DBMS – Mini Project
Student Management System

Submitted by :

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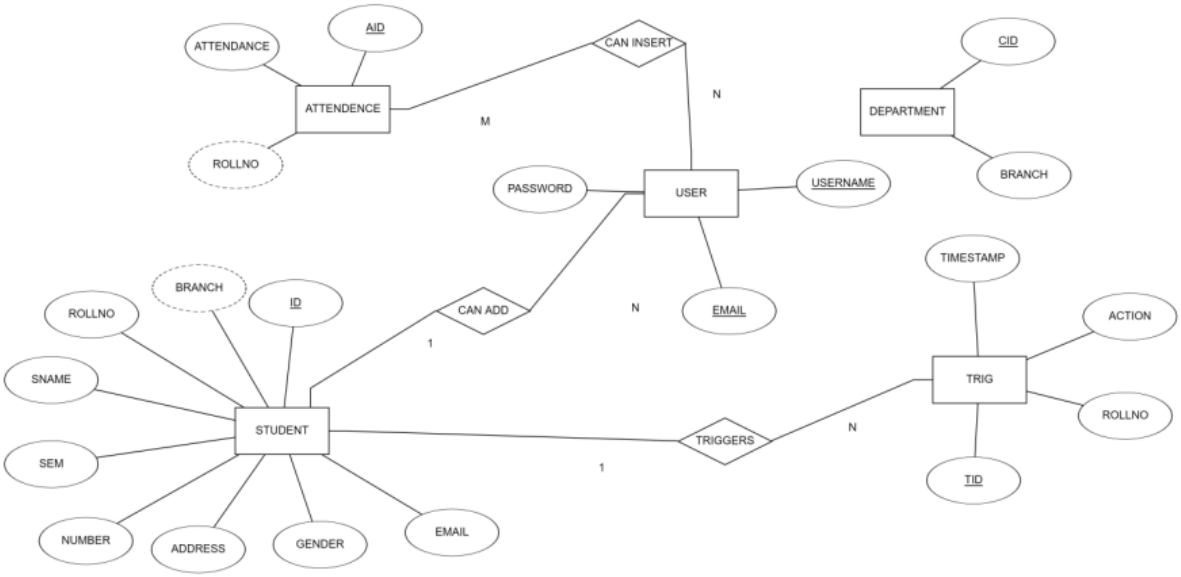
5th Semester Section '**D**'

Short Description and Scope of the Project

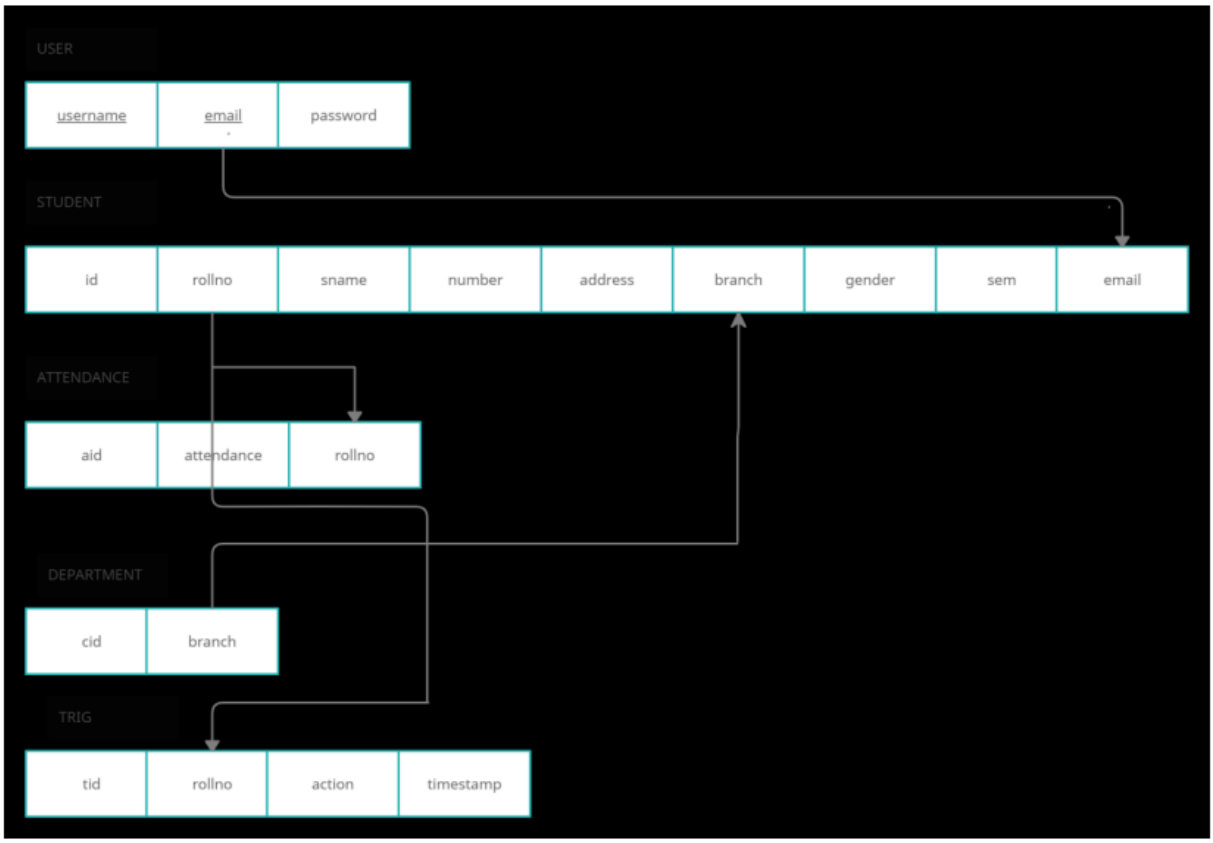
Student Management System is software which is helpful for students as well as the school authorities. In the current system all the activities are done manually. Its time saving and scalable. Our Student Management System deals with the various activities related to the students
In the software we can register as a user and user has two types student and administrator. The administrator has the power to add new user and can edit the students details entered. A admin can add students record ,attendance status with department wise. All students can search his/her basics details and attendance status with there respective roll numbers.

- The main objective of the project is to design and develop a user friendly-system
- Easy to use and an efficient computerized system.
- Developing an accurate and flexible system, it will eliminate data redundancy.
- To study the functioning of the Students Management System.
- To make software fast in processing, with a good user interface.
- To make software with a good user interface so that users can change it and it should be used for a long time without error and maintenance.
- To provide a synchronized and centralized farmer and seller database.
- Computerization can be helpful as a means of saving time and money.
- To provide a better Graphical User Interface (GUI).
- Lesser chances of information leakage.
- Provides Security to the data by using login and password methods.
- To provide immediate storage and retrieval of data and information.
- Improving arrangements for student coordination.
- Reducing paperwork.

ER Diagram



Relational Schema



DDL statements - Building the database

1] CREATE DATABASE studentmanagement;

```
MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| pes2ug20cs177_lab10 |
| phpmyadmin         |
| railways_db_177    |
| studentmanagement  |
| sys                |
| test               |
| wordpress          |
+--------------------+
10 rows in set (0.001 sec)
```

2]

```
CREATE TABLE `attendence` (
  `aid` int(11) NOT NULL,
  `rollno` varchar(20) NOT NULL,
  `attendance` int(100) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
MariaDB [studentmanagement]> describe attendence;
+------------+-------------+------+-----+---------+----------------+
| Field      | Type        | Null | Key | Default | Extra          |
+------------+-------------+------+-----+---------+----------------+
| aid        | int(11)     | NO   | PRI | NULL    | auto_increment |
| rollno     | varchar(20) | NO   |     | NULL    |                |
| attendance | int(100)    | NO   |     | NULL    |                |
+------------+-------------+------+-----+---------+----------------+
3 rows in set (0.007 sec)
```

3]

```
CREATE TABLE `department` (
  `cid` int(11) NOT NULL,
  `branch` varchar(50) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
MariaDB [studentmanagement]> describe department;
+--------+-------------+------+-----+---------+----------------+
| Field  | Type        | Null | Key | Default | Extra          |
+--------+-------------+------+-----+---------+----------------+
| cid    | int(11)     | NO   | PRI | NULL    | auto_increment |
| branch | varchar(50) | NO   |     | NULL    |                |
+--------+-------------+------+-----+---------+----------------+
2 rows in set (0.006 sec)
```

4]
```
CREATE TABLE `student` (
  `id` int(11) NOT NULL,
  `rollno` varchar(20) NOT NULL,
  `sname` varchar(50) NOT NULL,
  `sem` int(20) NOT NULL,
  `gender` varchar(50) NOT NULL,
  `branch` varchar(50) NOT NULL,
  `email` varchar(50) NOT NULL,
  `number` varchar(12) NOT NULL,
  `address` text NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
MariaDB [studentmanagement]> describe student;
+---------+-------------+------+-----+---------+----------------+
| Field   | Type        | Null | Key | Default | Extra          |
+---------+-------------+------+-----+---------+----------------+
| id      | int(11)     | NO   | PRI | NULL    | auto_increment |
| rollno  | varchar(20) | NO   |     | NULL    |                |
| sname   | varchar(50) | NO   |     | NULL    |                |
| sem     | int(20)     | NO   |     | NULL    |                |
| gender  | varchar(50) | NO   |     | NULL    |                |
| branch  | varchar(50) | NO   |     | NULL    |                |
| email   | varchar(50) | NO   |     | NULL    |                |
| number  | varchar(12) | NO   |     | NULL    |                |
| address | text        | NO   |     | NULL    |                |
+---------+-------------+------+-----+---------+----------------+
9 rows in set (0.006 sec)
```

5]
```
CREATE TABLE `test` (
  `id` int(11) NOT NULL,
  `name` varchar(52) NOT NULL,
  `email` varchar(50) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
MariaDB [studentmanagement]> describe test;
+-------+-------------+------+-----+---------+----------------+
| Field | Type        | Null | Key | Default | Extra          |
+-------+-------------+------+-----+---------+----------------+
| id    | int(11)     | NO   | PRI | NULL    | auto_increment |
| name  | varchar(52) | NO   |     | NULL    |                |
| email | varchar(50) | NO   |     | NULL    |                |
+-------+-------------+------+-----+---------+----------------+
3 rows in set (0.005 sec)
```

6]
```
CREATE TABLE `user` (
  `id` int(11) NOT NULL,
  `username` varchar(50) NOT NULL,
  `email` varchar(50) NOT NULL,
  `password` varchar(500) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
MariaDB [studentmanagement]> describe user;
+----------+--------------+------+-----+---------+----------------+
| Field    | Type         | Null | Key | Default | Extra          |
+----------+--------------+------+-----+---------+----------------+
| id       | int(11)      | NO   | PRI | NULL    | auto_increment |
| username | varchar(50)  | NO   |     | NULL    |                |
| email    | varchar(50)  | NO   |     | NULL    |                |
| password | varchar(500) | NO   |     | NULL    |                |
+----------+--------------+------+-----+---------+----------------+
4 rows in set (0.006 sec)
```

7]
```
CREATE TABLE `trig` (
  `tid` int(11) NOT NULL,
  `rollno` varchar(50) NOT NULL,
  `action` varchar(50) NOT NULL,
  `timestamp` datetime NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
MariaDB [studentmanagement]> describe trig;
+-----------+-------------+------+-----+---------+----------------+
| Field     | Type        | Null | Key | Default | Extra          |
+-----------+-------------+------+-----+---------+----------------+
| tid       | int(11)     | NO   | PRI | NULL    | auto_increment |
| rollno    | varchar(50) | NO   |     | NULL    |                |
| action    | varchar(50) | NO   |     | NULL    |                |
| timestamp | datetime    | NO   |     | NULL    |                |
+-----------+-------------+------+-----+---------+----------------+
4 rows in set (0.005 sec)
```

8] SHOW tables;

```
MariaDB [studentmanagement]> SHOW tables;
+-----------------------------+
| Tables_in_studentmanagement |
+-----------------------------+
| attendence                  |
| department                  |
| student                     |
| test                        |
| trig                        |
| user                        |
+-----------------------------+
6 rows in set (0.000 sec)
```

9] Adding Primary key Constraints

```
-- Indexes for table `attendence`
--
ALTER TABLE `attendence`
  ADD PRIMARY KEY (`aid`);

--
-- Indexes for table `department`
--
ALTER TABLE `department`
  ADD PRIMARY KEY (`cid`);

--
-- Indexes for table `student`
--
ALTER TABLE `student`
  ADD PRIMARY KEY (`id`);

--
-- Indexes for table `test`
```

```
--
ALTER TABLE `test`
  ADD PRIMARY KEY (`id`);

--
-- Indexes for table `trig`
--
ALTER TABLE `trig`
  ADD PRIMARY KEY (`tid`);

--
-- Indexes for table `user`
--
ALTER TABLE `user`
  ADD PRIMARY KEY (`id`);
```

Creating tables from existing tables according to departments

10] CS Dept

```
CREATE TABLE CS_Dept AS SELECT rollno,sname FROM Student WHERE branch
='computer science';
```

```
MariaDB [studentmanagement]> describe CS_Dept;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| rollno | varchar(20) | NO   |     | NULL    |       |
| sname  | varchar(50) | NO   |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
2 rows in set (0.005 sec)
```

11] EC Dept

```
CREATE TABLE EC_Dept AS SELECT rollno,sname FROM Student WHERE branch
='Electronic and Communication';
```

```
MariaDB [studentmanagement]> describe EC_Dept;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| rollno | varchar(20) | NO   |     | NULL    |       |
| sname  | varchar(50) | NO   |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
2 rows in set (0.005 sec)
```

12] Design Dept

```
CREATE TABLE DE_Dept AS SELECT rollno,sname FROM Student WHERE branch
='Design';
```

```
MariaDB [studentmanagement]> describe DE_Dept;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| rollno | varchar(20) | NO   |     | NULL    |       |
| sname  | varchar(50) | NO   |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
2 rows in set (0.005 sec)
```

13] EE dept

```
CREATE TABLE EE_Dept AS SELECT rollno,sname FROM Student WHERE branch
='Electrical & Electronic';
```

```
MariaDB [studentmanagement]> describe EE_Dept;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| rollno | varchar(20) | NO   |     | NULL    |       |
| sname  | varchar(50) | NO   |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
2 rows in set (0.004 sec)
```

Populating the Database

1] Attendance table

```
MariaDB [studentmanagement]> select * from attendence;
+-----+---------------+------------+
| aid | rollno        | attendance |
+-----+---------------+------------+
|   1 | PES1UG20CS177 |         55 |
|   2 | PES1UG20CS174 |         50 |
|   3 | PES1UG20CS178 |         49 |
|   4 | PES1UG20CS854 |         58 |
|   5 | PES1UG20CS569 |         44 |
|   6 | PES1UG20CS563 |         56 |
|   7 | PES1UG20CS852 |         35 |
|   8 | PES1UG20CS475 |         40 |
|   9 | PES1UG20CS214 |         45 |
|  10 | PES1UG20CS362 |         25 |
|  11 | PES1UG20CS587 |         60 |
|  12 | PES1UG20CS754 |         58 |
|  13 | PES1UG20CS455 |         45 |
+-----+---------------+------------+
```

2] Department Table

```
MariaDB [studentmanagement]> select * from department;
+-----+-------------------------------+
| cid | branch                        |
+-----+-------------------------------+
|   2 | Design                        |
|   3 | Electronic and Communication  |
|   4 | Electrical & Electronic       |
|   5 | Civil                         |
|   7 | computer science              |
|   8 | IOT                           |
+-----+-------------------------------+
6 rows in set (0.001 sec)
```

3] Student Table

```
MariaDB [studentmanagement]> select * from student;
+----+---------------+-----------+-----+--------+-----------------------------+----------------------+------------+-----------+
| id | rollno        | sname     | sem | gender | branch                      | email                | number     | address   |
+----+---------------+-----------+-----+--------+-----------------------------+----------------------+------------+-----------+
| 16 | PES1UG20CS177 | Ravi      |   5 | male   | computer science            | ravi@gmail.com       | 8431321252 | Bangalore |
| 17 | pes1ug20ec456 | Karan     |   5 | male   | computer science            | karanboltz7@gmail.com | 8523697415 | Delhi     |
| 18 | PES1UG20DE852 | Sanvi     |   5 | female | Design                      | sanvi@gmail.com      | 8523691475 | Mumbai    |
| 19 | pes1ug20ec456 | GuruKiran |   5 | male   | Electronic and Communication | khu@gmail.com        | 8569321475 | Bangalore |
| 21 | pes1ug20cs221 | Kruthi    |   5 | female | computer science            | mixie182002@gmail.com | 8547125459 | Bangalore |
+----+---------------+-----------+-----+--------+-----------------------------+----------------------+------------+-----------+
5 rows in set (0.000 sec)
```

4] Test Table

```
MariaDB [studentmanagement]> select * from test;
+----+--------+------------------+
| id | name   | email            |
+----+--------+------------------+
|  1 | aaa    | aaa@gmail.com    |
|  2 | aBa    | aBB@gmail.com    |
|  3 | aSBa   | aSBB@gmail.com   |
|  4 | addSBa | addSBB@gmail.com |
|  5 | aSBlla | aSBllB@gmail.com |
+----+--------+------------------+
5 rows in set (0.000 sec)
```

5] Trigger table

```
MariaDB [studentmanagement]> select * from trig;
+-----+--------------+------------------+---------------------+
| tid | rollno       | action           | timestamp           |
+-----+--------------+------------------+---------------------+
|   7 | pes1ug20cs012 | STUDENT INSERTED | 2022-11-10 19:19:56 |
|   8 | pes1ug20cs012 | STUDENT UPDATED  | 2022-11-10 19:20:31 |
|   9 | pes1ug20cs012 | STUDENT DELETED  | 2022-11-10 19:21:23 |
|  17 | PES1UG20CS177 | STUDENT INSERTED | 2022-11-24 23:31:29 |
|  18 | pes1ug20ec456 | STUDENT INSERTED | 2022-11-24 23:33:02 |
|  19 | PES1UG20DE852 | STUDENT INSERTED | 2022-11-24 23:33:19 |
|  20 | pes1ug20ec456 | STUDENT INSERTED | 2022-11-24 23:34:00 |
|  21 | PES1UG20DE852 | STUDENT INSERTED | 2022-11-24 23:35:37 |
|  22 | PES1UG20DE852 | STUDENT UPDATED  | 2022-11-24 23:36:40 |
|  23 | PES1UG20DE852 | STUDENT UPDATED  | 2022-11-24 23:36:40 |
|  24 | PES1UG20DE852 | STUDENT DELETED  | 2022-11-24 23:37:33 |
|  25 | pes1ug20cs221 | STUDENT INSERTED | 2022-11-24 23:38:59 |
|  26 | pes1ug20cs221 | STUDENT UPDATED  | 2022-11-24 23:39:08 |
|  27 | pes1ug20cs221 | STUDENT UPDATED  | 2022-11-24 23:39:31 |
+-----+--------------+------------------+---------------------+
14 rows in set (0.000 sec)
```

6] User Info Table

```
MariaDB [studentmanagement]> select * from user;
+----+-----------------+-----------------+------------------------------------------------------------------------------------------------------------------------------------------------------------+
| id | username        | email           | password                                                                                                                                                   |
+----+-----------------+-----------------+------------------------------------------------------------------------------------------------------------------------------------------------------------+
|  4 | anees           | anees@gmail.com | pbkdf2:sha256:150000$1CSLss89$ef995dfc48121768b2070bfbe7a568871cd56fac85ac7c95a1e645c8806146e9                                                              |
| 18 | ash123@gmail.com | ash123@gmail.com | pbkdf2:sha256:260000$uQb7RsQAREZ8ijtp$53c36772d71a6cc79fc65679eda42c2d07da497bf831290582f2defeed9b153f                                                      |
+----+-----------------+-----------------+------------------------------------------------------------------------------------------------------------------------------------------------------------+
2 rows in set (0.000 sec)
```

Join Queries

Showcase at least 4 join queries
Write the query in English Language, Show the equivalent SQL statement and also a screenshot of the query and the results

1. Joining attendance of CS department with student name and Roll number using **INNER JOIN**

   SELECT cs_dept.rollno, cs_dept.sname, attendence.attendance
   -> FROM cs_dept
   -> INNER JOIN attendence ON attendence.rollno=cs_dept.rollno;

```
MariaDB [studentmanagement]> SELECT cs_dept.rollno, cs_dept.sname, attendence.attendance
    -> FROM cs_dept
    -> INNER JOIN attendence ON attendence.rollno=cs_dept.rollno;
+---------------+------------+------------+
| rollno        | sname      | attendance |
+---------------+------------+------------+
| PES1UG20CS177 | Ravi       |         55 |
| PES1UG20CS174 | Urmil      |         50 |
| PES1UG20CS178 | JaiKarthik |         49 |
| PES1UG20CS854 | Kavya      |         58 |
| PES1UG20CS569 | pranavi    |         44 |
| PES1UG20CS563 | Bhanu      |         56 |
| PES1UG20CS177 | Ravi       |         80 |
+---------------+------------+------------+
7 rows in set (0.000 sec)
```

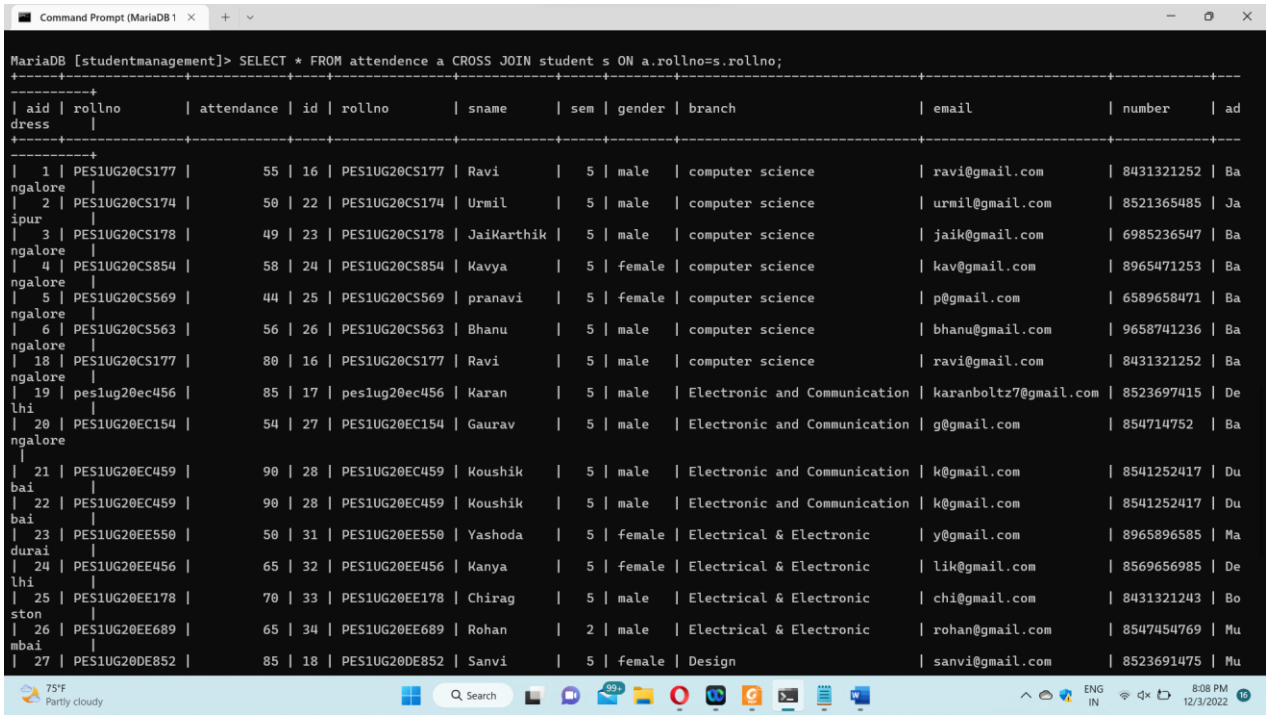
2. Using **Right Join**

   SELECT * FROM attendence a RIGHT JOIN ec_dept c ON c.rollno=a.rollno;

```
MariaDB [studentmanagement]> SELECT ec_dept.rollno, ec_dept.sname, attendenc
e.attendance
    -> FROM ec_dept
    -> INNER JOIN attendence ON attendence.rollno=ec_dept.rollno;
+---------------+---------+------------+
| rollno        | sname   | attendance |
+---------------+---------+------------+
| pes1ug20ec456 | Karan   |         85 |
| PES1UG20EC154 | Gaurav  |         54 |
| PES1UG20EC459 | Koushik |         90 |
```

3. Using **Cross Join**

SELECT * FROM attendence a CROSS JOIN student s ON a.rollno=s.rollno;



```
MariaDB [studentmanagement]> SELECT * FROM attendence a CROSS JOIN student s ON a.rollno=s.rollno;
+-----+---------------+------------+----+---------------+------------+-----+--------+----------------------------+----------------------+------------+---
---------+
| aid | rollno        | attendance | id | rollno        | sname      | sem | gender | branch                     | email                | number     | ad
dress    |
+-----+---------------+------------+----+---------------+------------+-----+--------+----------------------------+----------------------+------------+---
---------+
|   1 | PES1UG20CS177 |         55 | 16 | PES1UG20CS177 | Ravi       |   5 | male   | computer science           | ravi@gmail.com       | 8431321252 | Ba
ngalore  |
|   2 | PES1UG20CS174 |         50 | 22 | PES1UG20CS174 | Urmil      |   5 | male   | computer science           | urmil@gmail.com      | 8521365485 | Ja
ipur     |
|   3 | PES1UG20CS178 |         49 | 23 | PES1UG20CS178 | JaiKarthik |   5 | male   | computer science           | jaik@gmail.com       | 6985236547 | Ba
ngalore  |
|   4 | PES1UG20CS854 |         58 | 24 | PES1UG20CS854 | Kavya      |   5 | female | computer science           | kav@gmail.com        | 8965471253 | Ba
ngalore  |
|   5 | PES1UG20CS569 |         44 | 25 | PES1UG20CS569 | pranavi    |   5 | female | computer science           | p@gmail.com          | 6589658471 | Ba
ngalore  |
|   6 | PES1UG20CS563 |         56 | 26 | PES1UG20CS563 | Bhanu      |   5 | male   | computer science           | bhanu@gmail.com      | 9658741236 | Ba
ngalore  |
|  18 | PES1UG20CS177 |         80 | 16 | PES1UG20CS177 | Ravi       |   5 | male   | computer science           | ravi@gmail.com       | 8431321252 | Ba
ngalore  |
|  19 | pes1ug20ec456 |         85 | 17 | pes1ug20ec456 | Karan      |   5 | male   | Electronic and Communication | karanboltz7@gmail.com | 8523697415 | De
lhi      |
|  20 | PES1UG20EC154 |         54 | 27 | PES1UG20EC154 | Gaurav     |   5 | male   | Electronic and Communication | g@gmail.com          | 854714752  | Ba
ngalore
 |
|  21 | PES1UG20EC459 |         90 | 28 | PES1UG20EC459 | Koushik    |   5 | male   | Electronic and Communication | k@gmail.com          | 8541252417 | Du
bai      |
|  22 | PES1UG20EC459 |         90 | 28 | PES1UG20EC459 | Koushik    |   5 | male   | Electronic and Communication | k@gmail.com          | 8541252417 | Du
bai      |
|  23 | PES1UG20EE550 |         50 | 31 | PES1UG20EE550 | Yashoda    |   5 | female | Electrical & Electronic    | y@gmail.com          | 8965896585 | Ma
durai    |
|  24 | PES1UG20EE456 |         65 | 32 | PES1UG20EE456 | Kanya      |   5 | female | Electrical & Electronic    | lik@gmail.com        | 8569656985 | De
lhi      |
|  25 | PES1UG20EE178 |         70 | 33 | PES1UG20EE178 | Chirag     |   5 | male   | Electrical & Electronic    | chi@gmail.com        | 8431321243 | Bo
ston     |
|  26 | PES1UG20EE689 |         65 | 34 | PES1UG20EE689 | Rohan      |   2 | male   | Electrical & Electronic    | rohan@gmail.com      | 8547454769 | Mu
mbai     |
|  27 | PES1UG20DE852 |         85 | 18 | PES1UG20DE852 | Sanvi      |   5 | female | Design                     | sanvi@gmail.com      | 8523691475 | Mu
```

4. Left Join

```
SELECT sname,sem,rollno
FROM student s
LEFT JOIN
department d
ON s.branch=d.branch;
```

```
MariaDB [studentmanagement]> SELECT sname,sem,rollno
    -> FROM student s
    -> LEFT JOIN
    -> department d
    -> ON s.branch=d.branch;
+------------+-----+---------------+
| sname      | sem | rollno        |
+------------+-----+---------------+
| Sanvi      |   5 | PES1UG20DE852 |
| Ramya      |   5 | DE789         |
| Kruthi g   |   1 | PES1UG20DE885 |
| Karan      |   5 | pes1ug20ec456 |
| Gaurav     |   5 | PES1UG20EC154 |
| Koushik    |   5 | PES1UG20EC459 |
| Yashoda    |   5 | PES1UG20EE550 |
| Kanya      |   5 | PES1UG20EE456 |
| Chirag     |   5 | PES1UG20EE178 |
| Rohan      |   2 | PES1UG20EE689 |
| Neha A A   |   5 | PES1UG20CS999 |
| Ravi       |   5 | PES1UG20CS177 |
| Kruthi     |   5 | pes1ug20cs221 |
| Urmil      |   5 | PES1UG20CS174 |
| JaiKarthik |   5 | PES1UG20CS178 |
| Kavya      |   5 | PES1UG20CS854 |
| pranavi    |   5 | PES1UG20CS569 |
| Bhanu      |   5 | PES1UG20CS563 |
+------------+-----+---------------+
18 rows in set (0.000 sec)
```

Aggregate Functions

1] SELECT COUNT(DISTINCT rollno) from trig;
Gives us the number of entries without any modification.

```
MariaDB [studentmanagement]> SELECT COUNT(DISTINCT rollno) from trig;
+------------------------+
| COUNT(DISTINCT rollno) |
+------------------------+
|                      5 |
+------------------------+
1 row in set (0.001 sec)
```

2] SELECT MIN(attendance) FROM attendence;
Gives the least attendance out of all students

```
MariaDB [studentmanagement]> SELECT MIN(attendance) FROM attendence;
+-----------------+
| MIN(attendance) |
+-----------------+
|               0 |
+-----------------+
1 row in set (0.000 sec)
```

3] SELECT MAX(attendance) FROM attendence;
Gives the maximum attendance out of all students

```
MariaDB [studentmanagement]> SELECT MAX(attendance) FROM attendence;
+-----------------+
| MAX(attendance) |
+-----------------+
|              60 |
+-----------------+
1 row in set (0.000 sec)
```

4] SELECT AVG(attendance) FROM attendence;

```
MariaDB [studentmanagement]> SELECT AVG(attendance) FROM attendence;
+-----------------+
| AVG(attendance) |
+-----------------+
|         44.2857 |
+-----------------+
1 row in set (0.000 sec)
```

Set Operations

1. UNION OPERATION

select * from ec_dept UNION select * from de_dept;
Listing EC Department and Design Department Together

```
MariaDB [studentmanagement]> select * from ec_dept UNION select * from de_dept;
+---------------+----------+
| rollno        | sname    |
+---------------+----------+
| pes1ug20ec456 | Karan    |
| PES1UG20EC154 | Gaurav   |
| PES1UG20EC459 | Koushik  |
| PES1UG20DE852 | Sanvi    |
| DE789         | Ramya    |
| PES1UG20DE885 | Kruthi g |
+---------------+----------+
6 rows in set (0.000 sec)
```

2. UNION ALL

Listing EC Department and CS Department Together
select * from ec_dept UNION ALL select * from cs_dept;

```
MariaDB [studentmanagement]> select * from ec_dept UNION ALL select * from cs_dept;
+---------------+------------+
| rollno        | sname      |
+---------------+------------+
| pes1ug20ec456 | Karan      |
| PES1UG20EC154 | Gaurav     |
| PES1UG20EC459 | Koushik    |
| PES1UG20CS177 | Ravi       |
| pes1ug20cs221 | Kruthi     |
| PES1UG20CS174 | Urmil      |
| PES1UG20CS178 | JaiKarthik |
| PES1UG20CS854 | Kavya      |
| PES1UG20CS569 | pranavi    |
| PES1UG20CS563 | Bhanu      |
+---------------+------------+
10 rows in set (0.312 sec)
```

3. INTERSECT

Checking if there is any fault entries in the table

select * from ec_dept INTERSECT select * from de_dept;

```
MariaDB [studentmanagement]> select * from ec_dept INTERSECT select * from de_dept;
Empty set (0.008 sec)
```

4. EXCEPT

Listing all departments except ec_dept

SELECT sname,rollno from Student EXCEPT SELECT * from ec_dept;

select * from ec_dept UNION select * from ee_dept;

```
MariaDB [studentmanagement]> SELECT sname,rollno from Student EXCEPT SELECT * from ec_dept;
+------------+---------------+
| sname      | rollno        |
+------------+---------------+
| Ravi       | PES1UG20CS177 |
| Karan      | pes1ug20ec456 |
| Sanvi      | PES1UG20DE852 |
| Kruthi     | pes1ug20cs221 |
| Urmil      | PES1UG20CS174 |
| JaiKarthik | PES1UG20CS178 |
| Kavya      | PES1UG20CS854 |
| pranavi    | PES1UG20CS569 |
| Bhanu      | PES1UG20CS563 |
| Gaurav     | PES1UG20EC154 |
| Koushik    | PES1UG20EC459 |
| Ramya      | DE789         |
| Kruthi g   | PES1UG20DE885 |
| Yashoda    | PES1UG20EE550 |
| Kanya      | PES1UG20EE456 |
| Chirag     | PES1UG20EE178 |
| Rohan      | PES1UG20EE689 |
| Neha A A   | PES1UG20CS999 |
+------------+---------------+
18 rows in set (0.001 sec)
```

5. INTERSECT

List of all students whose attendance has been updated

SELECT rollno from Student INTERSECT SELECT rollno from attendence;

```
MariaDB [studentmanagement]> SELECT rollno from Student INTERSECT SELECT rollno from attendence;
+---------------+
| rollno        |
+---------------+
| PES1UG20CS177 |
| pes1ug20ec456 |
| PES1UG20DE852 |
| PES1UG20CS174 |
| PES1UG20CS178 |
| PES1UG20CS854 |
| PES1UG20CS569 |
| PES1UG20CS563 |
| PES1UG20EC154 |
| PES1UG20EC459 |
| DE789         |
| PES1UG20DE885 |
| PES1UG20EE550 |
| PES1UG20EE456 |
| PES1UG20EE178 |
| PES1UG20EE689 |
| PES1UG20CS999 |
+---------------+
17 rows in set (0.000 sec)
```

6. EXCEPT

SELECT rollno from Student EXCEPT SELECT rollno from attendence;

List of the students whose update has not been updated

```
MariaDB [studentmanagement]> SELECT rollno from Student EXCEPT SELECT rollno from attendence;
+---------------+
| rollno        |
+---------------+
| pes1ug20cs221 |
+---------------+
1 row in set (0.001 sec)
```

Functions and Procedures

1. Functions

Objective is to concatenate the number and email addresses of the students.

```
CREATE FUNCTION fun_JoinStudentColumnInfo(number varchar(12),email
varchar(50))
RETURNS varchar(100) DETERMINISTIC
RETURN CONCAT(number , ' ' , email) ;
SELECT fun_JoinStudentColumnInfo(number,email) from Student;
```

```
MariaDB [studentmanagement]> CREATE FUNCTION fun_JoinStudentColumnInfo(number varchar(12),email varchar(50))
    -> RETURNS varchar(100) DETERMINISTIC
    -> RETURN CONCAT(number , ' ' , email) ;
Query OK, 0 rows affected (0.432 sec)
```

```
MariaDB [studentmanagement]> SELECT fun_JoinStudentColumnInfo(number,email) from Student;
+----------------------------------------+
| fun_JoinStudentColumnInfo(number,email) |
+----------------------------------------+
| 8431321252 ravi@gmail.com              |
| 8523697415 karanboltz7@gmail.com       |
| 8523691475 sanvi@gmail.com             |
| 8547125459 mixie182002@gmail.com       |
| 8521365485 urmil@gmail.com             |
| 6985236547 jaik@gmail.com              |
| 8965471253 kav@gmail.com               |
| 6589658471 p@gmail.com                 |
| 9658741236 bhanu@gmail.com             |
| 854714752 g@gmail.com                  |
| 8541252417 k@gmail.com                 |
| 8522555214 kkk@gmail.com               |
| 8555556463 ashg2123@gmail.com          |
| 8965896585 y@gmail.com                 |
| 8569656985 lik@gmail.com               |
| 8431321243 chi@gmail.com               |
| 8547454769 rohan@gmail.com             |
+----------------------------------------+
17 rows in set (0.001 sec)
```

2. **Procedure**: The objective is to find the number of students who have attendance less than the required attendance.

```
delimiter //

CREATE PROCEDURE attendance_count(IN min_attendance int(100), OUT count int)
BEGIN
SELECT COUNT(*) FROM attendence WHERE attendance<min_attendance;
END//

delimiter ;
```

```
MariaDB [studentmanagement]> delimiter //
MariaDB [studentmanagement]> CREATE PROCEDURE attendance_count(IN min_attendanc
e int(100), OUT count int)
    -> BEGIN
    -> SELECT COUNT(*) FROM attendence WHERE attendance<min_attendance;
    -> END //
Query OK, 0 rows affected (0.552 sec)

MariaDB [studentmanagement]>
```

Lets set minimum attendance as 50 .

CALL attendance_count('50',@count);

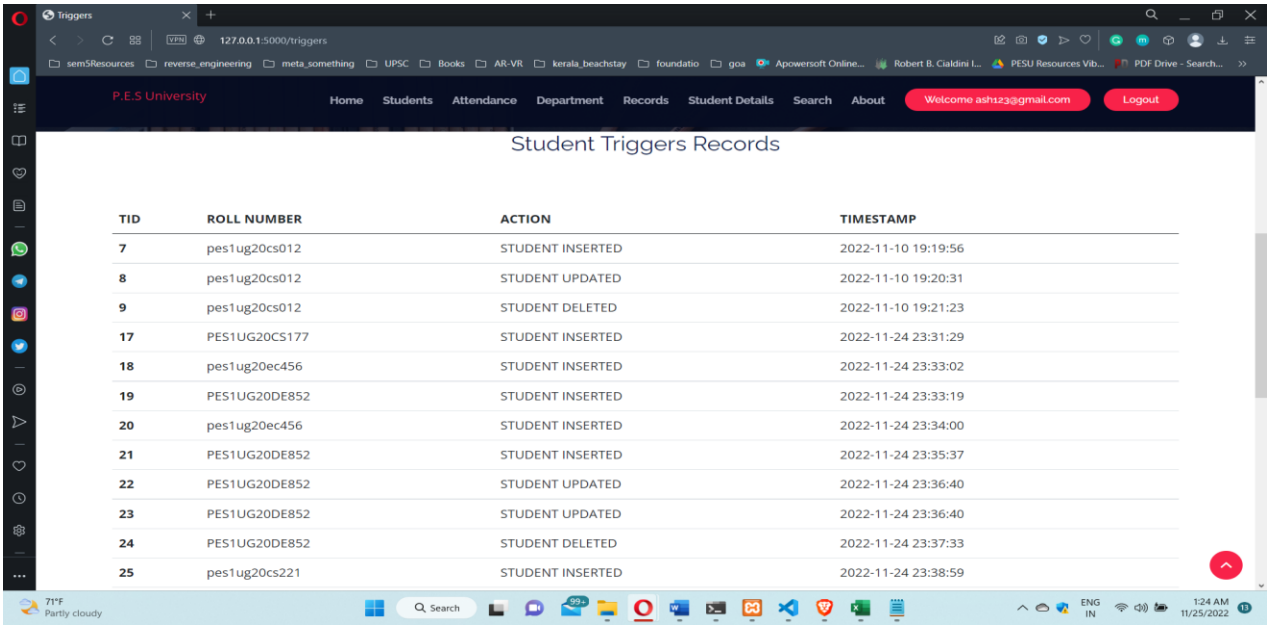
```
MariaDB [studentmanagement]> CALL attendance_count('50',@count);
+----------+
| COUNT(*) |
+----------+
|        7 |
+----------+
1 row in set (0.010 sec)

Query OK, 0 rows affected (0.011 sec)
```

Triggers and Cursors

Create a Trigger and a Cursor. State the objective. Run and display the results.

1. Triggers
   Every time a student's information is deleted , inserted or updated , the record is maintained for logs.

```
--
-- Triggers `student`
--
DELIMITER $$
CREATE TRIGGER `DELETE` BEFORE DELETE ON `student` FOR EACH ROW INSERT INTO trig
VALUES(null,OLD.rollno,'STUDENT DELETED',NOW())
$$
DELIMITER ;
DELIMITER $$
CREATE TRIGGER `Insert` AFTER INSERT ON `student` FOR EACH ROW INSERT INTO trig
VALUES(null,NEW.rollno,'STUDENT INSERTED',NOW())
$$
DELIMITER ;
DELIMITER $$
CREATE TRIGGER `UPDATE` AFTER UPDATE ON `student` FOR EACH ROW INSERT INTO trig
VALUES(null,NEW.rollno,'STUDENT UPDATED',NOW())
$$
DELIMITER ;

-- --------------------------------------------------------
```



TID	ROLL NUMBER	ACTION	TIMESTAMP
7	pes1ug20cs012	STUDENT INSERTED	2022-11-10 19:19:56
8	pes1ug20cs012	STUDENT UPDATED	2022-11-10 19:20:31
9	pes1ug20cs012	STUDENT DELETED	2022-11-10 19:21:23
17	PES1UG20CS177	STUDENT INSERTED	2022-11-24 23:31:29
18	pes1ug20ec456	STUDENT INSERTED	2022-11-24 23:33:02
19	PES1UG20DE852	STUDENT INSERTED	2022-11-24 23:33:19
20	pes1ug20ec456	STUDENT INSERTED	2022-11-24 23:34:00
21	PES1UG20DE852	STUDENT INSERTED	2022-11-24 23:35:37
22	PES1UG20DE852	STUDENT UPDATED	2022-11-24 23:36:40
23	PES1UG20DE852	STUDENT UPDATED	2022-11-24 23:36:40
24	PES1UG20DE852	STUDENT DELETED	2022-11-24 23:37:33
25	pes1ug20cs221	STUDENT INSERTED	2022-11-24 23:38:59

2. Cursor: Objective is to generate a list containing all the student names from the student table.

```
DELIMITER $$
```

```
CREATE PROCEDURE student_names (INOUT names_student varchar(4000))
BEGIN
DECLARE is_done INTEGER DEFAULT 0;
DECLARE name varchar(100) DEFAULT "";
DECLARE stud_cursor CURSOR FOR
SELECT sname FROM Student;
DECLARE CONTINUE HANDLER FOR NOT FOUND SET is_done=1;
OPEN stud_cursor;
get_list:LOOP
FETCH stud_cursor INTO name;
IF is_done=1 THEN
LEAVE get_list;
END IF;
SET names_student = CONCAT(name, "; ",names_student);
END LOOP get_list;
CLOSE stud_cursor;
    END $$
```

```
MariaDB [studentmanagement]> DELIMITER $$
MariaDB [studentmanagement]> CREATE PROCEDURE student_names (INOUT names_student varchar(4000))
    -> BEGIN
    -> DECLARE is_done INTEGER DEFAULT 0;
    -> DECLARE name varchar(100) DEFAULT "";
    -> DECLARE stud_cursor CURSOR FOR
    -> SELECT sname FROM Student;
    -> DECLARE CONTINUE HANDLER FOR NOT FOUND SET is_done=1;
    -> OPEN stud_cursor;
    -> get_list:LOOP
    -> FETCH stud_cursor INTO name;
    -> IF is_done=1 THEN
    -> LEAVE get_list;
    -> END IF;
    -> SET names_student = CONCAT(name, "; ",names_student);
    -> END LOOP get_list;
    -> CLOSE stud_cursor;
    -> END $$
Query OK, 0 rows affected (0.192 sec)
```

```
SET @lists="";
CALL student_name_list(@lists);
SELECT @lists;
```

```
MariaDB [studentmanagement]> SET @lists="";
Query OK, 0 rows affected (0.000 sec)
```

```
MariaDB [studentmanagement]> CALL student_name_list(@lists);
Query OK, 0 rows affected (0.001 sec)
```

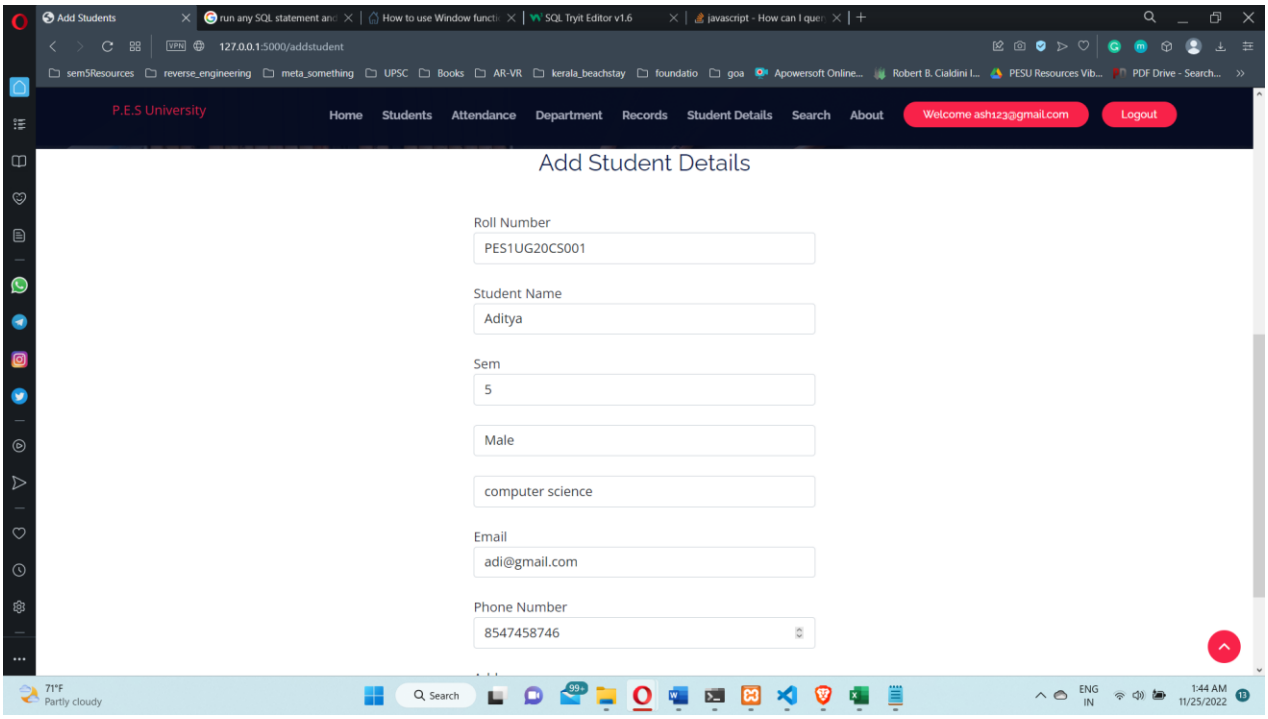
```
MariaDB [studentmanagement]> SET @lists="";
Query OK, 0 rows affected (0.000 sec)

MariaDB [studentmanagement]> CALL student_name_list(@lists);
Query OK, 0 rows affected (0.001 sec)

MariaDB [studentmanagement]> SELECT @lists;
+-----------------------------------------------------------------------------------------------------------------------------------------------------+
| @lists                                                                                                                                              |
+-----------------------------------------------------------------------------------------------------------------------------------------------------+
| Rohan; Chirag; Kanya; Yashoda; Kruthi g; Ramya; Koushik; Gaurav; Bhanu; pranavi; Kavya; JaiKarthik; Urmil; Kruthi; Sanvi; Karan; Ravi;  |
+-----------------------------------------------------------------------------------------------------------------------------------------------------+
1 row in set (0.000 sec)
```

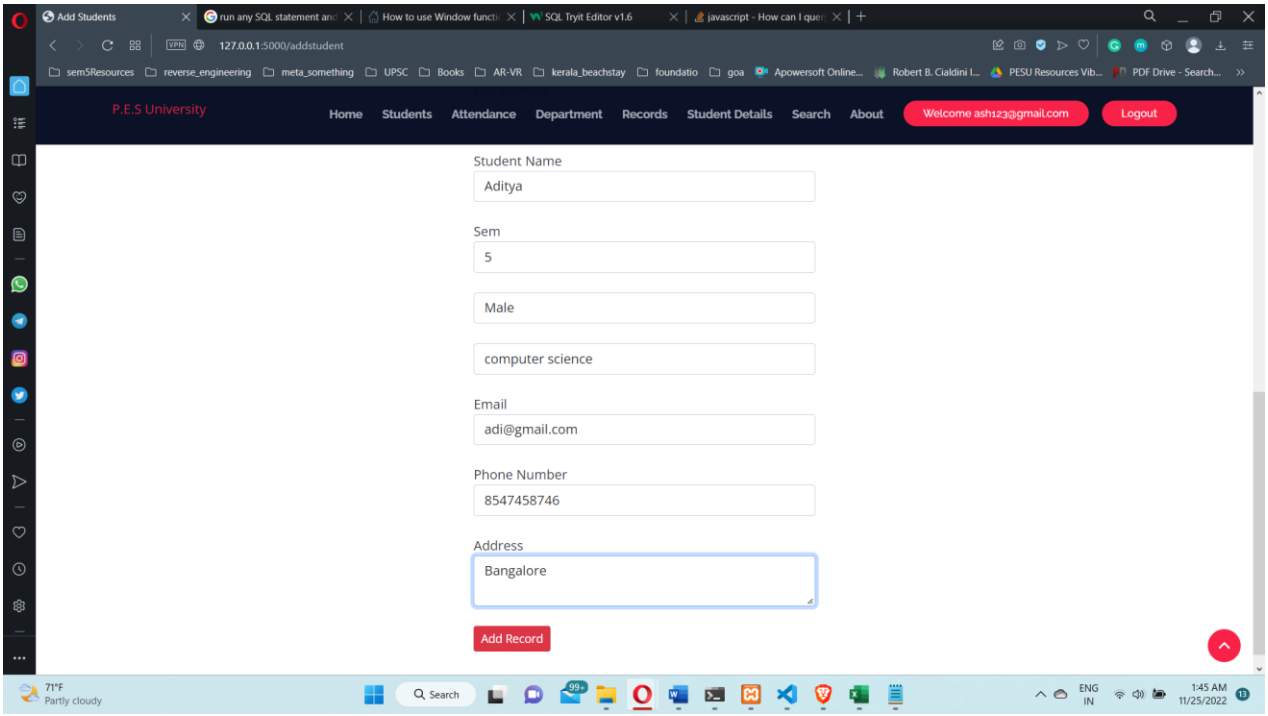
Developing a Frontend

The frontend should support

1. Addition, Modification and Deletion of records from any chosen table

Add Student Details

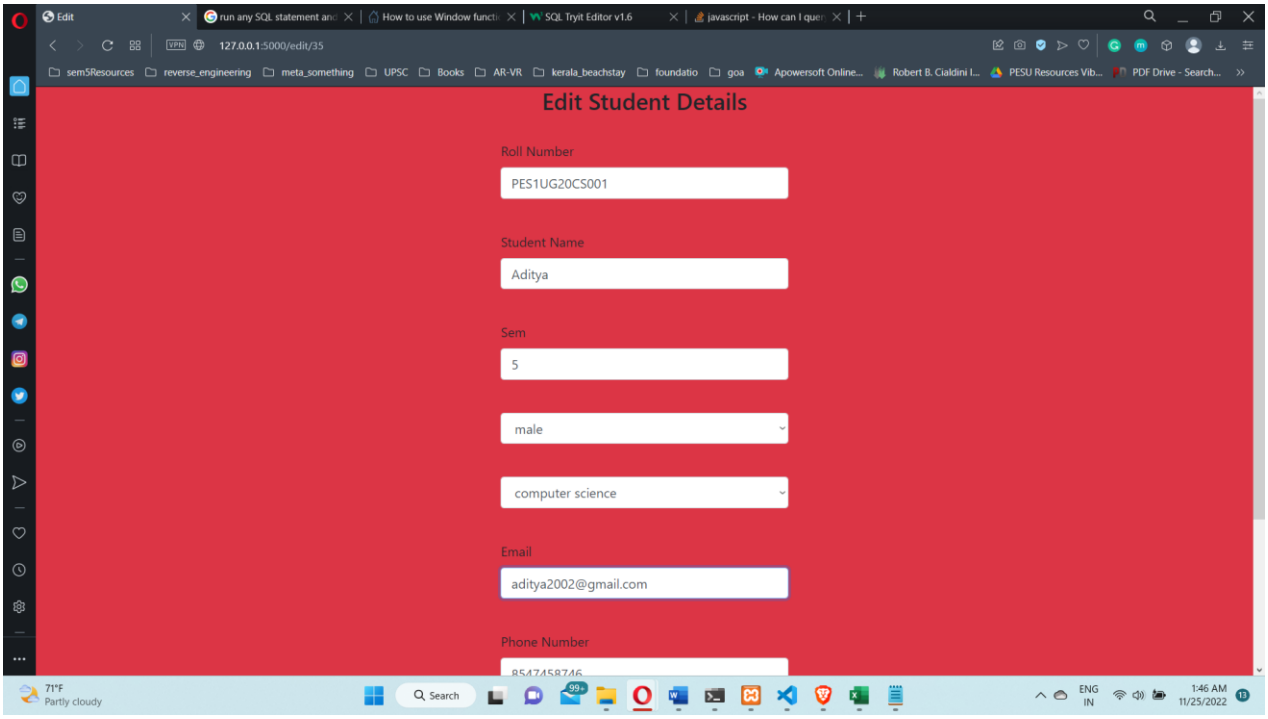




Record Added

35	PES1UG20CS001	Aditya	5	male	computer science	adi@gmail.com	8547458746	Bangalore	Edit	Dele

Lets Edit the student's Email

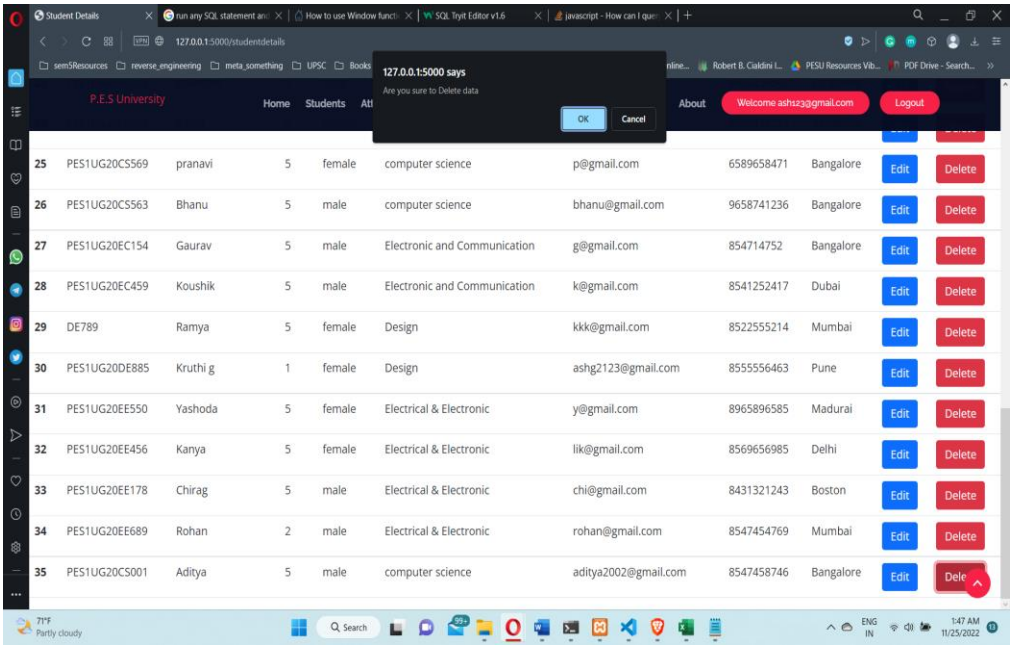


Updated Record

35	PES1UG20CS001	Aditya	5	male	computer science	aditya2002@gmail.com	8547458746	Bangalore	Edit	Dele

Lets delete his record

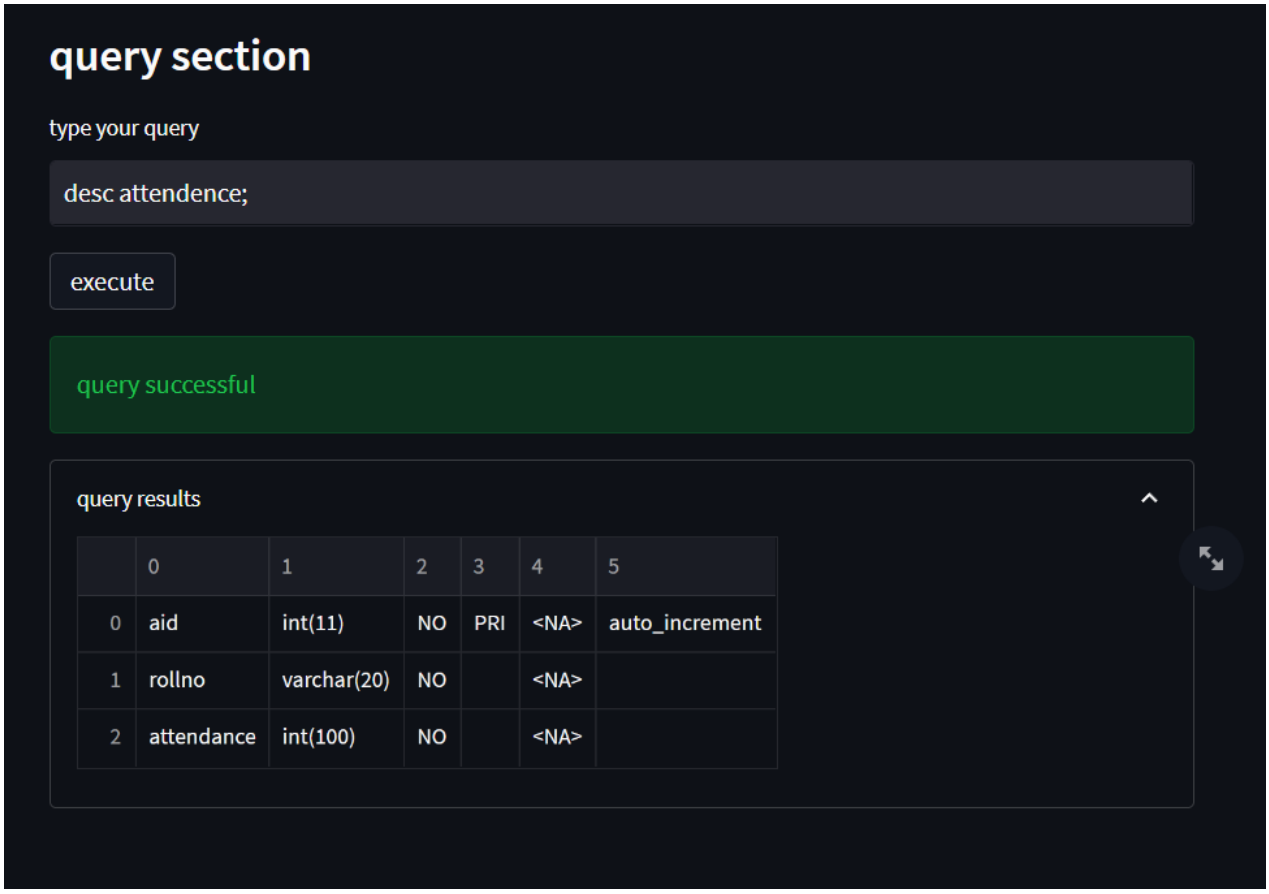
➔ Pop-up to confirm the deletion of the record



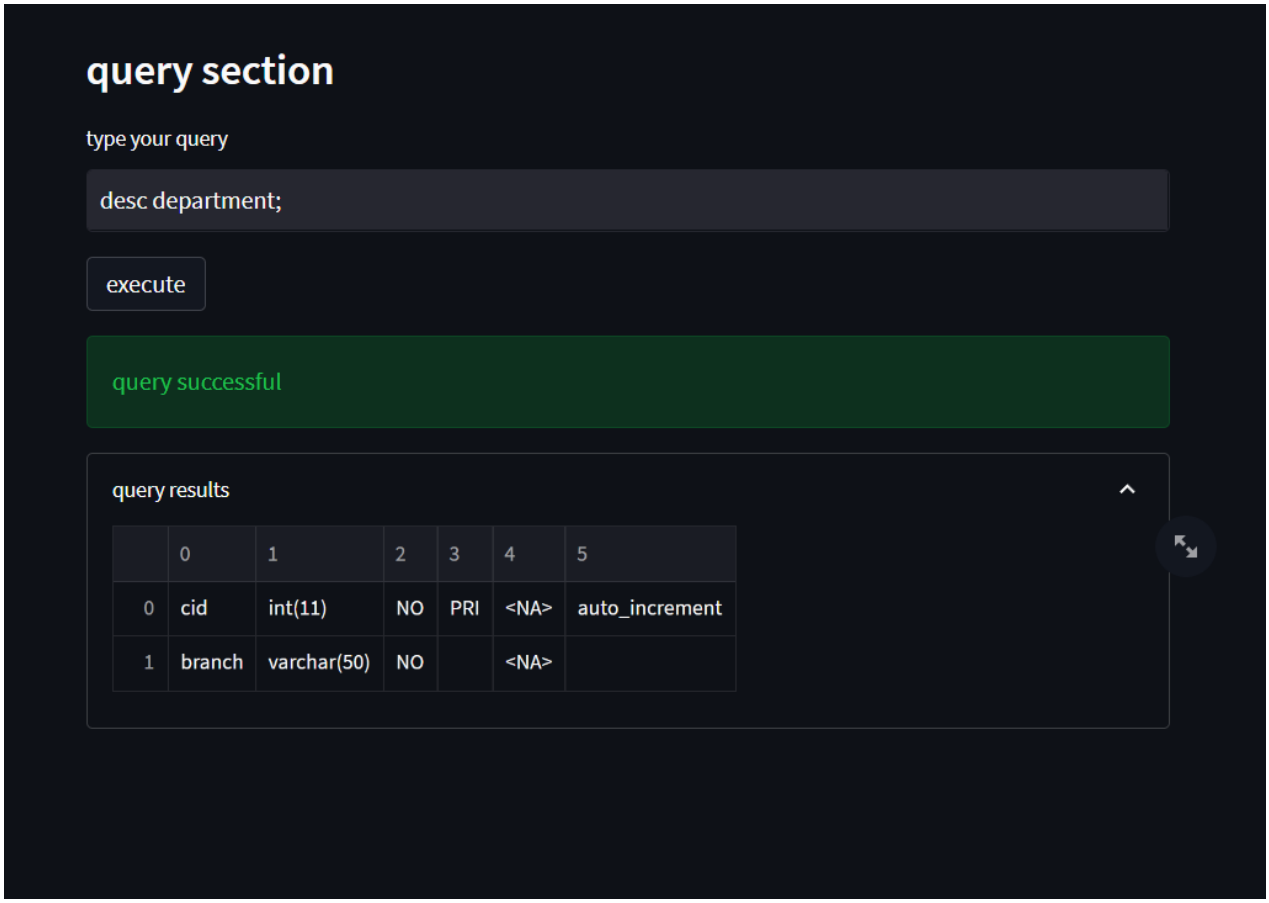
➔ Its deleted

45	PES1UG20CS001	STUDENT INSERTED	2022-11-25 01:45:21
46	PES1UG20CS001	STUDENT UPDATED	2022-11-25 01:46:56
47	PES1UG20CS001	STUDENT DELETED	2022-11-25 01:48:27

2. There should be an window to accept and run any SQL statement and display the result



	0	1	2	3	4	5
0	aid	int(11)	NO	PRI	<NA>	auto_increment
1	rollno	varchar(20)	NO		<NA>	
2	attendance	int(100)	NO		<NA>	


query section
type your query
desc department;
execute
query successful
query results
0 1 2 3 4 5
0 cid int(11) NO PRI <NA> auto_increment
1 branch varchar(50) NO <NA>