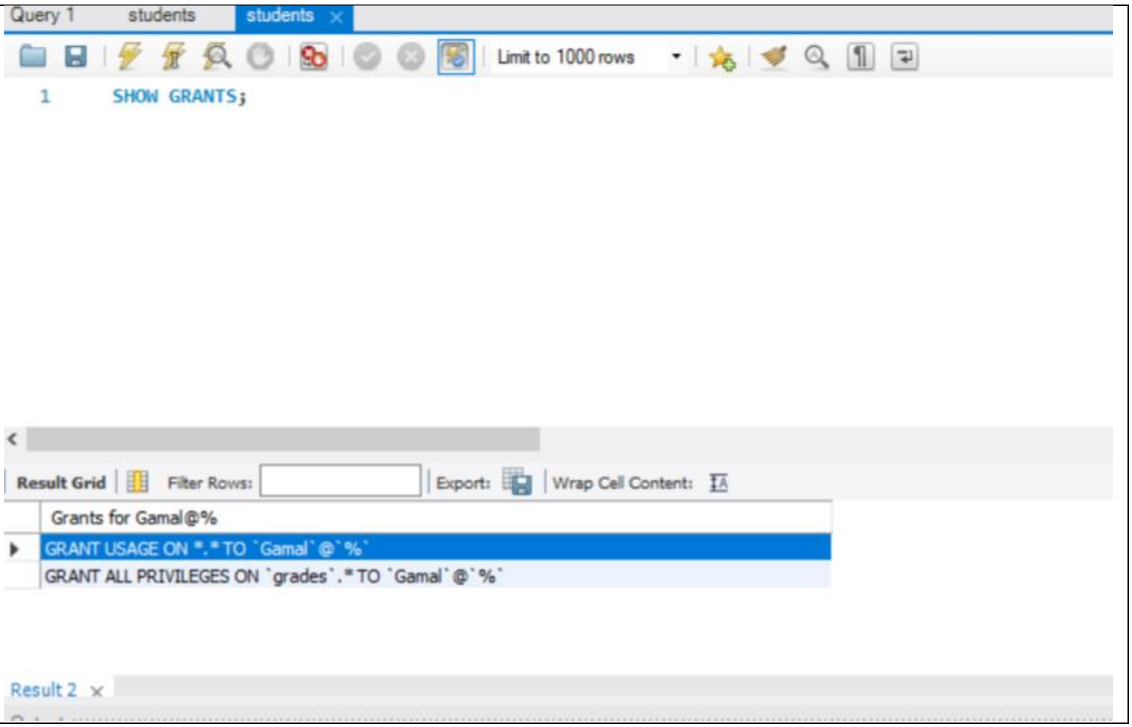
caret positio

```
#  Time      Action                                    Message
1  14:08:33  ALTER USER 'Gamal' IDENTIFIED BY 'jimmy'  0 row(s) affected
```

9 **Show your privileges.**



```
SHOW GRANTS;
```

```
Grants for Gamal@%
GRANT USAGE ON *.* TO `Gamal`@`%`
GRANT ALL PRIVILEGES ON `grades`.* TO `Gamal`@`%`
```