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HERALD COLLEGE KATHMANDU

Academic Year	Module	Assessment Number	Assessment Type
S20	Introduction to Database System (DipIT07)	A1	Individual

[School Management System]

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Section : [DC8]

Module Leader : [Deepson Shrestha]

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And thanks to all teachers and friends who helped me directly and indirectly to complete my report.

Contents

System Description

In this project, the school system manages the details of school system, students, teachers and courses. This school is made up of with different types of department like Student, Parents, RTE, Teacher, Finance, Library, Result, Course, Attendance and so on. Every departments are essential for this system to function. The teacher teaches the course to the student according to their faculty. The student attends the class, study the course and give the regular exam then take result. If the students are not able to pass the exam then they have to repeat same level until they pass. The students have to pay fee for their semester. Those who are fail twice in same subject they are require to pay extra charge to pass the exam or else they can leave. The schedule of timetable to attend class for the students and teachers are manage by RTE department.

Our system purpose is to reduce manual work for managing the school. The object of this system is to record every student performance till the end day of the school and to make skilled students. In the school the course and teacher should be ready to student who are about to admit.

Table Description

1) Students

This table contains every student detail who are studying and admit then provide own id to the students in the school. It includes following attributes: Student_id, Student_name, RollNo, Email, Gender.

Constraint- Student_id is primary key and all other data are not null.

```
MariaDB [School_management_system]> select * from students;
+------------+-----------------+--------+--------------------------+--------+
| Student_id | Student_name    | RollNo | Email                    | Gender |
+------------+-----------------+--------+--------------------------+--------+
|          1 | Umesh Bhandar   | 1      | Umeshbhandari8@gmail.com | male   |
|          2 | Sumesh Bhandar  | 2      | SUmeshbhandari1@gmail.com | male   |
|          3 | Ramesh Bhandar  | 3      | Rameshbhandari2@gmail.com | male   |
|          4 | Ramila khatiwoda | 4      | Ramilakhati22@gmail.com  | female |
|          5 | Roji manandar   | 5      | Rojimanandar12@gmail.com | female |
|          6 | Jenny manandar  | 6      | jennymanandar56@gmail.com | female |
|          7 | Rojesh Sakya    | 7      | Rojeshsakya6@gmail.com   | male   |
|          8 | Ram wosti       | 8      | Ramwost96@gmail.com      | male   |
|          9 | Rama Dangol     | 9      | Ramadangol66@gmail.com   | female |
|         10 | Shiva Giri      | 10     | Girishiv65@gmail.com     | male   |
|         11 | Nirmal Thing    | 11     | Nirmalthing5@gmail.com   | male   |
|         12 | Raju nanda      | 12     | Rajunanda35@gmail.com    | male   |
|         13 | Lalit Mahat     | 13     | Lalitmahat15@gmail.com   | male   |
|         14 | Priya tamang    | 14     | tamangnipriya15@gmail.com | female |
|         15 | Hari tamang     | 15     | Haritamang45@gmail.com   | male   |
|         16 | Rabin shah      | 16     | Rabinshah5@gmail.com     | male   |
+------------+-----------------+--------+--------------------------+--------+
16 rows in set (0.001 sec)
```

2) Parents

This table contains parent's information of the students to report student performance. The attributes of this table are Parent_name, Student_id, Phone_no, Address.

Constraint- Student_id is foreign key and all other data are not null.

```
MariaDB [School_management_system]> select * from Parents;
+------------+------------------+-----------+------------+
| Student_id | parent_name      | Phone_no  | Address    |
+------------+------------------+-----------+------------+
|          1 | Mahesh Bhandari  | Ramechhap | 9812345678 |
|          2 | Raju Bhandari    | Nuwakot   | 9812345335 |
|          3 | lalita Bhandari  | Tokha     | 9812345698 |
|          4 | lalesh Khatiwoda | manamaiju | 9866345335 |
|          5 | Hari Manandar    | Samakhusi | 9812377698 |
|          6 | Krishna Manandar | Balaju    | 9812347878 |
|          7 | lal sakya        | Sundhara  | 9812345578 |
|          8 | Gaurab wosti     | kalanki   | 9887654321 |
|          9 | Manish Dangol    | Tokha     | 9812344278 |
|         10 | Siraj Giri       | Thamel    | 9837373726 |
|         11 | Rabin Thing      | Nepaltar  | 9888776655 |
|         12 | Bramha Nanda     | Nepaltar  | 9812333678 |
|         13 | Lalia Mahat      | jaulakhel | 9812225678 |
|         14 | Prabesh tamang   | chabel    | 9887645678 |
|         15 | Ram Tamang       | Ramechhap | 9812573678 |
|         16 | Sanam shah       | Manamaiju | 9812348798 |
+------------+------------------+-----------+------------+
16 rows in set (0.001 sec)
```

3) Teachers

This table consist with the teacher's information and manages time table to teach the students. The attributes are Teacher_id, Teacher_name, Phone_no, Email, Address.

Constrain- Teacher_id is primary key and remaining are not null.

```
MariaDB [School_management_system]> select * from teachers;
+------------+------------------+------------+----------------------------+-----------+
| teacher_id | teacher_name     | Phone_no   | Email                      | Address   |
+------------+------------------+------------+----------------------------+-----------+
|        101 | Mahesh KC        | 9856463626 | MaheshKC2@gmail.com        | Ramechhap |
|        102 | Bhuban KC        | 9856463676 | BhubanKC4@gmail.com        | Nuwakot   |
|        103 | Anmol mahato     | 9856464456 | Anmolmahato9@gmail.com     | Dhobighat |
|        104 | Krishna Manandar | 9856463648 | Krishnamandar5@gmail.com   | jaulakhel |
|        105 | Sreeya Rai       | 9856455668 | Sreeyarai5@gmail.com       | manamaiju |
|        106 | Sapana kunwar    | 985346668  | Sapanakunwar4@gmail.com    | nepaltar  |
|        107 | Subiran shrestah | 9853374938 | Subiranshrestha5@gmail.com | Balaju    |
|        108 | Kamlesh shrestah | 9853372395 | Kamleshshrestha5@gmail.com | lainchaur |
+------------+------------------+------------+----------------------------+-----------+
8 rows in set (0.001 sec)
```

4) Course

This table contain store all the information of course, which are taught in school. The attribute of it are Course_id, Course_name, Teacher_id.

Constrain- Course_id is primary key, Teacher_id is foreign key and remaining are not null.

```
MariaDB [School_management_system]> select * from course;
+-----------+-------------+------------+
| course_id | course_name | teacher_id |
+-----------+-------------+------------+
|      1101 | Math        |        101 |
|      1102 | Science     |        102 |
|      1103 | Social      |        103 |
|      1104 | English     |        104 |
|      1105 | account     |        105 |
|      1106 | Computer    |        106 |
|      1107 | Economics   |        107 |
|      1108 | Nepali      |        108 |
+-----------+-------------+------------+
8 rows in set (0.001 sec)
```

5) Library

This table contains the records of those students who took book from the library. The attributes are Student_id, Book_name, Quantities, Borrow_date, Return_date.

Constrain- Student_id is foreign key, dates are date and remaining are not null.

```
MariaDB [School_management_system]> select * from library;
+------------+------------+------------+-------------+-------------+
| student_id | book_name  | quantities | borrow_date | return_date |
+------------+------------+------------+-------------+-------------+
|          3 | c language | 1          | 2020-03-06  | 2020-03-16  |
|          4 | Math       | 2          | 2020-03-10  | 2020-03-25  |
|          6 | Social     | 1          | 2020-03-10  | 2020-03-28  |
|          1 | Science    | 1          | 2020-03-14  | 2020-03-28  |
|         13 | English    | 1          | 2020-03-15  | 2020-03-28  |
|         15 | Computer   | 1          | 2020-03-19  | 2020-03-30  |
|          1 | Economics  | 1          | 2020-03-24  | 2020-04-08  |
|          9 | Nepali     | 1          | 2020-03-30  | 2020-04-15  |
+------------+------------+------------+-------------+-------------+
8 rows in set (0.001 sec)
```

6) Assignments

This table conation the record of those students who completes the assignments and submit on it. The attributes are Student_id, Course_id, Submission_date, Status.

Constrain- Student_id and Course_id is foreign key, submission_date is date and Status is Boolean.

```
MariaDB [School_management_system]> select * from assignments;
+------------+-----------+-----------------+--------+
| student_id | course_id | submission_date | status |
+------------+-----------+-----------------+--------+
|          1 |      1106 | 0000-00-00      |      1 |
|          2 |      1106 | 0000-00-00      |      1 |
|          3 |      1106 | 0000-00-00      |      1 |
|          4 |      1106 | 0000-00-00      |      0 |
|          5 |      1106 | 0000-00-00      |      0 |
|          6 |      1106 | 0000-00-00      |      1 |
|          7 |      1106 | 0000-00-00      |      1 |
|          8 |      1106 | 0000-00-00      |      1 |
|          9 |      1106 | 0000-00-00      |      1 |
|         10 |      1106 | 0000-00-00      |      1 |
|         11 |      1106 | 0000-00-00      |      0 |
|         12 |      1106 | 0000-00-00      |      1 |
|         13 |      1106 | 0000-00-00      |      1 |
|         14 |      1106 | 0000-00-00      |      1 |
|         15 |      1106 | 0000-00-00      |      1 |
|         16 |      1106 | 0000-00-00      |      0 |
+------------+-----------+-----------------+--------+
16 rows in set (0.001 sec)
```

7) Attendence

This table contains the records of the student attendance. The attributes are Student_id, Course_id, Date and Status.

Constrain- Student_id is foreign key and rest of them are not null.

```
MariaDB [School_management_system]> select * from attendance;
+------------+-------------+------------+---------------+
| student_id | present_day | absent_day | Total_present |
+------------+-------------+------------+---------------+
|          1 | 29          | 1          | 29            |
|          2 | 27          | 3          | 27            |
|          3 | 27          | 3          | 27            |
|          4 | 19          | 11         | 19            |
|          5 | 30          | 0          | 30            |
|          6 | 28          | 2          | 28            |
|          7 | 18          | 12         | 18            |
|          8 | 28          | 2          | 28            |
|          9 | 30          | 0          | 30            |
|         10 | 30          | 0          | 30            |
|         11 | 30          | 0          | 30            |
|         12 | 26          | 4          | 26            |
|         13 | 26          | 4          | 26            |
|         14 | 27          | 3          | 27            |
|         15 | 28          | 2          | 28            |
|         16 | 15          | 15         | 15            |
+------------+-------------+------------+---------------+
16 rows in set (0.001 sec)
```

8) Finance_department

This table records every student whether fee is paid or not and the attribute are Student_id, Fee, Paid_fee, Remaining_fee.

Constrain- Student_id is foreign key and rest of them are not null.

```
MariaDB [School_management_system]> select * from finance_department;
+------------+-------+----------+---------------+
| Student_id | fee   | paid_fee | remaining_fee |
+------------+-------+----------+---------------+
|          1 | 50000 | 15000    | 35000         |
|          2 | 50000 | 25000    | 25000         |
|          3 | 50000 | 35000    | 35000         |
|          4 | 50000 | 30000    | 20000         |
|          5 | 50000 | 20000    | 30000         |
|          6 | 50000 | 22000    | 28000         |
|          7 | 50000 | 18000    | 38000         |
|          8 | 50000 | 16000    | 34000         |
|          9 | 50000 | 26000    | 24000         |
|         10 | 50000 | 40000    | 10000         |
|         11 | 50000 | 10000    | 40000         |
|         12 | 50000 | 50000    | 0             |
|         13 | 50000 | 49000    | 1000          |
|         14 | 50000 | 19000    | 31000         |
|         15 | 50000 | 25000    | 25000         |
|         16 | 50000 | 50000    | 50000         |
+------------+-------+----------+---------------+
16 rows in set (0.001 sec)
```

9) Exam_department

This table contains the information of exam given by student. The information stores in it includes Course_id, Exam_type, Exam_date.

Constrain- Course_id is foreign key and rest are not null.

```
MariaDB [School_management_system]> select * from exam_department;
+-----------+-----------+------------+
| course_id | exam_type | exam_date  |
+-----------+-----------+------------+
|      1101 | math      | 2020-04-07 |
|      1102 | science   | 2020-04-08 |
|      1103 | social    | 2020-04-09 |
|      1104 | english   | 2020-04-10 |
|      1105 | account   | 2020-04-11 |
|      1106 | computer  | 2020-04-12 |
|      1107 | economics | 2020-04-13 |
|      1108 | nepali    | 2020-04-14 |
+-----------+-----------+------------+
8 rows in set (0.001 sec)
```

10) Result

This table keeps the information of every pass or fail students. The attributes are Student_id, Course_id and Grade.

Constrain- Student_id and Course_id are foreign key and grade is not null.

```
MariaDB [School_management_system]> select * from result;
+------------+-----------+-------+
| student_id | course_id | grade |
+------------+-----------+-------+
|          1 |      1101 | A     |
|          2 |      1101 | A     |
|          3 |      1101 | B     |
|          4 |      1101 | C     |
|          5 |      1101 | A     |
|          6 |      1101 | B     |
|          7 |      1101 | B     |
|          8 |      1101 | A     |
|          9 |      1101 | A     |
|         10 |      1101 | C     |
|         11 |      1101 | C     |
|         12 |      1101 | B     |
|         13 |      1101 | A     |
|         14 |      1101 | A     |
|         15 |      1101 | B     |
|         16 |      1101 | D     |
+------------+-----------+-------+
16 rows in set (0.001 sec)
```

Data Dictionaries

1) Students

Student_id	Student_name	RollNo	Email	Gender
Primary key int	Varchar (50) not null	Varchar (50) not null	Varchar (50) not null	Varchar (50) Not null

2) Parents

Student_id	Parent_name	Phone_no	Address
Foreign key int	Varchar (50) not null	Varchar (50) not null	Varchar (50) not null

3) Teachers

Teacher_id	Teacher_name	Phone_no	Email	Address
Primary Key int	Varchar (50) not null	Varchar (50) not null	Varchar (50) not null	Varchar (50) not null

4) Course

Course_id	Course_name	Teacher_id
Primary key int	Varchar (50) not null	Foreign key int

5) Library

Student_id	Book_name	Quantities	Borrow_date	Return_date
Foreign key int	Varchar (50) not null	Varchar (50) not null	Date	date

6) Assignments

Student_id	Course_id	Submission_date	Status
Foreign key int	Foreign key int	Date	Boolean

7) Attendance

Student_id	Present_day	Absent_day	Total_present
Foreign key int	Varchar (50) not null	Varchar (50) not null	Varchar (50) not null

8) Finance_department

Student_id	Fee	Paid_fee	Remaining_fee
Foreign key int	Varchar (50) not null	Varchar (50) not null	Varchar (50) not null

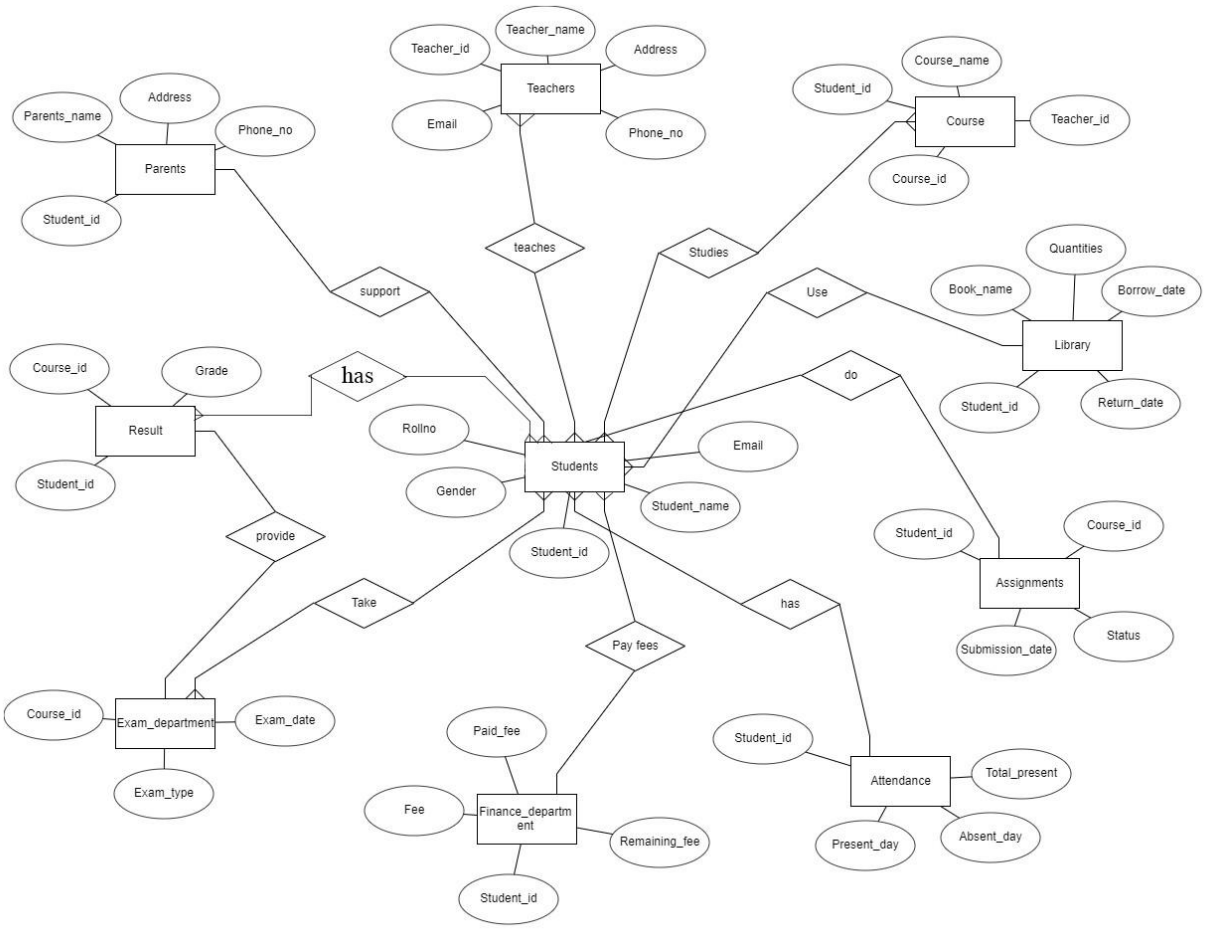
9) Exam_department

Course_id	Exam_type	Exam_date
Foreign key int	Varchar (50) not null	Date

10) Result

Student_id	Course_id	Grade
Foreign key int	Foreign key int	Varchar (50) not null

ER Diagram


Teacher_name
Teacher_id
Address
Teachers
Email
Phone_no
Address
Parents_name
Phone_no
Parents
Student_id
teaches
support
Studies
Course_name
Student_id
Course
Teacher_id
Course_id
Quantities
Book_name
Borrow_date
Use
Library
Student_id
Return_date
Course_id
Grade
has
Result
Student_id
Rollno
Email
Students
Gender
Student_name
do
provide
Take
Student_id
Course_id
Assignments
Student_id
Submission_date
Status
has
Pay fees
Course_id
Exam_department
Exam_date
Exam_type
Paid_fee
Fee
Finance_departm ent
Remaining_fee
Student_id
Student_id
Attendance
Total_present
Present_day
Absent_day

Relational Database Schema

The relation database schema for this system are as follows:

1. Student: Student_id(pk), Student_name, Rollno, Email, Gender.
2. Parents: Student_id(fk), Parent_name, Address, Phone_no.
3. Teachers: Teacher_id(pk), Teacher_name, Phone_no, Email, Address.
4. Course: Course_id(pk), Course_name, Teacher_id(fk).
5. Library: Student_id(fk), Book_name, Quantities, Borrow_date, Return_date.
6. Assignments: Student_id(fk), Course_id(fk), Submission_date, Status.
7. Attendance: Student_id(fk), Course_id, Date, Status.
8. Finance_department: Student_id(fk), Fee, Paid_fee, Remaining_fee.
9. Exam_department: Course_id(fk), Exam_type, Exam_date.
10. Result: Student_id(fk), Course_id(fk), Grade.

Creation of database and tables

Create database school_management_system;

Create table

```
MariaDB [(none)]> create database School_management_system;
Query OK, 1 row affected (0.005 sec)
```

```
MariaDB [(none)]> show databases;
+--------------------------+
| Database                 |
+--------------------------+
| countries                |
| information_schema       |
| mysql                    |
| performance_schema       |
| phpmyadmin               |
| school_management_system |
| test                     |
+--------------------------+
```

Create table students insert value in it;

```
MariaDB [School_management_system]> create table Students(Student_id int primary key, Stude
nt_name varchar(50) not null, RollNo varchar(50) not null, Email varchar(50) not null, Gend
er varchar(50) not null);
Query OK, 0 rows affected (0.281 sec)

MariaDB [School_management_system]> desc students;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| Student_id   | int(11)     | NO   | PRI | NULL    |       |
| Student_name | varchar(50) | NO   |     | NULL    |       |
| RollNo       | varchar(50) | NO   |     | NULL    |       |
| Email        | varchar(50) | NO   |     | NULL    |       |
| Gender       | varchar(50) | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
5 rows in set (0.025 sec)

MariaDB [School_management_system]>
```

```
MariaDB [School_management_system]> insert into students values(016,'Rabin shah','16','Rabi
nshah5@gmail.com','male');
Query OK, 1 row affected (0.131 sec)

MariaDB [School_management_system]> select * from students;
+------------+------------------+--------+---------------------------+--------+
| Student_id | Student_name     | RollNo | Email                     | Gender |
+------------+------------------+--------+---------------------------+--------+
|          1 | Umesh Bhandar    | 1      | Umeshbhandari8@gmail.com  | male   |
|          2 | Sumesh Bhandar   | 2      | SUmeshbhandari1@gmail.com | male   |
|          3 | Ramesh Bhandar   | 3      | Rameshbhandari2@gmail.com | male   |
|          4 | Ramila khatiwoda | 4      | Ramilakhati22@gmail.com   | female |
|          5 | Roji manandar    | 5      | Rojimanandar12@gmail.com  | female |
|          6 | Jenny manandar   | 6      | jennymanandar56@gmail.com | female |
|          7 | Rojesh Sakya     | 7      | Rojeshsakya6@gmail.com    | male   |
|          8 | Ram wosti        | 8      | Ramwost96@gmail.com       | male   |
|          9 | Rama Dangol      | 9      | Ramadangol66@gmail.com    | female |
|         10 | Shiva Giri       | 10     | Girishiv65@gmail.com      | male   |
|         11 | Nirmal Thing     | 11     | Nirmalthing5@gmail.com    | male   |
|         12 | Raju nanda       | 12     | Rajunanda35@gmail.com     | male   |
|         13 | Lalit Mahat      | 13     | Lalitmahat15@gmail.com    | male   |
|         14 | Priya tamang     | 14     | tamangnipriya15@gmail.com | female |
|         15 | Hari tamang      | 15     | Haritamang45@gmail.com    | male   |
|         16 | Rabin shah       | 16     | Rabinshah5@gmail.com      | male   |
+------------+------------------+--------+---------------------------+--------+
16 rows in set (0.001 sec)
```

Creation of Parents table and insertion values on it

```
MariaDB [School_management_system]> alter table Parents add foreign key (Student_id) refere
nces students(student_id);
Query OK, 0 rows affected (1.143 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [School_management_system]> desc parents;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Student_id  | int(11)     | YES  | MUL | NULL    |       |
| parent_name | varchar(50) | NO   |     | NULL    |       |
| Phone_no    | varchar(50) | NO   |     | NULL    |       |
| Address     | varchar(50) | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.026 sec)

MariaDB [School_management_system]>
```

```
MariaDB [School_management_system]> insert into Parents values(4,'lalesh Khatiwoda','manamai
ju','9866345335'),(5,'Hari Manandar','Samakhusi','9812377698'),(6,'Krishna Manandar','Balaju
','9812347878'),(7,'lal sakya','Sundhara','9812345578'),(8,'Gaurab wosti','kalanki','9887654
321'),(9,'Manish Dangol','Tokha','9812344278'),(10,'Siraj Giri','Thamel','9837373726'),(11,'
Rabin Thing','Nepaltar','9888776655'),(12,'Bramha Nanda','Nepaltar','9812333678'),(13,'Lalia
 Mahat','jaulakhel','9812225678'),(14,'Prabesh tamang','chabel','9887645678'),(15,'Ram Taman
g','Ramechhap','9812573678'),(16,'Sanam shah','Manamaiju','9812348798');
Query OK, 13 rows affected (0.059 sec)
Records: 13  Duplicates: 0  Warnings: 0

MariaDB [School_management_system]> select * from Parents;
+------------+-----------------+-----------+------------+
| Student_id | parent_name     | Phone_no  | Address    |
+------------+-----------------+-----------+------------+
|          1 | Mahesh Bhandari | Ramechhap | 9812345678 |
|          2 | Raju Bhandari   | Nuwakot   | 9812345335 |
|          3 | lalita Bhandari | Tokha     | 9812345698 |
|          4 | lalesh Khatiwoda | manamaiju | 9866345335 |
|          5 | Hari Manandar   | Samakhusi | 9812377698 |
|          6 | Krishna Manandar | Balaju    | 9812347878 |
|          7 | lal sakya       | Sundhara  | 9812345578 |
|          8 | Gaurab wosti    | kalanki   | 9887654321 |
|          9 | Manish Dangol   | Tokha     | 9812344278 |
|         10 | Siraj Giri      | Thamel    | 9837373726 |
|         11 | Rabin Thing     | Nepaltar  | 9888776655 |
|         12 | Bramha Nanda    | Nepaltar  | 9812333678 |
|         13 | Lalia Mahat     | jaulakhel | 9812225678 |
|         14 | Prabesh tamang  | chabel    | 9887645678 |
|         15 | Ram Tamang      | Ramechhap | 9812573678 |
|         16 | Sanam shah      | Manamaiju | 9812348798 |
+------------+-----------------+-----------+------------+
```

Create teachers table and insertion values on it

```
MariaDB [School_management_system]> create table Teachers(teacher_id int, teacher_name varch
ar(50) not null, Phone_no varchar(50) not null, Email varchar(50) not null, Address varchar(
50) not null);
Query OK, 0 rows affected (0.353 sec)

MariaDB [School_management_system]> alter drop table teacherss
    -> ;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds
to your MariaDB server version for the right syntax to use near 'drop table teacherss' at li
ne 1
MariaDB [School_management_system]> drop table teacherss
    -> ;
Query OK, 0 rows affected (1.508 sec)

MariaDB [School_management_system]> desc teachers;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| teacher_id   | int(11)     | YES  |     | NULL    |       |
| teacher_name | varchar(50) | NO   |     | NULL    |       |
| Phone_no     | varchar(50) | NO   |     | NULL    |       |
| Email        | varchar(50) | NO   |     | NULL    |       |
| Address      | varchar(50) | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
5 rows in set (0.024 sec)

MariaDB [School_management_system]>
```

```
MariaDB [School_management_system]> insert into teachers values(108,'Kamlesh shrestah','9853
372395','Kamleshshrestha5@gmail.com','lainchaur');
Query OK, 1 row affected (0.026 sec)

MariaDB [School_management_system]> select * from table teachers;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds
to your MariaDB server version for the right syntax to use near 'table teachers' at line 1
MariaDB [School_management_system]> select * from teachers;
+------------+------------------+------------+----------------------------+------------+
| teacher_id | teacher_name     | Phone_no   | Email                      | Address    |
+------------+------------------+------------+----------------------------+------------+
|        101 | Mahesh KC        | 9856463626 | MaheshKC2@gmail.com        | Ramechhap  |
|        102 | Bhuban KC        | 9856463676 | BhubanKC4@gmail.com        | Nuwakot    |
|        103 | Anmol mahato     | 9856464456 | Anmolmahato9@gmail.com     | Dhobighat  |
|        104 | Krishna Manandar | 9856463648 | Krishnamandar5@gmail.com   | jaulakhel  |
|        105 | Sreeya Rai       | 9856455668 | Sreeyarai5@gmail.com       | manamaiju  |
|        106 | Sapana kunwar    | 985346668  | Sapanakunwar4@gmail.com    | nepaltar   |
|        107 | Subiran shrestah | 9853374938 | Subiranshrestha5@gmail.com | Balaju     |
|        108 | Kamlesh shrestah | 9853372395 | Kamleshshrestha5@gmail.com | lainchaur  |
+------------+------------------+------------+----------------------------+------------+
8 rows in set (0.001 sec)
```

Creation of course table and insertion of values

```
MariaDB [School_management_system]> create table Course(Course_id int primary key, course_na
me varchar(50) not null, teacher_id int, student_id int);
Query OK, 0 rows affected (0.277 sec)
```

```
MariaDB [School_management_system]> desc course
    -> ;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Course_id   | int(11)     | NO   | PRI | NULL    |       |
| course_name | varchar(50) | NO   |     | NULL    |       |
| teacher_id  | int(11)     | YES  | MUL | NULL    |       |
| student_id  | int(11)     | YES  | MUL | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.074 sec)

MariaDB [School_management_system]>
```

Creation of table library and insertion the values on it

```
MariaDB [School_management_system]> create table library(Student_id int, Book_name varchar(50) not nu
ll, borrow_date date, return_date date);
Query OK, 0 rows affected (0.325 sec)

MariaDB [School_management_system]> alter table library add foreign key (student_id) references stude
nts(student_id);
Query OK, 0 rows affected (0.970 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [School_management_system]> desc library;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Student_id  | int(11)     | YES  | MUL | NULL    |       |
| Book_name   | varchar(50) | NO   |     | NULL    |       |
| borrow_date | date        | YES  |     | NULL    |       |
| return_date | date        | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.027 sec)

MariaDB [School_management_system]>
```

```
MariaDB [School_management_system]> insert into library values(9,'Nepali','1','2020-03-30','2020-04-1
5');
Query OK, 1 row affected (0.083 sec)

MariaDB [School_management_system]> select * from library;
+------------+------------+------------+-------------+-------------+
| student_id | book_name  | quantities | borrow_date | return_date |
+------------+------------+------------+-------------+-------------+
|          3 | c language | 1          | 2020-03-06  | 2020-03-16  |
|          4 | Math       | 2          | 2020-03-10  | 2020-03-25  |
|          6 | Social     | 1          | 2020-03-10  | 2020-03-28  |
|          1 | Science    | 1          | 2020-03-14  | 2020-03-28  |
|         13 | English    | 1          | 2020-03-15  | 2020-03-28  |
|         15 | Computer   | 1          | 2020-03-19  | 2020-03-30  |
|          1 | Economics  | 1          | 2020-03-24  | 2020-04-08  |
|          9 | Nepali     | 1          | 2020-03-30  | 2020-04-15  |
+------------+------------+------------+-------------+-------------+
8 rows in set (0.001 sec)

MariaDB [School_management_system]>
```

Select Statements using Different Function

1. Write a query to display the all from table result who had “A” grade?

> Select* from result where Grade='A';

```
MariaDB [school_management_system]> Select* from result where Grade='A';
+------------+-----------+-------+
| student_id | course_id | grade |
+------------+-----------+-------+
|          1 |      1101 | A     |
|          2 |      1101 | A     |
|          5 |      1101 | A     |
|          8 |      1101 | A     |
|          9 |      1101 | A     |
|         13 |      1101 | A     |
|         14 |      1101 | A     |
+------------+-----------+-------+
7 rows in set (0.154 sec)

MariaDB [school_management_system]>
```

2. Write a query to display all from students table where id of students is in between 5 to 15?

> Select * from students where student_id between 5 AND 15;

```
MariaDB [school_management_system]> Select * from students where student_id between 5 AND 15;
+------------+---------------+--------+--------------------------+--------+
| Student_id | Student_name  | RollNo | Email                    | Gender |
+------------+---------------+--------+--------------------------+--------+
|          5 | Roji manandar | 5      | Rojimanandar12@gmail.com | female |
|          6 | Jenny manandar | 6      | jennymanandar56@gmail.com | female |
|          7 | Rojesh Sakya  | 7      | Rojeshsakya6@gmail.com   | male   |
|          8 | Ram wosti     | 8      | Ramwost96@gmail.com      | male   |
|          9 | Rama Dangol   | 9      | Ramadangol66@gmail.com   | female |
|         10 | Shiva Giri    | 10     | Girishiv65@gmail.com     | male   |
|         11 | Nirmal Thing  | 11     | Nirmalthing5@gmail.com   | male   |
|         12 | Raju nanda    | 12     | Rajunanda35@gmail.com    | male   |
|         13 | Lalit Mahat   | 13     | Lalitmahat15@gmail.com   | male   |
|         14 | Priya tamang  | 14     | tamangnipriya15@gmail.com | female |
|         15 | Hari tamang   | 15     | Haritamang45@gmail.com   | male   |
+------------+---------------+--------+--------------------------+--------+
11 rows in set (0.020 sec)
```

3. Write a query to display all from teachers where teacher name ordered in ascending order?

> Select * from teachers ORDER BY teacher_name ASC;

```
MariaDB [school_management_system]> Select * from teachers ORDER BY teacher_name ASC;
+------------+------------------+------------+----------------------------+-----------+
| teacher_id | teacher_name     | Phone_no   | Email                      | Address   |
+------------+------------------+------------+----------------------------+-----------+
|        103 | Anmol mahato     | 9856464456 | Anmolmahato9@gmail.com     | Dhobighat |
|        102 | Bhuban KC        | 9856463676 | BhubanKC4@gmail.com        | Nuwakot   |
|        108 | Kamlesh shrestah | 9853372395 | Kamleshshrestha5@gmail.com | lainchaur |
|        104 | Krishna Manandar | 9856463648 | Krishnamandar5@gmail.com   | jaulakhel |
|        101 | Mahesh KC        | 9856463626 | MaheshKC2@gmail.com        | Ramechhap |
|        106 | Sapana kunwar    | 985346668  | Sapanakunwar4@gmail.com    | nepaltar  |
|        105 | Sreeya Rai       | 9856455668 | Sreeyarai5@gmail.com       | manamaiju |
|        107 | Subiran shrestah | 9853374938 | Subiranshrestha5@gmail.com | Balaju    |
+------------+------------------+------------+----------------------------+-----------+
8 rows in set (0.002 sec)

MariaDB [school_management_system]>
```

4. Write a query to display all from students where rollNo is less than 5?

> Select * from students where Rollno <5;

```
MariaDB [school_management_system]> Select * from students where Rollno < 5;
+------------+------------------+--------+----------------------------+--------+
| Student_id | Student_name     | RollNo | Email                      | Gender |
+------------+------------------+--------+----------------------------+--------+
|          1 | Umesh Bhandar    | 1      | Umeshbhandari8@gmail.com   | male   |
|          2 | Sumesh Bhandar   | 2      | SUmeshbhandari1@gmail.com  | male   |
|          3 | Ramesh Bhandar   | 3      | Rameshbhandari2@gmail.com  | male   |
|          4 | Ramila khatiwoda | 4      | Ramilakhati22@gmail.com    | female |
+------------+------------------+--------+----------------------------+--------+
4 rows in set (0.010 sec)

MariaDB [school_management_system]>
```

5. Write a query to find the student name from the table.?

> Select student_id, student_name from students where student_name=”rabin shah”;

```
MariaDB [school_management_system]> Select student_id, student_name from students where student_name="rabin shah";
+------------+--------------+
| student_id | student_name |
+------------+--------------+
|         16 | Rabin shah   |
+------------+--------------+
1 row in set (0.001 sec)

MariaDB [school_management_system]>
```

6. Write a query to find the student who has paid the half fee?

> select * from finance_department where paid_ fee =”25000”;

```
MariaDB [school_management_system]> select * from finance_department where paid_fee ="25000";
+------------+-------+----------+---------------+
| Student_id | fee   | paid_fee | remaining_fee |
+------------+-------+----------+---------------+
|          2 | 50000 | 25000    | 25000         |
|         15 | 50000 | 25000    | 25000         |
+------------+-------+----------+---------------+
2 rows in set (0.001 sec)
```

7. Write a query to display the maximum paid amount from finance department?

> Select max(fee) as paid_fee from finance_department;

```
MariaDB [school_management_system]> Select max(fee) as paid_fee from finance_department;
+----------+
| paid_fee |
+----------+
| 50000    |
+----------+
1 row in set (0.001 sec)
```

8. Write a query to display all from teachers table where the name of teacher ended with ‘h’?

> select*from teachers where teacher_name LIKE '%h';

```
MariaDB [school_management_system]>
MariaDB [school_management_system]> select*from teachers where teacher_name LIKE '%h';
+------------+-----------------+------------+---------------------------+-----------+
| teacher_id | teacher_name    | Phone_no   | Email                     | Address   |
+------------+-----------------+------------+---------------------------+-----------+
|        107 | Subiran shrestah | 9853374938 | Subiranshrestha5@gmail.com | Balaju    |
|        108 | Kamlesh shrestah | 9853372395 | Kamleshshrestha5@gmail.com | lainchaur |
+------------+-----------------+------------+---------------------------+-----------+
2 rows in set (0.001 sec)
```

9. write a query to select the values which is start with ‘r’ from the table.

> select * from students where student_name like ‘s%’;

```
MariaDB [school_management_system]> select * from students where student_name like ‘s%’;
+------------+----------------+--------+---------------------------+--------+
| Student_id | Student_name   | RollNo | Email                     | Gender |
+------------+----------------+--------+---------------------------+--------+
|          2 | Sumesh Bhandar | 2      | SUmeshbhandari1@gmail.com | male   |
|         10 | Shiva Giri     | 10     | Girishiv65@gmail.com      | male   |
+------------+----------------+--------+---------------------------+--------+
2 rows in set (0.002 sec)
```

10. write a query to display Student_id in the table result where grade is not C?

- Select* from result where not Grade='C';

```
MariaDB [school_management_system]> Select* from result where not Grade='C';
+------------+-----------+-------+
| student_id | course_id | grade |
+------------+-----------+-------+
|          1 |      1101 | A     |
|          2 |      1101 | A     |
|          3 |      1101 | B     |
|          5 |      1101 | A     |
|          6 |      1101 | B     |
|          7 |      1101 | B     |
|          8 |      1101 | A     |
|          9 |      1101 | A     |
|         12 |      1101 | B     |
|         13 |      1101 | A     |
|         14 |      1101 | A     |
|         15 |      1101 | B     |
|         16 |      1101 | D     |
+------------+-----------+-------+
13 rows in set (0.001 sec)
```

11. . Write a query to select all from parents table who live in ‘manamaiju’, ‘nepaltar’?

- select*from parents where phone_no IN (‘manamaiju’, ‘nepaltar’);

```
MariaDB [school_management_system]> select*from parents where phone_no IN ('manamaiju', 'nepaltar');
+------------+-----------------+-----------+------------+
| Student_id | parent_name     | Phone_no  | Address    |
+------------+-----------------+-----------+------------+
|          4 | lalesh Khatiwoda | manamaiju | 9866345335 |
|         11 | Rabin Thing     | Nepaltar  | 9888776655 |
|         12 | Bramha Nanda    | Nepaltar  | 9812333678 |
|         16 | Sanam shah      | Manamaiju | 9812348798 |
+------------+-----------------+-----------+------------+
4 rows in set (0.001 sec)
```

12. Write a query to display students all from attendence table who was absent more than 10 days?
    - select*from attendance where absent_day>10;

```
MariaDB [school_management_system]> select*from attendance where absent_day>10;
+------------+-------------+------------+---------------+
| student_id | present_day | absent_day | Total_present |
+------------+-------------+------------+---------------+
|          4 | 19          | 11         | 19            |
|          7 | 18          | 12         | 18            |
|         16 | 15          | 15         | 15            |
+------------+-------------+------------+---------------+
3 rows in set (0.001 sec)
```

13. Write a query to display course name from subject table and class name and exam date from exam department table?
    - select course_name, exam_date from course INNER JOIN exam_department on course.course_id=exam_department.course_id;

```
MariaDB [school_management_system]> select course_name, exam_date from course INNER JOIN exam_department on course.cours
e_id=exam_department.course_id;
+-------------+------------+
| course_name | exam_date  |
+-------------+------------+
| Math        | 2020-04-07 |
| Science     | 2020-04-08 |
| Social      | 2020-04-09 |
| English     | 2020-04-10 |
| account     | 2020-04-11 |
| Computer    | 2020-04-12 |
| Economics   | 2020-04-13 |
| Nepali      | 2020-04-14 |
+-------------+------------+
8 rows in set (0.106 sec)
```

14. Write a query to display name, number and email from teachers table where teacher name start with ‘B’ and address is Nuwakot?
    - select teacher_name as Name,Phone_no as number,Email as Gmail from teachers where teacher_name like 'B%' AND Address="Nuwakot";

```
MariaDB [school_management_system]> select teacher_name as Name,Phone_no as number,Email as Gmail from teachers where te
acher_name like 'B%' AND Address="Nuwakot";
+-----------+------------+--------------------+
| Name      | number     | Gmail              |
+-----------+------------+--------------------+
| Bhuban KC | 9856463676 | BhubanKC4@gmail.com |
+-----------+------------+--------------------+
1 row in set (0.001 sec)
```

15. Write a query to display all from attendance table who was present more than or equal to 25?
    - select*from attendance where present_day>=25;

```
MariaDB [school_management_system]> select*from attendance where present_day >= 25;
+------------+-------------+------------+----------------+
| student_id | present_day | absent_day | Total_present |
+------------+-------------+------------+----------------+
|          1 | 29          | 1          | 29             |
|          2 | 27          | 3          | 27             |
|          3 | 27          | 3          | 27             |
|          5 | 30          | 0          | 30             |
|          6 | 28          | 2          | 28             |
|          8 | 28          | 2          | 28             |
|          9 | 30          | 0          | 30             |
|         10 | 30          | 0          | 30             |
|         11 | 30          | 0          | 30             |
|         12 | 26          | 4          | 26             |
|         13 | 26          | 4          | 26             |
|         14 | 27          | 3          | 27             |
|         15 | 28          | 2          | 28             |
+------------+-------------+------------+----------------+
13 rows in set (0.001 sec)
```

16. write a query to display all male students from students table?
    - Select * from students where gender=’’male’;

```
MariaDB [school_management_system]> Select * from students where gender='male';
+------------+----------------+--------+---------------------------+--------+
| Student_id | Student_name   | RollNo | Email                     | Gender |
+------------+----------------+--------+---------------------------+--------+
|          1 | Umesh Bhandar  | 1      | Umeshbhandari8@gmail.com  | male   |
|          2 | Sumesh Bhandar | 2      | SUmeshbhandari1@gmail.com | male   |
|          3 | Ramesh Bhandar | 3      | Rameshbhandari2@gmail.com | male   |
|          7 | Rojesh Sakya   | 7      | Rojeshsakya6@gmail.com    | male   |
|          8 | Ram wosti      | 8      | Ramwost96@gmail.com       | male   |
|         10 | Shiva Giri     | 10     | Girishiv65@gmail.com      | male   |
|         11 | Nirmal Thing   | 11     | Nirmalthings67@gmali.com  | male   |
|         12 | Raju nanda     | 12     | Rajunanda35@gmail.com     | male   |
|         13 | Lalit Mahat    | 13     | Lalitmahat15@gmail.com    | male   |
|         15 | Hari tamang    | 15     | Haritamang45@gmail.com    | male   |
|         16 | Rabin shah     | 17     | Rabinshah5@gmail.com      | male   |
+------------+----------------+--------+---------------------------+--------+
11 rows in set (0.001 sec)
```

17. Write a query to display the name of books which is taken from library in descending order?

    - Select book_name as "Book Taken from Library" from library order by book_name desc;

```
MariaDB [school_management_system]> Select book_name as "Book Taken from Library" from library order by book_na
me desc;
+------------------------+
| Book Taken from Library |
+------------------------+
| Social                 |
| Science                |
| Nepali                 |
| Math                   |
| English                |
| Economics              |
| Computer               |
+------------------------+
7 rows in set (0.002 sec)
```

18. Write a query to display total number of students in students table?
    - Select count(student_id) as "Total Students" from students;

```
MariaDB [school_management_system]> Select count(student_id) as "Total Students" from students;
+----------------+
| Total Students |
+----------------+
|             16 |
+----------------+
1 row in set (0.001 sec)
```

19. Write a query to display the student name (Upper Case) and rollno where name of student should start with S?
    - Select UPPER (student_name) as "Student Name", rollno as "rolls" from students where student_name LIKE 's%';

```
MariaDB [school_management_system]> Select UPPER (student_name) as "Student Name", rollno as "rolls" from stude
nts where student_name LIKE 's%';
+---------------+-------+
| Student Name  | rolls |
+---------------+-------+
| SUMESH BHANDAR | 2     |
| SHIVA GIRI     | 10    |
+---------------+-------+
2 rows in set (0.019 sec)
```

20. Write a query to count total number of assignments done from assignments?
    - Select count(status) from assignments;

```
MariaDB [school_management_system]> Select count(status) from assignments;
+---------------+
| count(status) |
+---------------+
|            16 |
+---------------+
1 row in set (0.001 sec)
```

Select Statement as using Sub Query

1. Write a query to display student id and present day for the students who has absent maximum days from attendance table?
   - select student_id AS ID, present_day AS Present from attendance where absent_day=(select max(absent_day) from attendance);

```
MariaDB [school_management_system]> select student_id AS ID, present_day AS Present from attendance where absent_day=(se
lect max(absent_day) from attendance);
+------+---------+
| ID   | Present |
+------+---------+
|   12 | 26      |
|   13 | 26      |
+------+---------+
2 rows in set (0.015 sec)
```

2. Write a query to display all from finance department who have minimum remaining amount?
   - select * from finance_department where remaining_fee=(select MIN(remaining_fee) from finance_department);

```
MariaDB [school_management_system]> select * from finance_department where remaining_fee=(select MIN(remaining_
fee) from finance_department);
+------------+-------+----------+---------------+
| Student_id | fee   | paid_fee | remaining_fee |
+------------+-------+----------+---------------+
|         12 | 50000 | 50000    | 0             |
|         16 | 50000 | 50000    | 0             |
+------------+-------+----------+---------------+
2 rows in set (0.001 sec)
```

3. Write a query to display all from finance_department who have second highest paid_fee?
   - select*from finance_department where paid_fee=(select MAX(paid_fee)from finance_department where paid_fee <>(select MAX(paid_fee) from finance_department));

```
MariaDB [school_management_system]> select*from finance_department where paid_fee=(select MAX(paid_fee)from fin
ance_department where paid_fee <>(select MAX(paid_fee) from finance_department));
+------------+-------+----------+---------------+
| Student_id | fee   | paid_fee | remaining_fee |
+------------+-------+----------+---------------+
|         13 | 50000 | 49000    | 1000          |
+------------+-------+----------+---------------+
1 row in set (0.004 sec)
```

4. write a query to select the values which is start and end with ‘K’ and ’U’ from the table?
   - Select * from parents where phone_no = any (select phone_no from parents where phone_no like ‘m%u’);

```
MariaDB [school_management_system]> Select * from parents where phone_no = any (select phone_no from parents wh
ere phone_no like ‘m%u’);
+------------+------------------+-----------+------------+
| Student_id | parent_name      | Phone_no  | Address    |
+------------+------------------+-----------+------------+
|          4 | lalesh Khatiwoda | manamaiju | 9866345335 |
|         16 | Sanam shah       | Manamaiju | 9812348798 |
+------------+------------------+-----------+------------+
2 rows in set (0.001 sec)
```

Select Statement using Count and Group function

1. Write a query to display grade from result table along with number of grade in it?
   - select Grade,count(*) from result group by Grade;

```
MariaDB [school_management_system]> select Grade,count(*) from result group by Grade;
+-------+----------+
| Grade | count(*) |
+-------+----------+
| A     |        7 |
| B     |        5 |
| C     |        3 |
| D     |        1 |
+-------+----------+
4 rows in set (0.098 sec)

MariaDB [school_management_system]>
```

2. Write a query to display name of students from students table where number of students in gender male are more than 1?

   > select student_name from students where gender="male" IN (select gender from students group by gender having count(*)>1);

```
MariaDB [school_management_system]> select student_name from students where gender="male" IN (select gender fro
m students group by gender having count(*)>1);
Empty set, 16 warnings (0.002 sec)
```

3. Write a query to count the data and use 'Group' by 'clause

   - select course_name, count(*) from course group by course_name;

```
MariaDB [school_management_system]> select course_name, count(*) from course group by course_name;
+-------------+----------+
| course_name | count(*) |
+-------------+----------+
| account     |        1 |
| Computer    |        1 |
| Economics   |        1 |
| English     |        1 |
| Math        |        1 |
| Nepali      |        1 |
| Science     |        1 |
| Social      |        1 |
+-------------+----------+
8 rows in set (0.001 sec)
```

Select Statement Using Different Joins

1. Write a query to display student name from students table who had taken a book from library and display book name from library table?

   - select student_name AS Names,book_name AS Books from students,library where students.student_id=library.student_id;

```
MariaDB [school_management_system]> select student_name AS Names,book_name AS Books from students,library where
 students.student_id=library.student_id;
+------------------+------------+
| Names            | Books      |
+------------------+------------+
| Ramesh Bhandar   | c language |
| Ramila khatiwoda | Math       |
| Jenny manandar   | Social     |
| Umesh Bhandar    | Science    |
| Lalit Mahat      | English    |
| Hari tamang      | Computer   |
| Umesh Bhandar    | Economics  |
| Rama Dangol      | Nepali     |
+------------------+------------+
8 rows in set (0.002 sec)
```

2. Write a query to display left outer join from students and library containing student name, class, book name?
   - select student_name,student_class,book_name from students left outer join library on(students.student_id=library.student_id);

```
MariaDB [school_management_system]> select student_name,rollno,book_name from students left outer join library
on(students.student_id=library.student_id);
+------------------+--------+------------+
| student_name     | rollno | book_name  |
+------------------+--------+------------+
| Umesh Bhandar    | 1      | Science    |
| Umesh Bhandar    | 1      | Economics  |
| Sumesh Bhandar   | 2      | NULL       |
| Ramesh Bhandar   | 3      | c language |
| Ramila khatiwoda | 4      | Math       |
| Roji manandar    | 5      | NULL       |
| Jenny manandar   | 6      | Social     |
| Rojesh Sakya     | 7      | NULL       |
| Ram wosti        | 8      | NULL       |
| Rama Dangol      | 9      | Nepali     |
| Shiva Giri       | 10     | NULL       |
| Nirmal Thing     | 11     | NULL       |
| Raju nanda       | 12     | NULL       |
| Lalit Mahat      | 13     | English    |
| Priya tamang     | 14     | NULL       |
| Hari tamang      | 15     | Computer   |
| Rabin shah       | 16     | NULL       |
+------------------+--------+------------+
17 rows in set (0.093 sec)
```

3. Write a query to select the two table and join them by “left” clause?
   - select student_name, rollno, parent_name phone_no from students left join parents on students.student_id = parents.student_id;

```
MariaDB [school_management_system]> select student_name, rollno, parent_name phone_no from students left join p
arents on students.student_id = parents.student_id;
+------------------+--------+------------------+
| student_name     | rollno | phone_no         |
+------------------+--------+------------------+
| Umesh Bhandar    | 1      | Mahesh Bhandari  |
| Sumesh Bhandar   | 2      | Raju Bhandari    |
| Ramesh Bhandar   | 3      | lalita Bhandari  |
| Ramila khatiwoda | 4      | lalesh Khatiwoda |
| Roji manandar    | 5      | Hari Manandar    |
| Jenny manandar   | 6      | Krishna Manandar |
| Rojesh Sakya     | 7      | lal sakya        |
| Ram wosti        | 8      | Gaurab wosti     |
| Rama Dangol      | 9      | Manish Dangol    |
| Shiva Giri       | 10     | Siraj Giri       |
| Nirmal Thing     | 11     | Rabin Thing      |
| Raju nanda       | 12     | Bramha Nanda     |
| Lalit Mahat      | 13     | Lalia Mahat      |
| Priya tamang     | 14     | Prabesh tamang   |
| Hari tamang      | 15     | Ram Tamang       |
| Rabin shah       | 16     | Sanam shah       |
+------------------+--------+------------------+
16 rows in set (0.102 sec)
```

4. Write a query to display right outer join from course and result containing course_id, course name, grade?
   - select student_id,course_name,grade from course right outer join result on (course.course_id=result.course_id);

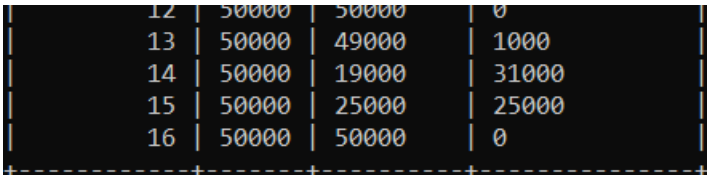
```
MariaDB [school_management_system]> select student_id,course_name,grade from course right outer join result on
(course.course_id=result.course_id);
+------------+-------------+-------+
| student_id | course_name | grade |
+------------+-------------+-------+
|          1 | Math        | A     |
|          2 | Math        | A     |
|          3 | Math        | B     |
|          4 | Math        | C     |
|          5 | Math        | A     |
|          6 | Math        | B     |
|          7 | Math        | B     |
|          8 | Math        | A     |
|          9 | Math        | A     |
|         10 | Math        | C     |
|         11 | Math        | C     |
|         12 | Math        | B     |
|         13 | Math        | A     |
|         14 | Math        | A     |
|         15 | Math        | B     |
|         16 | Math        | D     |
+------------+-------------+-------+
16 rows in set (0.002 sec)
```

5. Write a query to display inner join in three tables namely students, course and result containing student name, course name and grade?
   - select students.student_name,course.course_name,result.grade from((result inner join students ON result.student_id=students.student_id) inner join course on result.course_id=course.course_id);

```
MariaDB [school_management_system]> select students.student_name,course.course_name,result.grade from((result i
nner join students ON result.student_id=students.student_id) inner join course on result.course_id=course.cours
e_id);
+------------------+-------------+-------+
| student_name     | course_name | grade |
+------------------+-------------+-------+
| Umesh Bhandar    | Math        | A     |
| Sumesh Bhandar   | Math        | A     |
| Ramesh Bhandar   | Math        | B     |
| Ramila khatiwoda | Math        | C     |
| Roji manandar    | Math        | A     |
| Jenny manandar   | Math        | B     |
| Rojesh Sakya     | Math        | B     |
| Ram wosti        | Math        | A     |
| Rama Dangol      | Math        | A     |
| Shiva Giri       | Math        | C     |
| Nirmal Thing     | Math        | C     |
| Raju nanda       | Math        | B     |
| Lalit Mahat      | Math        | A     |
| Priya tamang     | Math        | A     |
| Hari tamang      | Math        | B     |
| Rabin shah       | Math        | D     |
+------------------+-------------+-------+
16 rows in set (0.002 sec)
```

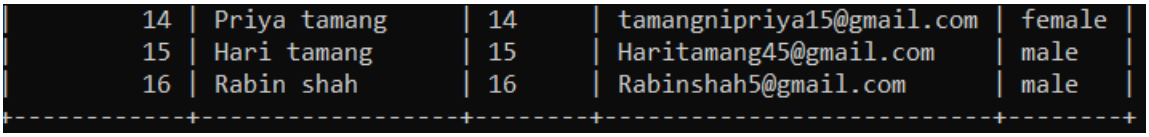
Insert Statement

1. Write a query to insert student id, fee, paid_fee and remaining_fee into finance table?
   - insert into finance_department values (16,5000,50000,0);



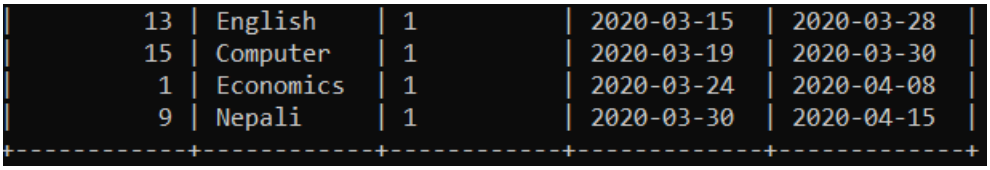
12	50000	50000	0
13	50000	49000	1000
14	50000	19000	31000
15	50000	25000	25000
16	50000	50000	0

2. Write a query to insert student id, student_name, RollNo, email and gender into students table?
   - insert into students (student_id ,student_name,rollno,email,gender) values (16,"rabin shah","16","Rabinshah5@gmail.com","male");



14	Priya tamang	14	tamangnipriya15@gmail.com	female
15	Hari tamang	15	Haritamang45@gmail.com	male
16	Rabin shah	16	Rabinshah5@gmail.com	male

3. Write a query to insert two values in same command student id, book name, Quantities, borrow date and return date, into library table?
   - insert into library values (1,'economics','1','2020-03-24', '2020-04-08'), (9,'nepali','1','2020-03-30', '2020-04-15');



13	English	1	2020-03-15	2020-03-28
15	Computer	1	2020-03-19	2020-03-30
1	Economics	1	2020-03-24	2020-04-08
9	Nepali	1	2020-03-30	2020-04-15

4. Write a query to insert student id, present day, absent day and total_present into attendance table?
   - insert into attendance values (16,'15','15','15');

```
|         12 | 26          | 4           | 26            |
|         13 | 26          | 4           | 26            |
|         14 | 27          | 3           | 27            |
|         15 | 28          | 2           | 28            |
|         16 | 15          | 15          | 15            |
+------------+-------------+-------------+---------------+
```

5. Write a query to insert student_id, course id and grade into result?
   - Insert into result values (‘rabin shah’,’math’,’D’);

```
| Lalit Mahat       | Math          | A       |
| Priya tamang      | Math          | A       |
| Hari tamang       | Math          | B       |
| Rabin shah        | Math          | D       |
+-------------------+---------------+---------+
```

Update Statement

1. Write a query to update student email from students table whose student_id is 11?
   - update students set email ="Nirmalthings67@gmali.com " where student_id = 11;

```
MariaDB [school_management_system]> update students set email ="Nirmalthings67@gmali.com " where student_id = 1
1;
Query OK, 1 row affected (0.067 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

2. Write a query to update rollNo from students table whose student id is 16?
   - update students set Rollno =17 where student_id = 16;

```
MariaDB [school_management_system]> update students set Rollno =17 where student_id = 16;
Query OK, 1 row affected (0.049 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

3. Write a query to update number of teacher from teachers table whose id is 103.
   - update teachers set phone_no="9822732336" where teacher_id =103;

```
MariaDB [school_management_system]> update teachers set phone_no="9822732336" where teacher_id =103;
Query OK, 1 row affected (0.123 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

4. Write a query to update Paid_fee from finance table whose id is 10?
   - update finance_department set paid_fee =45000 where student_id=10;

```
MariaDB [school_management_system]> update finance_department set paid_fee =45000 where student_id=10;
Query OK, 1 row affected (0.074 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

5. Write a query to update exam date from exam department table whose course id is 1107?
   - update exam_department set exam_date ="2020-04-15" where subject_id =1107;

Before

```
MariaDB [school_management_system]> select * from exam_department;
+-----------+-----------+------------+
| course_id | exam_type | exam_date  |
+-----------+-----------+------------+
|      1101 | math      | 2020-04-07 |
|      1102 | science   | 2020-04-08 |
|      1103 | social    | 2020-04-09 |
|      1104 | english   | 2020-04-10 |
|      1105 | account   | 2020-04-11 |
|      1106 | computer  | 2020-04-12 |
|      1107 | economics | 2020-04-13 |
|      1108 | nepali    | 2020-04-14 |
+-----------+-----------+------------+
8 rows in set (0.001 sec)

MariaDB [school_management_system]> update exam_department set exam_date ="2020-04-15" where subject_id =1107;
ERROR 1054 (42S22): Unknown column 'subject_id' in 'where clause'
MariaDB [school_management_system]> update exam_department set exam_date ="2020-04-15" where course_id =1107;
Query OK, 1 row affected (0.057 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

After

```
MariaDB [school_management_system]> select * from exam_department;
+-----------+-----------+------------+
| course_id | exam_type | exam_date  |
+-----------+-----------+------------+
|      1101 | math      | 2020-04-07 |
|      1102 | science   | 2020-04-08 |
|      1103 | social    | 2020-04-09 |
|      1104 | english   | 2020-04-10 |
|      1105 | account   | 2020-04-11 |
|      1106 | computer  | 2020-04-12 |
|      1107 | economics | 2020-04-15 |
|      1108 | nepali    | 2020-04-14 |
+-----------+-----------+------------+
8 rows in set (0.001 sec)
```

Delete Statement

1. Write a query to delete from library table where student_id is 3?
   - delete from library where student_id=3;

Before

```
MariaDB [school_management_system]> select * from library;
+------------+------------+------------+-------------+-------------+
| student_id | book_name  | quantities | borrow_date | return_date |
+------------+------------+------------+-------------+-------------+
|          3 | c language | 1          | 2020-03-06  | 2020-03-16  |
|          4 | Math       | 2          | 2020-03-10  | 2020-03-25  |
|          6 | Social     | 1          | 2020-03-10  | 2020-03-28  |
|          1 | Science    | 1          | 2020-03-14  | 2020-03-28  |
|         13 | English    | 1          | 2020-03-15  | 2020-03-28  |
|         15 | Computer   | 1          | 2020-03-19  | 2020-03-30  |
|          1 | Economics  | 1          | 2020-03-24  | 2020-04-08  |
|          9 | Nepali     | 1          | 2020-03-30  | 2020-04-15  |
+------------+------------+------------+-------------+-------------+
8 rows in set (0.001 sec)
```

After

```
MariaDB [school_management_system]> delete from library where student_id=3;
Query OK, 1 row affected (0.035 sec)

MariaDB [school_management_system]> select * from library;
+------------+-----------+------------+-------------+-------------+
| student_id | book_name | quantities | borrow_date | return_date |
+------------+-----------+------------+-------------+-------------+
|          4 | Math      | 2          | 2020-03-10  | 2020-03-25  |
|          6 | Social    | 1          | 2020-03-10  | 2020-03-28  |
|          1 | Science   | 1          | 2020-03-14  | 2020-03-28  |
|         13 | English   | 1          | 2020-03-15  | 2020-03-28  |
|         15 | Computer  | 1          | 2020-03-19  | 2020-03-30  |
|          1 | Economics | 1          | 2020-03-24  | 2020-04-08  |
|          9 | Nepali    | 1          | 2020-03-30  | 2020-04-15  |
+------------+-----------+------------+-------------+-------------+
7 rows in set (0.001 sec)
```

2. Write a query to delete from attendance table where student id is 10?
   - delete from attendance where student_id =10;

```
MariaDB [school_management_system]> delete from attendance where student_id =10;
Query OK, 1 row affected (0.135 sec)
```

3. Write a query to delete from parents table where student id is 10?
   - delete from parents where student_id =10;

```
MariaDB [school_management_system]> delete from parents where student_id =10;
Query OK, 1 row affected (0.068 sec)
```

4. Write a query to delete from result table where student id is 16?
   - delete from result where student_id=16;

```
MariaDB [school_management_system]> delete from result where student_id=16;
Query OK, 1 row affected (0.142 sec)
```

5. Write a query to delete from finance table where student id is 16?
   - delete from finance_department where student_id = 16;

```
MariaDB [school_management_system]> delete from finance_department where student_id = 16;
Query OK, 1 row affected (0.056 sec)
```

Normalization

The process of organizing the data by breaking the complex relation into simple relation to reduce data redundancy, insertion anomaly, update anomaly and deletion anomaly is called normalization. It represents a database in normal form by avoiding undesirable things. It also improves faster storing and indexing. In Normalization, data are protected from unauthorized users and secured in database.

Types of normalization 1NF, 2NF, 3NF;

1) First Normal form (1NF)

   All attributes of First Normal form must be atomic and the attribute of a form or table should not be multiple values. Example: Suppose a college wants to store the names and address details of its students. The table create like:

Student_id	Student_name	Address	Phone_number
001	Shiva	Bagbazar	9812345678 9811223344
002	Rabin	Balaju	9876543211
003	Priya	Nepaltar	9827364501 9877665544

   As you can see in the table, two students (Shiva & Priya) are having to mobile numbers so the college stored them in the same field.

   In the above table, the table is not in the form of 1 NF and the attribute of the table must have atomic values, the Phone_no values for student Shiva & Priya violates that rule.

   To compile table into 1 NF the data should be like this:

Student_id	Student_name	Address	Phone_number
001	Shiva	Bagbazar	9812345678
001	Shiva	Bagbazar	9811223344
002	Rabin	Balaju	9876543211

003	Priya	Nepaltar	9827364501
003	Priya	Nepaltar	9877665544

2) Second Normal form (2NF)

A relation is in 2 NF if table is in 1NF and each attribute is fully functionally dependent on the primary key. Example: Suppose a college wants to store the data of students and the subject they study. The table creates like:

Student_id	Student_name	Subjects
001	Shiva	Economics
002	Rabin	Math
002	Rabin	C++
003	Priya	Java
003	Priya	Python

Candidate Keys:{Student_id,Subject}

Non-prime attribute:Student_name

Each attribute contains atomic values so the table is in 1NF form but it is not in 2NF form because non-prime attribute (Student_name) is dependent on student_id alone which is called as a proper subset of candidate key which violates the rule for 2NF.

To compile table into 2 NF the data should be like this:

Student_details table:

Student_id	Student_name
001	Shiva
002	Rabin
003	Priya

Subject table:

Student_id	Subject
001	Economics
002	Math
002	C++
003	Java
003	Python

Now the table is in the form of 2NF.

3) A relation is in 3NF if table is in 2NF and each non-key attribute is fully functionally dependent on the entire primary key, and not on any super key or other key. The 3NF over comes all the problems of 2NF. Example: Suppose a college wants to store the complete address of each Students, they create a table named Student_details. The table creates like;

Student_id	Student_name	Zip_code	State	City	District
001	Shiva	444115	Nepal	Kathmandu	lalitpur
002	Rabin	001057	London	Tera	Wori
001	Shiva	220008	China	Wang fu	Xin jang
003	Rabin	757768	UK	Pauri	Bhagwan

Super Keys: {Student_id},{student_id, sStudent_name}, { student_id, sStudent_name, Zip_code}, { student_id, sStudent_name, Zip_code, State}…so on

Candidate Keys: {{Student_id}

Non-prime attributes: all attributes except Student_id are non-prime as they are not part of any candidate keys.

Here, the Zip_code is dependent on Student_id which creates non-prime attributes transitively dependent on super Key and violates the rule of 3NF.

To complies this table with 3NF the tale should be break into two tables to avoid transitive dependency:

Student table:

Student_id	Student_name	Zip_code
001	Shiva	444115
002	Rabin	001057
001	Shiva	220008
003	Rabin	757768

Zip_code table:

Zip_code	State	City	District
444115	Nepal	Kathmandu	lalitpur
001057	London	Tera	Wori
220008	China	Wang fu	Xin jang
757768	UK	Pauri	Bhagwan

(Singh, n.d.)

Conclusion

All in all, there are plenty of things to learn with this project's help. It's clearly seen from this project how much DBMS is essential in this real-time world. Adding, deleting and modifying various table details such as student, teacher, parents, result and so forth are very friendly, simple and easy. Data management system is the easiest and secure way to go. Through there is a possibility of data leakage by hacking, but if you know anything about ethical hacking this is avoidable. It's best way rather than keeping records in the hand written files. So, data managements system makes storing of information easier and reliable.

References

Singh, C., n.d. *BeginnersBook.* [Online] Available at: https://beginnersbook.com/2015/05/normalization-in-dbms/ [Accessed 15 05 2020].