DBMS - Mini Project

SCHOOL MANAGEMENT SYSTEM

Submitted By:

Name DRUVA M HEGDE
SRN PES1UG20CS138
V Semester Section C

Short Description and Scope of the Project

Schools of all levels and sizes face numerous challenges in organizing communications between administrators, teachers, students, and parents. Student information, payments, and other administrative tasks can be overwhelming, especially at medium and large educational institutions. School management systems can automate these tasks and reduce administrative and personnel requirements.

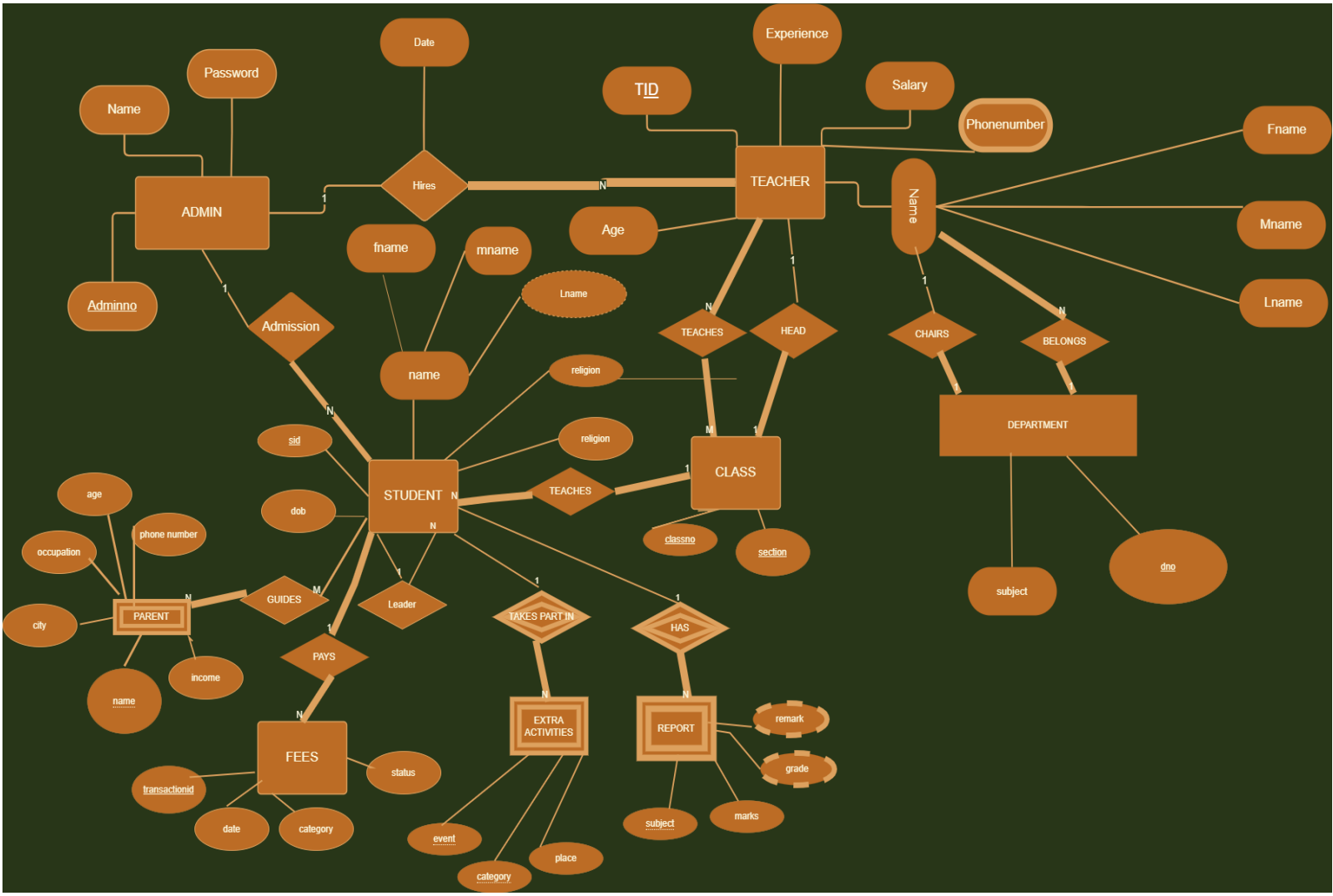
A school management system is an information management system for educational institutions to manage student data. It helps teachers get information about students faster, easier and reduces their workload. It also helps the admin get information about teachers faster, easier and reduces their workload.

Student databases in school management systems contain information about the students, such as their exam grades, parent information, achievements, tuition fees, etc and teachers' information pertaining to salary, subjects they teach, roles, etc

School management systems provide skills such as student registration, class documents, teacher registration, teacher salary, department heads, grades, analytical grades for students, and other assessment elements.

School management solutions are web and mobile-based applications with centralized data storage structures that make it easier for administrators, students, teachers, and parents to access data from iPhone and Android devices.

ER Diagram


Date
Experience
Password
TID
Salary
Name
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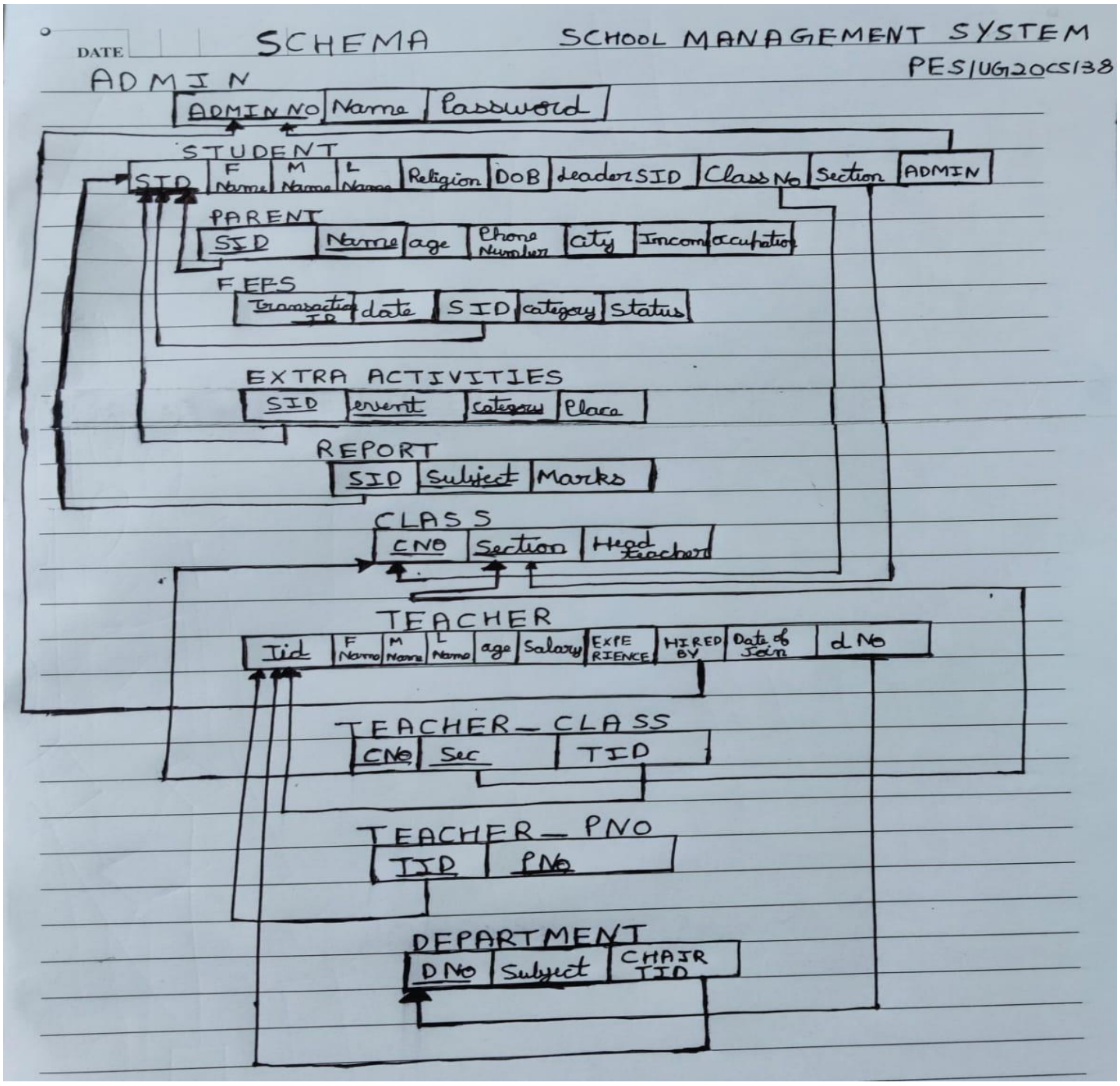
Fname
Hires
TEACHER
ADMIN
Name
Age
Mname
fname
mname
Adminno
Lname
Lname
Admission
TEACHES
HEAD
CHAIRS
BELONGS
name
religion
sid
religion
DEPARTMENT
CLASS
STUDENT
TEACHES
age
dob
classno
section
phone number
occupation
dno
subject
GUIDES
Leader
TAKES PART IN
HAS
PARENT
city
PAYS
income
name
EXTRA ACTIVITIES
REPORT
remark
FEES
status
grade
transactionid
subject
marks
date
category
event
place
category

Relational Schema



DDL statements - Building the database

admin

```
create table admin( admin_no varchar(10),name varchar(20) not null ,password
varchar(20) not null unique,primary key(admin_no));
```

department

```
create table department(dno int primary key,subject varchar(20) not null,chair_tid
varchar(20));
```

teacher

```
 create table teacher(tid varchar(20) primary key,fname varchar(20) not null,mname
varchar(20),lname varchar(20),age int check(age>18),salary int not
null,years_of_experience int,hiredby varchar(10),dateofjoin date,dno int,foreign
key(hiredby) references admin(admin_no),foreign key(dno) references
department(dno));
```

class

```
create table class(classno int,section varchar(1) not null check(section in
('A','B','C','a','b','c')),class_teacher varchar(20) not null,primary key(classno,section
),foreign key(class_teacher) references teacher(tid));
```

teaches

```
create table teaches(classno int,section varchar(1) not null ,tid varchar(20),primary
key(classno,section,tid),FOREIGN KEY (classno,section) REFERENCES
class(classno, section),foreign key(tid) references teacher(tid));
```

teacher_pnp

```
create table teacher_pno(tid varchar(20),pno varchar(10) unique ,primary
key(tid,pno),foreign key(tid) references teacher(tid));
```

student

```
create table student(sid varchar(20) primary key,fname varchar(20) not null,mname
varchar(20),lname varchar(20),religion varchar(20),dob date,leadersid
varchar(20),classno int,sec varchar(1) not null check(sec in ('A','B','C','a','b','c'))
,admin_no varchar(10),foreign key(classno,sec) references
class(classno,section),foreign key(admin_no) references admin(admin_no) )
```

parent

```
create table parent(sid varchar(20),name varchar(20) not null ,age int,pno
varchar(20) , income int, primary key(sid,name), foreign key(sid) references
student(sid));
```

extra curricular

```
create table extraactivities(sid varchar(20),event varchar(20),category
varchar(20),place int  not null,primary key(sid,event,category),foreign key(sid)
references student(sid));
```

report

```
create table report(sid varchar(20),subject varchar(20),grade varchar(1) not null
check(grade in('A','B','C','D','E','F','a','b','c','d','e','f')),marks int,primary
key(sid,subject),foreign key(sid)references student(sid));

 alter table report drop column grade;
```

fees

```
create table fees(transid varchar(20) primary key,date date,sid
varchar(20),category varchar(20),status varchar(20),foreign key(sid) references
student(sid));
```

Populating the Database

admin
insert into admin values
("ajad420","arjun","12598238"),("ajad421","karan","12598234"),("ajad422","Druva","12598222"),("ajad423","kaushal","125www"),("ajad425","Lalu","1259wdwd234");

department
insert into department values
(1,"Math","emp105"),(2,"English","emp205"),(3,"History","emp305"),(4,"Geography","emp405"),(5,"Science","emp505"),(6,"Computer","emp605"),(7,"PT","emp705")

teacher

insert into teacher values("emp105","yash","amrith","raj",45,60000,15,"ajad420","2014-10-2",1),("emp106","Arun",null,"singh",32,25000,5,"ajad421","2020-10-2",1),("emp107","Karthik","H","singh",36,30000,10,"ajad420","2018-11-23",1),("emp206","Emily",null,"Watson",26,20000,3,"ajad422","2021-6-5",2),("emp205","Adam","M","Smith",43,45000,10,"ajad423","2015-8-20",2),("emp207","George","Michael","Smith",37,27000,6,"ajad425","2017-8-20",2),("emp305","Ashoka",null,null,68,48000,30,"ajad422","2019-3-13",3),("emp306","Akbar",null,null,24,15000,1,"ajad423","2021-4-10",3),("emp307","mick",null,"shelly",64,35000,30,"ajad425","2011-3-13",3),("emp405","india",null,null,68,28000,30,"ajad422","2019-3-13",4),("emp406","us",null,null,24,15000,1,"ajad423","2021-4-10",4),("emp407","russia",null,"uklal",64,15200,30,"ajad425","2011-3-13",4),("emp505","albert",null,"Einstein",63,70700,30,"ajad422","2010-3-13",5),("emp506","shiva",null,"raman",23,15000,1,"ajad423","2021-4-10",5),("emp507","mick",null,"shelly",55,65000,30,"ajad425","2011-3-13",5),("emp605","Elon",null,null,63,75000,30,"ajad422","2019-3-13",6),("emp606","Linus",null,null,22,15000,1,"ajad423","2021-4-10",6),("emp607","kelly",null,"homes",53,65000,30,"ajad425","2011-3-13",6),("emp705","virat",null,null,30,43000,5,"ajad422","2019-3-13",7),("emp706","khabib",null,null,24,15000,1,"ajad423","2021-4-10",7),("emp707","rohith",null,"shelly",34,32000,8,"ajad425","2017-3-13",7);

after
ALTER TABLE department ADD CONSTRAINT FK_TempSales_SalesReason FOREIGN KEY (chair_tid) REFERENCES teacher(tid);

class
insert into class values
(8,'A','emp206'),(8,'B','emp306'),(8,'C','emp406'),(9,'A','emp506'),(9,'B','emp606'),(9,'C','emp706'),(10,'A','emp605'),(10,'B','emp105'),(10,'C','emp505');

teaches
insert into teaches values
(8,'A','emp107'),(8,'A','emp206'),(8,'A','emp305'),(8,'A','emp407'),(8,'A','emp505'),(8,'A','emp607'),(8,'A','emp707'),(8,'B','emp107'),(8,'B','emp207'),(8,'B','emp306'),(8,'B','emp405'),(8,'B','emp507'),(8,'B','emp607'),(8,'B','emp705'),(8,'C','emp107'),(8,'C','emp207'),(8,'C','emp305'),(8,'C','emp406'),(

8,'C','emp505'),(8,'C','emp605'),(8,'C','emp706'),(9,'A','emp107'),(9,'A','emp206'),(9,'A','emp307'),(9,'A','emp407'),(9,'A','emp506'),(9,'A','emp607'),(9,'A','emp707'),(9,'B','emp107'),(9,'B','emp207'),(9,'B','emp306'),(9,'B','emp407'),(9,'B','emp507'),(9,'B','emp606'),(9,'B','emp707'),(9,'C','emp107'),(9,'C','emp207'),(9,'C','emp307'),(9,'C','emp406'),(9,'C','emp507'),(9,'C','emp706'),(9,'C','emp707'),(10,'A','emp106'),(10,'A','emp206'),(10,'A','emp306'),(10,'A','emp405'),(10,'A','emp507'),(10,'A','emp605'),(10,'A','emp705'),(10,'B','emp105'),(10,'B','emp207'),(10,'B','emp305'),(10,'B','emp406'),(10,'B','emp506'),(10,'B','emp607'),(10,'B','emp707'),(10,'C','emp107'),(10,'C','emp205'),(10,'C','emp307'),(10,'C','emp406'),(10,'C','emp505'),(10,'C','emp606'),(10,'C','emp706')

teacher_pnp
insert into teacher_pno values
("emp105",7204605731),("emp205",7204605732),("emp305",7204605733),("emp405",7204605734),("emp505",7204605735),("emp605",7204605736),("emp705",7204605737),("emp105",7204605741),("emp205",7204605742),("emp305",7204605743),("emp405",7204605744),("emp505",7204605745),("emp605",7204605746),("emp705",7204605747),("emp106",7204605771),("emp206",7204605772),("emp306",7204605773),("emp107",7204615771),("emp207",7204615772),("emp307",7204615773)

student
insert into student value("stu1","ASH",null,null,"Hindu","2009-11-1",null,8,'A',"ajad420"
),("stu2","joseph",null,null,"Christian","2009-5-6","stu1",8,'A',"ajad420"
),("stu3","Assadi",null,null,"Islam","2009-4-20","stud1",8,'A',"ajad420"
),("stu4","Ashley",null,"singh","Sikh","2009-10-5",null,8,'B',"ajad421"
),("stu5","Michael",null,"Jackson","Christian","2009-7-24","stu4",8,'B',"ajad422"
),("stu6","Assadi","abdul","khader","Islam","2009-12-20","stud5",8,'B',"ajad423"),("stu7","Rohith",null,"sharma","Hindu","2009-1-5","stud8",8,'C',"ajad421"),("stu8","Michael",null,"Smith","Christian","2009-7-4",null,8,'C',"ajad422"),("stu9","MD","abdul","khader","Islam","2009-12-2","stud8",8,'C',"ajad423"),("stu10","virat",null,"Kholi","Hindu","2008-11-1",null,9,'A',"ajad420"
),("stu11","Shahrukh",null,"Khan","Muslim","2008-5-6","stu10",9,'A',"ajad420"
),("stu12","Amrith",null,null,"Hindu","2008-4-20","stud10",9,'A',"ajad420"
),("stu13","Bryan",null,"Adams","Christian","2008-10-5",null,9,'B',"ajad421"
),("stu14","Michael","B","Jordan","Christian","2008-7-24","stu13",9,'B',"ajad422"
),("stu15","Salman",null,"Khan","Islam","2008-12-20","stud13",9,'B',"ajad423"),("stu16","Narendra",null,"Modi","Hindu","2008-1-5",null,9,'C',"ajad421"),("stu17","Amith",null,"Shah","Hindu","2008-7-4","stu16",8,'C',"ajad422"
),("stu18","Arun",null,null,null,"2008-12-13","stud16",9,'C',"ajad423"),("stu19","Chris",null,"Gayle",null,"2007-11-1",null,10,'A',"ajad420"
),("stu20","Albert",null,"Khan","Muslim","2007-5-6","stu19",10,'A',"ajad420"
),("stu21","Aslam",null,"Khan","Athesit","2007-4-20","stud19",10,'A',"ajad420"
),("stu22","Chris",null,"Adams","Christian","2007-10-5",null,10,'B',"ajad421"
),("stu23","Michael","B","Philip","Christian","2007-7-24","stu22",10,'B',"ajad422"
),("stu24","Feroz",null,"Khan","Islam","2007-12-20","stud22",10,'B',"ajad423"),("stu25","Rahul",null,"Gandhi","Hindu","2007-1-5",null,10,'C',"ajad421"),("stu26","Sonia",null,"Gandhi","Hindu","2007-7-4","stu25",10,'C',"ajad422"),("stu27","King",null,null,null,"2007-12-13","stud25",10,'C',"ajad423");

parent
alter table parent add column city varchar(20);
alter table parent add column occupation varchar(20);

insert into parent values ('stu1', 'Ram', 37, 8419648367, 372630, 'Mumbai', 'Teacher'), ('stu10', 'Yash', 36, 8926685903, 323162, 'Delhi', 'Real estate'), ('stu11', 'Mohammed', 51, 8586895605, 193892, 'Mangalore', 'Actor'), ('stu12', 'Ashith', 36, 8464829699, 166397, 'Mumbai', 'Engineer'), ('stu13', 'Abel', 32, 8665914861, 206483, 'Delhi', 'Doctor'), ('stu14', 'John', 37, 8881668895, 425708, 'Mangalore', 'Actor'), ('stu15', 'rashid', 37, 8354714477, 441338, 'Delhi', 'Teacher'),

('stu16', 'NM', 43, 8385393793, 207925, 'Mumbai', 'Real estate'), ('stu17', 'Amitha', 45, 8341576036, 206366, 'Mumbai', 'Doctor'), ('stu19', 'Carlos', 35, 8338672934, 363779, 'Chennai', 'Politician'), ('stu2', 'John', 48, 7791385280, 129741, 'Mumbai', 'Teacher'), ('stu20', 'Isaac', 32, 7994151852, 488712, 'Chennai', 'Doctor'), ('stu21', 'Atif', 41, 8680914680, 442830, 'Mangalore', 'Actor'), ('stu22', 'Emma', 47, 7578139174, 218532, 'Chennai', 'Actor'), ('stu22', 'Wilson', 39, 7638370509, 378344, 'Chennai', 'Doctor'), ('stu23', 'Lucifer', 51, 8236442216, 462475, 'Mumbai', 'Actor'), ('stu23', 'Mily', 35, 8299234034, 464202, 'Chennai', 'Real estate'), ('stu25', 'Arjun', 50, 8036763589, 259847, 'Delhi', 'Doctor'), ('stu26', 'Karan', 33, 8371430965, 459235, 'Chennai', 'Politician'), ('stu27', 'Queen', 42, 7993869962, 368022, 'Bangalore', 'Teacher'), ('stu3', 'abdul', 49, 8171789950, 367494, 'Delhi', 'Teacher'), ('stu4', 'harpreeth', 43, 8892409533, 182919, 'Bangalore', 'Teacher'), ('stu5', 'Karl', 51, 7670105178, 418168, 'Bangalore', 'Doctor'), ('stu6', 'Islam', 49, 7972816239, 457323, 'Delhi', 'Doctor'), ('stu7', 'Hari', 45, 8546026976, 135301, 'Chennai', 'Real estate'), ('stu8', 'Tyson', 42, 8691992790, 269945, 'Mangalore', 'Doctor'), ('stu9', 'MD', 47, 7882556439, 158805, 'Bangalore', 'Politician')

extra curricular

insert into extraactivities values ('stu10', 'Debate', 'environment', 2), ('stu27', 'Debate', 'environment', 2), ('stu25', 'Talentshow', 'Dancing', 2), ('stu9', 'Debate', 'environment', 1), ('stu15', 'Sportsmeet', 'Cricket', 1), ('stu22', 'Sportsmeet', 'boxing', 3), ('stu22', 'Talentshow', 'Dancing', 3), ('stu13', 'Sportsmeet', 'Football', 1), ('stu25', 'Debate', 'Politics', 1), ('stu19', 'Talentshow', 'Singing', 2), ('stu5', 'Sportsmeet', 'sprint', 1), ('stu19', 'Talentshow', 'Dancing', 1), ('stu27', 'Debate', 'Politics', 3)

report
insert into report values('stu1', 'Math', 'E', 49), ('stu1', 'English', 'E', 101), ('stu1', 'History', 'A', 92), ('stu1', 'Geography', 'A', 88), ('stu1', 'Science', 'F', 31), ('stu1', 'Computer', 'E', 49), ('stu1', 'PT', 'B', 80), ('stu2', 'Math', 'A', 87), ('stu2', 'English', 'D', 56), ('stu2', 'History', 'A', 88), ('stu2', 'Geography', 'B', 85), ('stu2', 'Science', 'F', 33), ('stu2', 'Computer', 'D', 57), ('stu2', 'PT', 'F', 29), ('stu3', 'Math', 'A', 99), ('stu3', 'English', 'C', 62), ('stu3', 'History', 'B', 79), ('stu3', 'Geography', 'B', 74), ('stu3', 'Science', 'C', 67), ('stu3', 'Computer', 'B', 71), ('stu3', 'PT', 'F', 35), ('stu4', 'Math', 'D', 60), ('stu4', 'English', 'F', 31), ('stu4', 'History', 'D', 60), ('stu4', 'Geography', 'A', 93), ('stu4', 'Science', 'F', 37), ('stu4', 'Computer', 'F', 38), ('stu4', 'PT', 'D', 60), ('stu5', 'Math', 'E', 44), ('stu5', 'English', 'F', 27), ('stu5', 'History', 'A', 93), ('stu5', 'Geography', 'A', 89), ('stu5', 'Science', 'E', 41), ('stu5', 'Computer', 'A', 94), ('stu5', 'PT', 'C', 65), ('stu6', 'Math', 'E', 46), ('stu6', 'English', 'E', 45), ('stu6', 'History', 'D', 52), ('stu6', 'Geography', 'F', 33), ('stu6', 'Science', 'E', 49), ('stu6', 'Computer', 'D', 56), ('stu6', 'PT', 'A', 87), ('stu7', 'Math', 'B', 81), ('stu7', 'English', 'A', 98), ('stu7', 'History', 'F', 32), ('stu7', 'Geography', 'D', 57), ('stu7', 'Science', 'A', 93), ('stu7', 'Computer', 'B', 79), ('stu7', 'PT', 'B', 73), ('stu8', 'Math', 'D', 54), ('stu8', 'English', 'B', 79), ('stu8', 'History', 'B', 71), ('stu8', 'Geography', 'F', 31), ('stu8', 'Science', 'C', 63), ('stu8', 'Computer', 'B', 71), ('stu8', 'PT', 'A', 96), ('stu9', 'Math', 'D', 56), ('stu9', 'English', 'B', 82), ('stu9', 'History', 'C', 64), ('stu9', 'Geography', 'D', 60), ('stu9', 'Science', 'F', 31), ('stu9', 'Computer', 'D', 57), ('stu9', 'PT', 'A', 96), ('stu10', 'Math', 'C', 62), ('stu10', 'English', 'C', 64), ('stu10', 'History', 'A', 98), ('stu10', 'Geography', 'B', 81), ('stu10', 'Science', 'A', 86), ('stu10', 'Computer', 'A', 86), ('stu10', 'PT', 'C', 69), ('stu11', 'Math', 'D', 57), ('stu11', 'English', 'E', 44), ('stu11', 'History', 'B', 75), ('stu11', 'Geography', 'A', 86), ('stu11', 'Science', 'E', 45), ('stu11', 'Computer', 'C', 63), ('stu11', 'PT', 'B', 77), ('stu12', 'Math', 'F', 27), ('stu12', 'English', 'A', 100), ('stu12', 'History', 'F', 40), ('stu12', 'Geography', 'A', 88), ('stu12', 'Science', 'B', 71), ('stu12', 'Computer', 'A', 86), ('stu12', 'PT', 'F', 31), ('stu13', 'Math', 'B', 85), ('stu13', 'English', 'B', 72), ('stu13', 'History', 'C', 66), ('stu13', 'Geography', 'B', 71), ('stu13', 'Science', 'C', 61), ('stu13', 'Computer', 'A', 92), ('stu13', 'PT', 'F', 27), ('stu14', 'Math', 'B', 76), ('stu14', 'English', 'A', 92), ('stu14', 'History', 'A', 99), ('stu14', 'Geography', 'B', 71), ('stu14', 'Science', 'F', 27), ('stu14', 'Computer', 'B', 71), ('stu14', 'PT', 'F', 26), ('stu15', 'Math', 'F', 37), ('stu15', 'English', 'C', 68), ('stu15', 'History', 'E', 43), ('stu15', 'Geography', 'B', 74), ('stu15', 'Science', 'C', 67), ('stu15', 'Computer', 'F', 27), ('stu15', 'PT', 'C', 68), ('stu16', 'Math', 'C', 69), ('stu16', 'English', 'D', 53), ('stu16', 'History', 'C', 61), ('stu16', 'Geography', 'A', 88), ('stu16', 'Science', 'F', 38), ('stu16', 'Computer', 'F', 30), ('stu16', 'PT', 'D', 56), ('stu17', 'Math', 'A', 86),

('stu17', 'English', 'C', 69), ('stu17', 'History', 'C', 65), ('stu17', 'Geography', 'C', 65), ('stu17', 'Science', 'B', 76), ('stu17', 'Computer', 'F', 32), ('stu17', 'PT', 'E', 44), ('stu18', 'Math', 'F', 38), ('stu18', 'English', 'C', 70), ('stu18', 'History', 'F', 26), ('stu18', 'Geography', 'D', 52), ('stu18', 'Science', 'A', 89), ('stu18', 'Computer', 'B', 80), ('stu18', 'PT', 'B', 81), ('stu19', 'Math', 'A', 98), ('stu19', 'English', 'F', 38), ('stu19', 'History', 'F', 28), ('stu19', 'Geography', 'E', 44), ('stu19', 'Science', 'B', 72), ('stu19', 'Computer', 'A', 97), ('stu19', 'PT', 'B', 81), ('stu20', 'Math', 'B', 76), ('stu20', 'English', 'B', 80), ('stu20', 'History', 'C', 69), ('stu20', 'Geography', 'A', 98), ('stu20', 'Science', 'C', 69), ('stu20', 'Computer', 'A', 95), ('stu20', 'PT', 'A', 86), ('stu21', 'Math', 'A', 88), ('stu21', 'English', 'A', 97), ('stu21', 'History', 'F', 28), ('stu21', 'Geography', 'B', 74), ('stu21', 'Science', 'A', 88), ('stu21', 'Computer', 'A', 94), ('stu21', 'PT', 'B', 79), ('stu22', 'Math', 'B', 78), ('stu22', 'English', 'A', 94), ('stu22', 'History', 'F', 34), ('stu22', 'Geography', 'A', 87), ('stu22', 'Science', 'A', 94), ('stu22', 'Computer', 'F', 32), ('stu22', 'PT', 'C', 64), ('stu23', 'Math', 'B', 83), ('stu23', 'English', 'B', 76), ('stu23', 'History', 'F', 29), ('stu23', 'Geography', 'E', 46), ('stu23', 'Science', 'B', 80), ('stu23', 'Computer', 'A', 95), ('stu23', 'PT', 'A', 99), ('stu24', 'Math', 'F', 32), ('stu24', 'English', 'D', 52), ('stu24', 'History', 'E', 42), ('stu24', 'Geography', 'B', 80), ('stu24', 'Science', 'F', 27), ('stu24', 'Computer', 'A', 97), ('stu24', 'PT', 'F', 37), ('stu25', 'Math', 'C', 62), ('stu25', 'English', 'C', 63), ('stu25', 'History', 'B', 76), ('stu25', 'Geography', 'B', 74), ('stu25', 'Science', 'E', 50), ('stu25', 'Computer', 'C', 63), ('stu25', 'PT', 'E', 49), ('stu26', 'Math', 'E', 46), ('stu26', 'English', 'D', 54), ('stu26', 'History', 'F', 34), ('stu26', 'Geography', 'E', 42), ('stu26', 'Science', 'A', 92), ('stu26', 'Computer', 'B', 84), ('stu26', 'PT', 'E', 44), ('stu27', 'Math', 'D', 55), ('stu27', 'English', 'D', 59), ('stu27', 'History', 'E', 50), ('stu27', 'Geography', 'B', 82), ('stu27', 'Science', 'A', 89), ('stu27', 'Computer', 'F', 34), ('stu27', 'PT', 'B', 83)

alter table report drop column grade;

fees

insert into fees values ('BRB8875', '22-01-16 ', 'stu1', 'merit', 'onesem'), ('BRB2145', '23-04-07 ', 'stu2', 'donation', 'Bothsem'), ('BRB5834', '22-06-12 ', 'stu3', 'merit', 'onesem'), ('BRB3272', '23-05-10 ', 'stu4', 'donation', 'Bothsem'), ('BRB1057', '22-05-14 ', 'stu5', 'merit', 'Bothsem'), ('BRB2698', '23-07-07 ', 'stu6', 'donation', 'onesem'), ('BRB1655', '22-10-12 ', 'stu7', 'merit', 'Bothsem'), ('BRB7397', '23-06-26 ', 'stu8', 'donation', 'Bothsem'), ('BRB8057', '23-12-09 ', 'stu9', 'donation', 'onesem'), ('BRB6242', '22-03-18 ', 'stu10', 'donation', 'onesem'), ('BRB1470', '22-03-03 ', 'stu11', 'merit', 'Bothsem'), ('BRB7220', '23-09-11 ', 'stu12', 'merit', 'onesem'), ('BRB4052', '23-12-15 ', 'stu13', 'donation', 'onesem'), ('BRB9042', '23-11-28 ', 'stu14', 'donation', 'onesem'), ('BRB3341', '23-03-05 ', 'stu15', 'donation', 'Bothsem'), ('BRB8948', '22-05-16 ', 'stu16', 'merit', 'Bothsem'), ('BRB7313', '23-06-02 ', 'stu17', 'donation', 'onesem'), ('BRB7724', '22-08-28 ', 'stu18', 'donation', 'onesem'), ('BRB9125', '23-03-17 ', 'stu19', 'merit', 'onesem'), ('BRB9947', '22-09-07 ', 'stu20', 'merit', 'onesem'), ('BRB3267', '23-04-28 ', 'stu21', 'donation', 'onesem'), ('BRB6148', '22-03-25 ', 'stu22', 'donation', 'Bothsem'), ('BRB9648', '23-07-14 ', 'stu23', 'donation', 'Bothsem'), ('BRB3106', '23-08-15 ', 'stu24', 'donation', 'onesem'), ('BRB3770', '23-03-28 ', 'stu25', 'donation', 'onesem'), ('BRB4783', '23-09-05 ', 'stu26', 'merit', 'onesem'), ('BRB3912', '23-06-26 ', 'stu27', 'donation', 'onesem')

Join Queries

Showcase at least 6 join queries 2 normal 2 correlated 2 nested
Write the query in English Language, Show the equivalent SQL statement and also a screenshot of the query and the results

Normal join queries

1)Finding department heads of each department

query

select d.subject,t.fname as department_head_fname, t.lname as department_head_lname,t.age,t.salary ,t.years_of_experience from teacher as t join department as d on t.tid=d.chair_tid;

```
MariaDB [sch_management_cs138]>  select d.subject,t.fname as department_head_fname, t.lname as department_head_lname,t.age,t.salary ,t.years_of_experience from  teacher as
 t  join department as d on t.tid=d.chair_tid;
+-----------+----------------------+----------------------+------+--------+---------------------+
| subject   | department_head_fname | department_head_lname | age  | salary | years_of_experience |
+-----------+----------------------+----------------------+------+--------+---------------------+
| Math      | yash                 | raj                  |   45 |  60000 |                  15 |
| English   | Adam                 | Smith                |   43 |  45000 |                  10 |
| History   | Ashoka               | NULL                 |   68 |  48000 |                  30 |
| Geography | india                | NULL                 |   68 |  28000 |                  30 |
| Science   | albert               | Einstein             |   63 |  70700 |                  30 |
| Computer  | Elon                 | NULL                 |   63 |  75000 |                  30 |
| PT        | virat                | NULL                 |   30 |  43000 |                   5 |
+-----------+----------------------+----------------------+------+--------+---------------------+
7 rows in set (0.075 sec)
```

2) Finding merit students who have paid fees for one sem

```
MariaDB [sch_management_cs138]>  select fname,lname,classno,sec,category,status from student natural join fees where status='onesem' and category='merit' order by classno;
+--------+--------+---------+-----+----------+--------+
| fname  | lname  | classno | sec | category | status |
+--------+--------+---------+-----+----------+--------+
| ASH    | NULL   |       8 | A   | merit    | onesem |
| Assadi | NULL   |       8 | A   | merit    | onesem |
| Amrith | NULL   |       9 | A   | merit    | onesem |
| Albert | Khan   |      10 | A   | merit    | onesem |
| Sonia  | Gandhi |      10 | C   | merit    | onesem |
| Chris  | Gayle  |      10 | A   | merit    | onesem |
+--------+--------+---------+-----+----------+--------+
6 rows in set (0.001 sec)
```

3)Finding students of class 10 who have scored marks greater than 90 in all subjects

Query

select fname,lname,marks,subject,classno,sec from student natural join report where marks>=90 and classno=10 ;

```
MariaDB [sch_management_cs138]>   select fname,lname,marks,subject,classno,sec from student  natural join report where marks>=90 and classno=10 ;
+---------+--------+-------+-----------+---------+-----+
| fname   | lname  | marks | subject   | classno | sec |
+---------+--------+-------+-----------+---------+-----+
| Chris   | Gayle  |    97 | Computer  |      10 | A   |
| Chris   | Gayle  |    98 | Math      |      10 | A   |
| Albert  | Khan   |    95 | Computer  |      10 | A   |
| Albert  | Khan   |    98 | Geography |      10 | A   |
| Aslam   | Khan   |    94 | Computer  |      10 | A   |
| Aslam   | Khan   |    97 | English   |      10 | A   |
| Chris   | Adams  |    94 | English   |      10 | B   |
| Chris   | Adams  |    94 | Science   |      10 | B   |
| Michael | Philip |    95 | Computer  |      10 | B   |
| Michael | Philip |    99 | PT        |      10 | B   |
| Feroz   | Khan   |    97 | Computer  |      10 | B   |
| Sonia   | Gandhi |    92 | Science   |      10 | C   |
+---------+--------+-------+-----------+---------+-----+
12 rows in set (0.056 sec)
```

4)Finding teachers who teach math or science along with the section they teach to

Query

select classno,section,fname,lname,years_of_experience ,subject from teaches natural join teacher natural join class natural join department where subject='Math'or subject='Science' order by classno,section ;

```
MariaDB [sch_management_cs138]>  select  classno,section,fname,lname,years_of_experience ,subject from teaches  natural join teacher natural join class natural join departm
ent where subject='Math'or subject='Science' order by classno,section ;
+---------+---------+---------+----------+---------------------+---------+
| classno | section | fname   | lname    | years_of_experience | subject |
+---------+---------+---------+----------+---------------------+---------+
|       8 | A       | Karthik | singh    |                  10 | Math    |
|       8 | A       | albert  | Einstein |                  30 | Science |
|       8 | B       | Karthik | singh    |                  10 | Math    |
|       8 | B       | mick    | shelly   |                  30 | Science |
|       8 | C       | Karthik | singh    |                  10 | Math    |
|       8 | C       | albert  | Einstein |                  30 | Science |
|       9 | A       | Karthik | singh    |                  10 | Math    |
|       9 | A       | shiva   | raman    |                   1 | Science |
|       9 | B       | Karthik | singh    |                  10 | Math    |
|       9 | B       | mick    | shelly   |                  30 | Science |
|       9 | C       | Karthik | singh    |                  10 | Math    |
|       9 | C       | mick    | shelly   |                  30 | Science |
|      10 | A       | Arun    | singh    |                   5 | Math    |
|      10 | A       | mick    | shelly   |                  30 | Science |
|      10 | B       | yash    | raj      |                  15 | Math    |
|      10 | B       | shiva   | raman    |                   1 | Science |
|      10 | C       | Karthik | singh    |                  10 | Math    |
|      10 | C       | albert  | Einstein |                  30 | Science |
+---------+---------+---------+----------+---------------------+---------+
18 rows in set (0.065 sec)
```

5) Finding class teachers of all class and section

Query

select c.classno ,c.section ,t.fname as class_teacher_fname ,t.lname as class_teacher_lname,t.age as teacher_age from class as c join teacher as t on c.class_teacher=t.tid order by c.classno

```
MariaDB [sch_management_cs138]>   select c.classno ,c.section ,t.fname as class_teacher_fname ,t.lname as class_teacher_lname,t.age as teacher_age from class as c join teac
her as t on c.class_teacher=t.tid order by c.classno
    -> ;
+---------+---------+---------------------+---------------------+-------------+
| classno | section | class_teacher_fname | class_teacher_lname | teacher_age |
+---------+---------+---------------------+---------------------+-------------+
|       8 | A       | Emily               | Watson              |          26 |
|       8 | B       | Akbar               | NULL                |          24 |
|       8 | C       | us                  | NULL                |          24 |
|       9 | A       | shiva               | raman               |          23 |
|       9 | B       | Linus               | NULL                |          22 |
|       9 | C       | khabib              | NULL                |          24 |
|      10 | A       | Elon                | NULL                |          63 |
|      10 | B       | yash                | raj                 |          45 |
|      10 | C       | albert              | Einstein            |          63 |
+---------+---------+---------------------+---------------------+-------------+
9 rows in set (0.001 sec)
```

6) parent name of each student

Query

select s.sid as id,s.fname as studentfname,s.lname as studentlname,p.name as parent from student as s left outer join parent as p on p.sid=s.sid ;

```
MariaDB [sch_management_cs138]>  select s.sid as id,s.fname as studentfname,s.lname as studentlname,p.name as parent from student as s left outer join parent as p on p.sid
=s.sid ;
+-------+-------------+-------------+-----------+
| id    | studentfname | studentlname | parent    |
+-------+-------------+-------------+-----------+
| stu1  | ASH          | NULL         | NULL      |
| stu10 | virat        | Kholi        | Yash      |
| stu11 | Shahrukh     | Khan         | Mohammed  |
| stu12 | Amrith       | NULL         | Ashith    |
| stu13 | Bryan        | Adams        | Abel      |
| stu14 | Michael      | Jordan       | John      |
| stu15 | Salman       | Khan         | rashid    |
| stu16 | Narendra     | Modi         | NM        |
| stu17 | Amith        | Shah         | Amitha    |
| stu18 | Arun         | NULL         | NULL      |
| stu19 | Chris        | Gayle        | Carlos    |
| stu2  | joseph       | NULL         | John      |
| stu20 | Albert       | Khan         | Isaac     |
| stu21 | Aslam        | Khan         | Atif      |
| stu22 | Chris        | Adams        | Emma      |
| stu22 | Chris        | Adams        | Wilson    |
| stu23 | Michael      | Philip       | Lucifer   |
| stu23 | Michael      | Philip       | Mily      |
| stu24 | Feroz        | Khan         | NULL      |
| stu25 | Rahul        | Gandhi       | Arjun     |
| stu26 | Sonia        | Gandhi       | Karan     |
| stu27 | King         | John         | Queen     |
| stu3  | Assadi       | NULL         | NULL      |
| stu4  | Ashley       | singh        | harpreeth |
| stu5  | Michael      | Jackson      | Karl      |
| stu6  | Assadi       | khader       | Islam     |
| stu7  | Rohith       | sharma       | Hari      |
| stu8  | Michael      | Smith        | Tyson     |
| stu9  | MD           | khader       | MD        |
+-------+-------------+-------------+-----------+
29 rows in set (0.059 sec)
```

7) Names of students who have won in the event talent show

Query

select s.fname,s.lname,s.classno,s.sec,e.event,e.category,e.place from student as s left outer join extraactivities as e on s.sid=e.sid where event='Talentshow' order by classno;

```
MariaDB [sch_management_cs138]>  select s.fname,s.lname,s.classno,s.sec,e.event,e.category,e.place from student as s left outer join extraactivities as e on s.sid=e.sid wh
ere event='Talentshow' order by classno;
+-------+--------+---------+-----+------------+----------+-------+
| fname | lname  | classno | sec | event      | category | place |
+-------+--------+---------+-----+------------+----------+-------+
| Chris | Adams  |      10 | B   | Talentshow | Dancing  |     3 |
| Chris | Gayle  |      10 | A   | Talentshow | Dancing  |     1 |
| Rahul | Gandhi |      10 | C   | Talentshow | Dancing  |     2 |
| Chris | Gayle  |      10 | A   | Talentshow | Singing  |     2 |
+-------+--------+---------+-----+------------+----------+-------+
4 rows in set (0.001 sec)
```

Nested join query

1)Max and Min salary and the teacher name for each department

Query

SELECT fname, lname, salary, subject FROM teacher natural join department WHERE (dno,salary) IN (SELECT dno, MIN(salary) FROM teacher GROUP BY dno)or (dno,salary) IN (SELECT dno, MAX(salary) FROM teacher GROUP BY dno);

```
MariaDB [sch_management_cs138]> SELECT  fname, lname, salary, subject  FROM  teacher natural join department WHERE (dno,salary) IN ( SELECT dno, MIN(salary) FROM teacher GR
OUP BY dno )or (dno,salary) IN (SELECT dno, MAX(salary) FROM teacher GROUP BY dno );
+--------+----------+--------+-----------+
| fname  | lname    | salary | subject   |
+--------+----------+--------+-----------+
| yash   | raj      |  60000 | Math      |
| Arun   | singh    |  25000 | Math      |
| Adam   | Smith    |  45000 | English   |
| Emily  | Watson   |  20000 | English   |
| Ashoka | NULL     |  48000 | History   |
| Akbar  | NULL     |  15000 | History   |
| india  | NULL     |  28000 | Geography |
| us     | NULL     |  15000 | Geography |
| albert | Einstein |  70700 | Science   |
| shiva  | raman    |  15000 | Science   |
| Elon   | NULL     |  75000 | Computer  |
| Linus  | NULL     |  15000 | Computer  |
| virat  | NULL     |  43000 | PT        |
| khabib | NULL     |  15000 | PT        |
+--------+----------+--------+-----------+
14 rows in set (0.058 sec)
```

2) Students who’s parents earn min and max salary in each class
Query

select sid,fname as student,lname,name as parent,classno,sec,income,occupation from parent natural join student where (classno,income) in (select classno,MAX(income) from parent natural join student group by classno) or (classno,income) in(select classno,Min(income) from parent natural join student group by classno) order by classno,income;

```
MariaDB [sch_management_cs138]> select sid,fname as student,lname,name as parent,classno,sec,income,occupation from parent natural join student where (classno,income) in (s
elect classno,MAX(income) from parent natural join student group by classno) or (classno,income) in(select classno,Min(income) from parent natural join student group by cla
ssno) order by classno,income;
+-------+---------+--------+--------+---------+-----+--------+------------+
| sid   | student | lname  | parent | classno | sec | income | occupation |
+-------+---------+--------+--------+---------+-----+--------+------------+
| stu2  | joseph  | NULL   | John   |       8 | A   | 129741 | Teacher    |
| stu6  | Assadi  | khader | Islam  |       8 | B   | 457323 | Doctor     |
| stu12 | Amrith  | NULL   | Ashith |       9 | A   | 166397 | Engineer   |
| stu15 | Salman  | Khan   | rashid |       9 | B   | 441338 | Teacher    |
| stu22 | Chris   | Adams  | Emma   |      10 | B   | 218532 | Actor      |
| stu20 | Albert  | Khan   | Isaac  |      10 | A   | 488712 | Doctor     |
+-------+---------+--------+--------+---------+-----+--------+------------+
6 rows in set (0.002 sec)
```

Correlated queries

1)Finding the teachers who earn more than the avg salary in their respective departments

Query
SELECT fname,lname, salary, subject FROM teacher natural join department WHERE salary > (SELECT AVG(salary)FROM teacher WHERE dno = dno)

```
MariaDB [sch_management_cs138]> select subject,avg(salary) from teacher natural join department group by subject;
+----------+------------+
| subject  | avg(salary) |
+----------+------------+
| Computer |  51666.6667 |
| English  |  30666.6667 |
| Geography |  19400.0000 |
| History  |  32666.6667 |
| Math     |  38333.3333 |
| PT       |  30000.0000 |
| Science  |  50233.3333 |
+----------+------------+
7 rows in set (0.001 sec)
```

```
8 rows in set (0.018 sec)

MariaDB [sch_management_cs138]> SELECT fname,lname, salary, subject FROM teacher natural join department WHERE salary > (SELECT AVG(salary)FROM teacher WHERE dno = dno);
+--------+---------+-------+---------+
| fname  | lname   | salary | subject |
+--------+---------+-------+---------+
| yash   | raj     |  60000 | Math    |
| Adam   | Smith   |  45000 | English |
| Ashoka | NULL    |  48000 | History |
| albert | Einstein |  70700 | Science |
| mick   | shelly  |  65000 | Science |
| Elon   | NULL    |  75000 | Computer |
| kelly  | homes   |  65000 | Computer |
| virat  | NULL    |  43000 | PT      |
+--------+---------+-------+---------+
8 rows in set (0.001 sec)
```

2) Percentage report of students who have no parents

Query

```
select sid,fname,lname,avg(marks) from student as s natural join report  where (s.sid) not  in (
select sid from parent  as p  where s.sid=p.sid) group by sid;
```

```
1 row in set (0.010 sec)

MariaDB [sch_management_cs138]> select sid,fname,lname,avg(marks) from student as s natural join report  where (s.sid) not  in ( select sid from parent  as p  where s.sid=
p.sid) group by sid;
+------+--------+------+------------+
| sid  | fname  | lname | avg(marks) |
+------+--------+------+------------+
| stu1 | ASH    | NULL |    69.8571 |
| stu18 | Arun   | NULL |    62.2857 |
| stu24 | Feroz  | Khan |    52.4286 |
| stu3 | Assadi | NULL |    69.5714 |
+------+--------+------+------------+
4 rows in set (0.009 sec)

MariaDB [sch_management_cs138]> select sid,fname,lname,name from student left outer join parent;
```

Aggregate Functions

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

1)Teacher information summary such as total number of teacher min max salary avg salary
Query

SELECT count(*) as numberofteachers,MAX(years_of_experience) as maxexperience,SUM(salary) AS Total_Sal, MAX(salary) AS Highest_Sal, MIN(salary) AS Lowest_Sal, AVG(salary) AS Average_Sal FROM teacher;

```
MariaDB [sch_management_cs138]> SELECT count(*) as numberofteachers,MAX(years_of_experience) as maxexperience,SUM(salary) AS Total_Sal, MAX(salary) AS
    -> Highest_Sal, MIN(salary) AS Lowest_Sal, AVG(salary) AS Average_Sal FROM teacher;
+-----------------+--------------+----------+------------+-----------+-------------+
| numberofteachers | maxexperience | Total_Sal | Highest_Sal | Lowest_Sal | Average_Sal |
+-----------------+--------------+----------+------------+-----------+-------------+
|              21 |           30 |   758900 |      75000 |     15000 |  36138.0952 |
+-----------------+--------------+----------+------------+-----------+-------------+
1 row in set (0.001 sec)
```

2)Parent information summary such as number of parents on basis of(total , city ,occupation)
Query

select count(*) from parent;
select count(*) noofparents,city from parent group by city;
select count(*) noofparents,occupation from parent group by occupation;

```
MariaDB [sch_management_cs138]> select count(*) from parent;
+----------+
| count(*) |
+----------+
|       25 |
+----------+
1 row in set (0.001 sec)

MariaDB [sch_management_cs138]> select count(*) noofparents,city from parent group by city;
+-------------+-----------+
| noofparents | city      |
+-------------+-----------+
|           4 | Bangalore |
|           7 | Chennai   |
|           5 | Delhi     |
|           4 | Mangalore |
|           5 | Mumbai    |
+-------------+-----------+
5 rows in set (0.000 sec)

MariaDB [sch_management_cs138]> select count(*) noofparents,occupation from parent group by occupation;
+-------------+-------------+
| noofparents | occupation  |
+-------------+-------------+
|           5 | Actor       |
|           8 | Doctor      |
|           1 | Engineer    |
|           3 | Politician  |
|           4 | Real estate |
|           4 | Teacher     |
+-------------+-------------+
6 rows in set (0.000 sec)
```

3) Fees summary of students
Query
select count(*) as count,status from fees group by status;
select count(*) as count ,category from fees group by category;
select count(*) as count ,category,status from fees group by category,status;

```
MariaDB [sch_management_cs138]> select count(*) as count,status from fees group by status;
+-------+---------+
| count | status  |
+-------+---------+
|    10 | Bothsem |
|    17 | onesem  |
+-------+---------+
2 rows in set (0.001 sec)

MariaDB [sch_management_cs138]> select count(*) as count ,category from fees group by category;
+-------+----------+
| count | category |
+-------+----------+
|    17 | donation |
|    10 | merit    |
+-------+----------+
2 rows in set (0.000 sec)

MariaDB [sch_management_cs138]> select count(*) as count ,category,status from fees group by category,status;
+-------+----------+---------+
| count | category | status  |
+-------+----------+---------+
|     6 | donation | Bothsem |
|    11 | donation | onesem  |
|     4 | merit    | Bothsem |
|     6 | merit    | onesem  |
+-------+----------+---------+
4 rows in set (0.001 sec)
```

4) class diversity
Query

select count(*) as count , religion from student group by religion;

```
MariaDB [sch_management_cs138]> select count(*) as count , religion from student group by religion;
+-------+-----------+
| count | religion  |
+-------+-----------+
|     2 | NULL      |
|     1 | Athesit   |
|     8 | Christian |
|     8 | Hindu     |
|     7 | Muslim    |
|     1 | Sikh      |
+-------+-----------+
6 rows in set (0.001 sec)
```

5) Teacher count each class
Query

select classno,section,count(*) as total_teachercount from teaches natural join class group by

classno,section;

```
MariaDB [sch_management_cs138]> select classno,section,count(*) as total_teachercount  from teaches natural join class group by classno,section;
+---------+---------+--------------------+
| classno | section | total_teachercount |
+---------+---------+--------------------+
|       8 | A       |                  7 |
|       8 | B       |                  7 |
|       8 | C       |                  7 |
|       9 | A       |                  7 |
|       9 | B       |                  7 |
|       9 | C       |                  7 |
|      10 | A       |                  7 |
|      10 | B       |                  7 |
|      10 | C       |                  7 |
+---------+---------+--------------------+
9 rows in set (0.001 sec)
```

6) Min and max marks each subject all the classes
Query

select classno,sec,fname,lname,subject,marks from student natural join report where(marks,subject,classno) in (select MAX(marks),subject,classno from student natural join report group by classno,subject) or (marks,subject,classno) in (select Min(marks),subject,classno from student natural join report group by classno,subject) order by classno,subject,marks;

```
MariaDB [sch_management_cs138]> select classno,sec,fname,lname,subject,marks from student natural join report  where(marks,subject,classno) in (select MAX(mar
assno  from student natural join report group by classno,subject) or (marks,subject,classno) in (select Min(marks),subject,classno from student natural join r
 classno,subject) order by classno,subject,marks;
+---------+-----+----------+---------+-----------+-------+
| classno | sec | fname    | lname   | subject   | marks |
+---------+-----+----------+---------+-----------+-------+
|       8 | C   | Amith    | Shah    | Computer  |    32 |
|       8 | B   | Michael  | Jackson | Computer  |    94 |
|       8 | B   | Michael  | Jackson | English   |    27 |
|       8 | A   | ASH      | NULL    | English   |   100 |
|       8 | C   | Michael  | Smith   | Geography |    31 |
|       8 | B   | Ashley   | singh   | Geography |    93 |
|       8 | C   | Rohith   | sharma  | History   |    32 |
|       8 | B   | Michael  | Jackson | History   |    93 |
|       8 | B   | Michael  | Jackson | Math      |    44 |
|       8 | A   | Assadi   | NULL    | Math      |    99 |
|       8 | A   | joseph   | NULL    | PT        |    29 |
|       8 | C   | Michael  | Smith   | PT        |    96 |
|       8 | C   | MD       | khader  | PT        |    96 |
|       8 | A   | ASH      | NULL    | Science   |    31 |
|       8 | C   | MD       | khader  | Science   |    31 |
|       8 | C   | Rohith   | sharma  | Science   |    93 |
|       9 | B   | Salman   | Khan    | Computer  |    27 |
|       9 | B   | Bryan    | Adams   | Computer  |    92 |
|       9 | A   | Shahrukh | Khan    | English   |    44 |
|       9 | A   | Amrith   | NULL    | English   |   100 |
|       9 | C   | Arun     | NULL    | Geography |    52 |
|       9 | A   | Amrith   | NULL    | Geography |    88 |
|       9 | C   | Narendra | Modi    | Geography |    88 |
|       9 | C   | Arun     | NULL    | History   |    26 |
|       9 | B   | Michael  | Jordan  | History   |    99 |
|       9 | A   | Amrith   | NULL    | Math      |    27 |
|       9 | B   | Bryan    | Adams   | Math      |    85 |
|       9 | B   | Michael  | Jordan  | PT        |    26 |
|       9 | C   | Arun     | NULL    | PT        |    81 |
|       9 | B   | Michael  | Jordan  | Science   |    27 |
```

```
|        9 | C    | Arun      | NULL     | Science   |    89 |
|       10 | B    | Chris     | Adams    | Computer  |    32 |
|       10 | B    | Feroz     | Khan     | Computer  |    97 |
|       10 | A    | Chris     | Gayle    | Computer  |    97 |
|       10 | A    | Chris     | Gayle    | English   |    38 |
|       10 | A    | Aslam     | Khan     | English   |    97 |
|       10 | C    | Sonia     | Gandhi   | Geography |    42 |
|       10 | A    | Albert    | Khan     | Geography |    98 |
|       10 | A    | Aslam     | Khan     | History   |    28 |
|       10 | A    | Chris     | Gayle    | History   |    28 |
|       10 | C    | Rahul     | Gandhi   | History   |    76 |
|       10 | B    | Feroz     | Khan     | Math      |    32 |
|       10 | A    | Chris     | Gayle    | Math      |    98 |
|       10 | B    | Feroz     | Khan     | PT        |    37 |
|       10 | B    | Michael   | Philip   | PT        |    99 |
|       10 | B    | Feroz     | Khan     | Science   |    27 |
|       10 | B    | Chris     | Adams    | Science   |    94 |
+----------+------+-----------+----------+-----------+-------+
47 rows in set (0.005 sec)
```

7) Total fail each class each subject each section

Query

select classno,sec,subject,count(*) as totalfail from student natural join report where marks<40 group by classno,sec,subject ;

```
MariaDB [sch_management_cs138]> select classno,sec,subject,count(*) as totalfail from student natural join report where marks<40 group by classno,sec,subject
+---------+------+-----------+-----------+
| classno | sec  | subject   | totalfail |
+---------+------+-----------+-----------+
|       8 | A    | PT        |         2 |
|       8 | A    | Science   |         2 |
|       8 | B    | Computer  |         1 |
|       8 | B    | English   |         2 |
|       8 | B    | Geography |         1 |
|       8 | B    | Science   |         1 |
|       8 | C    | Computer  |         1 |
|       8 | C    | Geography |         1 |
|       8 | C    | History   |         1 |
|       8 | C    | Science   |         1 |
|       9 | A    | Math      |         1 |
|       9 | A    | PT        |         1 |
|       9 | B    | Computer  |         1 |
|       9 | B    | Math      |         1 |
|       9 | B    | PT        |         2 |
|       9 | B    | Science   |         1 |
|       9 | C    | Computer  |         1 |
|       9 | C    | History   |         1 |
|       9 | C    | Math      |         1 |
|       9 | C    | Science   |         1 |
|      10 | A    | English   |         1 |
|      10 | A    | History   |         2 |
|      10 | B    | Computer  |         2 |
|      10 | B    | History   |         2 |
|      10 | B    | Math      |         1 |
|      10 | B    | PT        |         1 |
|      10 | B    | Science   |         1 |
|      10 | C    | History   |         1 |
+---------+------+-----------+-----------+
```

Set Operations

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

1) Names of students who have not failed in a single subject
   Query
   select fname,lname,classno,sec from student where(sid) in(SELECT sid from student except SELECT sid FROM report where marks<40)

```
MariaDB [sch_management_cs138]> select fname,lname,classno,sec from student where(sid) in(SELECT sid from student except SELECT sid FROM report where marks<4
0)
    -> ;
+----------+--------+---------+-----+
| fname    | lname  | classno | sec |
+----------+--------+---------+-----+
| virat    | Kholi  |       9 | A   |
| Shahrukh | Khan   |       9 | A   |
| Albert   | Khan   |      10 | A   |
| Rahul    | Gandhi |      10 | C   |
+----------+--------+---------+-----+
4 rows in set (0.003 sec)
```

2) Parents and teachers who's age is above 50
   Query
   select name,age from parent where age>50 union all select fname,age from teacher where age>50

```
Database changed
MariaDB [sch_management_cs138]> select name,age from parent where age>50 union all select fname,age from teacher where age>50;
+----------+------+
| name     | age  |
+----------+------+
| Mohammed |   51 |
| Lucifer  |   51 |
| Karl     |   51 |
| Ashoka   |   68 |
| mick     |   64 |
| india    |   68 |
| russia   |   64 |
| albert   |   63 |
| mick     |   55 |
| Elon     |   63 |
| kelly    |   53 |
+----------+------+
11 rows in set (0.003 sec)
```

3)Names of students and teachers who are hired by the same admin (admin ajd422)

Query

select fname,lname from student where admin_no='ajad422' union select fname,lname from teacher where hiredby='ajad422';

```
MariaDB [sch_management_cs138]> select fname,lname from student  where admin_no='ajad422' union  select fname,lname from teacher where hiredby='ajad422';
+---------+----------+
| fname   | lname    |
+---------+----------+
| Michael | Jordan   |
| Amith   | Shah     |
| Michael | Philip   |
| Sonia   | Gandhi   |
| Michael | Jackson  |
| Michael | Smith    |
| Emily   | Watson   |
| Ashoka  | NULL     |
| india   | NULL     |
| albert  | Einstein |
| Elon    | NULL     |
| virat   | NULL     |
+---------+----------+
12 rows in set (0.001 sec)
```

4)Common first name between student and teacher

Query

select fname from student intersect select fname from teacher;

```
MariaDB [sch_management_cs138]> select fname from student intersect select fname from teacher;
+---------+
| fname   |
+---------+
| virat   |
| Arun    |
| Albert  |
| Rohith  |
+---------+
4 rows in set (0.001 sec)
```

Functions and Procedures

1)Create a Function and Procedure. State the objective of the function / Procedure. Run and display the results.

1) Function to get years from date

Function

```
DELIMITER $$
CREATE FUNCTION getyears(data date) RETURNS int DETERMINISTIC
BEGIN
DECLARE currentDate DATE;
Select current_date()into currentDate;
RETURN (YEAR(currentDate)-YEAR(data));
END
$$
DELIMITER ;
```

```
MariaDB [sch_management_cs138]> CREATE FUNCTION getyears(data date) RETURNS int DETERMINISTIC
    -> BEGIN
    -> DECLARE currentDate DATE;
    -> Select current_date()into currentDate;
    -> RETURN (YEAR(currentDate)-YEAR(data));
    -> END
    -> $$
Query OK, 0 rows affected (0.012 sec)

MariaDB [sch_management_cs138]> DELIMITER ;
```

Finding age from dob for students
Query
select classno,sec,fname,lname,getyears(dob) as age from student order by classno asc;

```
MariaDB [sch_management_cs138]> select classno,sec,fname,lname,getyears(dob),dob as age from student order by classno asc;
+---------+-----+----------+---------+--------------+------------+
| classno | sec | fname    | lname   | getyears(dob) | age        |
+---------+-----+----------+---------+--------------+------------+
|       8 | A   | ASH      | NULL    |            13 | 2009-11-01 |
|       8 | C   | Michael  | Smith   |            13 | 2009-07-04 |
|       8 | C   | Rohith   | sharma  |            13 | 2009-01-05 |
|       8 | B   | Assadi   | khader  |            13 | 2009-12-20 |
|       8 | B   | Michael  | Jackson |            13 | 2009-07-24 |
|       8 | B   | Ashley   | singh   |            13 | 2009-10-05 |
|       8 | A   | Assadi   | NULL    |            13 | 2009-04-20 |
|       8 | C   | MD       | khader  |            13 | 2009-12-02 |
|       8 | A   | joseph   | NULL    |            13 | 2009-05-06 |
|       8 | C   | Amith    | Shah    |            14 | 2008-07-04 |
|       9 | C   | Arun     | NULL    |            14 | 2008-12-13 |
|       9 | B   | Salman   | Khan    |            14 | 2008-12-20 |
|       9 | B   | Michael  | Jordan  |            14 | 2008-07-24 |
|       9 | B   | Bryan    | Adams   |            14 | 2008-10-05 |
|       9 | A   | Amrith   | NULL    |            14 | 2008-04-20 |
|       9 | C   | Narendra | Modi    |            14 | 2008-01-05 |
|       9 | A   | Shahrukh | Khan    |            14 | 2008-05-06 |
|       9 | A   | virat    | Kholi   |            14 | 2008-11-01 |
|      10 | B   | King     | John    |            15 | 2007-12-13 |
|      10 | C   | Sonia    | Gandhi  |            15 | 2007-07-04 |
|      10 | C   | Rahul    | Gandhi  |            15 | 2007-01-05 |
|      10 | B   | Feroz    | Khan    |            15 | 2007-12-20 |
|      10 | B   | Michael  | Philip  |            15 | 2007-07-24 |
|      10 | B   | Chris    | Adams   |            15 | 2007-10-05 |
|      10 | A   | Albert   | Khan    |            15 | 2007-05-06 |
|      10 | A   | Chris    | Gayle   |            15 | 2007-11-01 |
|      10 | A   | Aslam    | Khan    |            15 | 2007-04-20 |
+---------+-----+----------+---------+--------------+------------+
27 rows in set (0.001 sec)
```

Finding years passed since teacher joined the institute
Query

select fname,lname,age,salary,getyears(dateofjoin) as yearpassedsincejoin,years_of_experience from teacher order by yearpassedsincejoin;

```
MariaDB [sch_management_cs138]> select fname,lname,age,salary,getyears(dateofjoin) as yearpassedsincejoin,years_of_experience from teacher order by yearpasse
dsincejoin;
+---------+----------+------+--------+--------------------+--------------------+
| fname   | lname    | age  | salary | yearpassedsincejoin | years_of_experience |
+---------+----------+------+--------+--------------------+--------------------+
| us      | NULL     |   24 |  15000 |                  1 |                  1 |
| Linus   | NULL     |   22 |  15000 |                  1 |                  1 |
| Akbar   | NULL     |   24 |  15000 |                  1 |                  1 |
| shiva   | raman    |   23 |  15000 |                  1 |                  1 |
| Emily   | Watson   |   26 |  20000 |                  1 |                  3 |
| khabib  | NULL     |   24 |  15000 |                  1 |                  1 |
| Arun    | singh    |   32 |  25000 |                  2 |                  5 |
| virat   | NULL     |   30 |  43000 |                  3 |                  5 |
| india   | NULL     |   68 |  28000 |                  3 |                 30 |
| Elon    | NULL     |   63 |  75000 |                  3 |                 30 |
| Ashoka  | NULL     |   68 |  48000 |                  3 |                 30 |
| Karthik | singh    |   36 |  30000 |                  4 |                 10 |
| rohith  | shelly   |   34 |  32000 |                  5 |                  8 |
| George  | Smith    |   37 |  27000 |                  5 |                  6 |
| Adam    | Smith    |   43 |  45000 |                  7 |                 10 |
| yash    | raj      |   45 |  60000 |                  8 |                 15 |
| russia  | uklal    |   64 |  15200 |                 11 |                 30 |
| mick    | shelly   |   55 |  65000 |                 11 |                 30 |
| mick    | shelly   |   64 |  35000 |                 11 |                 30 |
| kelly   | homes    |   53 |  65000 |                 11 |                 30 |
| albert  | Einstein |   63 |  70700 |                 12 |                 30 |
+---------+----------+------+--------+--------------------+--------------------+
21 rows in set (0.001 sec)
```

2)
a)Function to find grade from marks

DELIMITER $$
CREATE FUNCTION remark_grade(marks int) RETURNS varchar(1) DETERMINISTIC

```
BEGIN
DECLARE grade VARCHAR(1);
   IF marks>=90 THEN SET grade = 'A+';
   ELSEIF marks >=80 AND marks<90 THEN SET grade = 'A';
   ELSEIF marks >=70 AND  marks<80 THEN SET grade='B';
   ELSEIF marks >=60 AND marks<70 THEN SET grade = 'C';
   ELSEIF marks >=50 AND  marks<60 THEN SET grade='D';
   ELSEIF marks >=40 AND  marks<50 THEN SET grade='E';
   ELSE SET grade = 'F';
   END IF;
   RETURN grade;
 END$$
 DELIMITER ;
```

```
MariaDB [sch_management_cs138]> DELIMITER $$
MariaDB [sch_management_cs138]> CREATE FUNCTION remark_grade(marks int) RETURNS varchar(1) DETERMINISTIC
    -> BEGIN
    -> DECLARE grade VARCHAR(1);
    ->     IF marks>=90 THEN SET grade = 'A+';
    ->     ELSEIF marks >=80 AND marks<90 THEN SET grade = 'A';
    ->     ELSEIF marks >=70 AND  marks<80 THEN SET grade='B';
    ->     ELSEIF marks >=60 AND marks<70 THEN SET grade = 'C';
    ->     ELSEIF marks >=50 AND  marks<60 THEN SET grade='D';
    ->     ELSEIF marks >=40 AND  marks<50 THEN SET grade='E';
    ->     ELSE SET grade = 'F';
    ->     END IF;
    ->     RETURN grade;
    ->   END$$
Query OK, 0 rows affected (0.011 sec)
```

B) remark pass-fail

```
DELIMITER $$
CREATE FUNCTION pass(marks int) RETURNS varchar(10) DETERMINISTIC
BEGIN
DECLARE remark VARCHAR(10);
   IF marks>40 THEN SET remark = 'Pass';

   ELSE SET remark = 'Fail!!!';
   END IF;
   RETURN remark;
 END$$
 DELIMITER ;
```

```
MariaDB [sch_management_cs138]> DELIMITER $$
MariaDB [sch_management_cs138]> CREATE FUNCTION pass(marks int) RETURNS varchar(10) DETERMINISTIC
    -> BEGIN
    -> DECLARE remark VARCHAR(10);
    ->     IF marks>40 THEN SET remark = 'Pass';
    ->
    ->     ELSE SET remark = 'Fail!!!';
    ->     END IF;
    ->     RETURN remark;
    ->   END$$
Query OK, 0 rows affected (0.011 sec)
```

fname	lname	subject	classno	sec	marks	remark_grade(marks)	pass(marks)
joseph	NULL	PT	8	A	29	F	Fail!!!
ASH	NULL	Science	8	A	31	F	Fail!!!
joseph	NULL	Science	8	A	33	F	Fail!!!
Assadi	NULL	PT	8	A	35	F	Fail!!!
ASH	NULL	Math	8	A	49	E	Pass
ASH	NULL	Computer	8	A	49	E	Pass
joseph	NULL	English	8	A	56	D	Pass
joseph	NULL	Computer	8	A	57	D	Pass
Assadi	NULL	English	8	A	62	C	Pass
Assadi	NULL	Science	8	A	67	C	Pass
Assadi	NULL	Computer	8	A	71	B	Pass
Assadi	NULL	Geography	8	A	74	B	Pass
Assadi	NULL	History	8	A	79	B	Pass
ASH	NULL	PT	8	A	80	A	Pass
joseph	NULL	Geography	8	A	85	A	Pass
joseph	NULL	Math	8	A	87	A	Pass
joseph	NULL	History	8	A	88	A	Pass
ASH	NULL	Geography	8	A	88	A	Pass
ASH	NULL	History	8	A	92	A	Pass
Assadi	NULL	Math	8	A	99	A	Pass
ASH	NULL	English	8	A	100	A	Pass
Michael	Jackson	English	8	B	27	F	Fail!!!
Ashley	singh	English	8	B	31	F	Fail!!!
Assadi	khader	Geography	8	B	33	F	Fail!!!
Ashley	singh	Science	8	B	37	F	Fail!!!
Ashley	singh	Computer	8	B	38	F	Fail!!!
Michael	Jackson	Science	8	B	41	E	Pass
Michael	Jackson	Math	8	B	44	E	Pass
Assadi	khader	English	8	B	45	E	Pass
Assadi	khader	Math	8	B	46	E	Pass
Assadi	khader	Science	8	B	49	E	Pass
Assadi	khader	History	8	B	52	D	Pass
Assadi	khader	Computer	8	B	56	D	Pass
Ashley	singh	History	8	B	60	C	Pass
Ashley	singh	Math	8	B	60	C	Pass
Ashley	singh	PT	8	B	60	C	Pass
Michael	Jackson	PT	8	B	65	C	Pass
Assadi	khader	PT	8	B	87	A	Pass
Michael	Jackson	Geography	8	B	89	A	Pass
Ashley	singh	Geography	8	B	93	A	Pass
Michael	Jackson	History	8	B	93	A	Pass
Michael	Jackson	Computer	8	B	94	A	Pass
Michael	Smith	Geography	8	C	31	F	Fail!!!
MD	khader	Science	8	C	31	F	Fail!!!
Rohith	sharma	History	8	C	32	F	Fail!!!
Amith	Shah	Computer	8	C	32	F	Fail!!!
Amith	Shah	PT	8	C	44	E	Pass
Michael	Smith	Math	8	C	54	D	Pass
MD	khader	Math	8	C	56	D	Pass
Rohith	sharma	Geography	8	C	57	D	Pass
MD	khader	Computer	8	C	57	D	Pass
MD	khader	Geography	8	C	60	C	Pass
Michael	Smith	Science	8	C	63	C	Pass
MD	khader	History	8	C	64	C	Pass
Amith	Shah	Geography	8	C	65	C	Pass
Amith	Shah	History	8	C	65	C	Pass
Amith	Shah	English	8	C	69	C	Pass
Michael	Smith	Computer	8	C	71	B	Pass
Michael	Smith	History	8	C	71	B	Pass
Rohith	sharma	PT	8	C	73	B	Pass
Amith	Shah	Science	8	C	76	B	Pass
Michael	Smith	English	8	C	79	B	Pass
Rohith	sharma	Computer	8	C	79	B	Pass
Rohith	sharma	Math	8	C	81	A	Pass
MD	khader	English	8	C	82	A	Pass
Amith	Shah	Math	8	C	86	A	Pass
Rohith	sharma	Science	8	C	93	A	Pass
Michael	Smith	PT	8	C	96	A	Pass
MD	khader	PT	8	C	96	A	Pass

Rohith	sharma	English	8	C	98	A	Pass
Amrith	NULL	Math	9	A	27	F	Fail!!!
Amrith	NULL	PT	9	A	31	F	Fail!!!
Amrith	NULL	History	9	A	40	E	Fail!!!
Shahrukh	Khan	English	9	A	44	E	Pass
Shahrukh	Khan	Science	9	A	45	E	Pass
Shahrukh	Khan	Math	9	A	57	D	Pass
virat	Kholi	Math	9	A	62	C	Pass
Shahrukh	Khan	Computer	9	A	63	C	Pass
virat	Kholi	English	9	A	64	C	Pass
virat	Kholi	PT	9	A	69	C	Pass
Amrith	NULL	Science	9	A	71	B	Pass
Shahrukh	Khan	History	9	A	75	B	Pass
Shahrukh	Khan	PT	9	A	77	B	Pass
virat	Kholi	Geography	9	A	81	A	Pass
Amrith	NULL	Computer	9	A	86	A	Pass
Shahrukh	Khan	Geography	9	A	86	A	Pass
virat	Kholi	Computer	9	A	86	A	Pass
virat	Kholi	Science	9	A	86	A	Pass
Amrith	NULL	Geography	9	A	88	A	Pass
virat	Kholi	History	9	A	98	A	Pass
Amrith	NULL	English	9	A	100	A	Pass
Michael	Jordan	PT	9	B	26	F	Fail!!!
Michael	Jordan	Science	9	B	27	F	Fail!!!
Salman	Khan	Computer	9	B	27	F	Fail!!!
Bryan	Adams	PT	9	B	27	F	Fail!!!
Salman	Khan	Math	9	B	37	F	Fail!!!
Salman	Khan	History	9	B	43	E	Pass
Bryan	Adams	Science	9	B	61	C	Pass
Bryan	Adams	History	9	B	66	C	Pass
Salman	Khan	Science	9	B	67	C	Pass
Salman	Khan	PT	9	B	68	C	Pass
Salman	Khan	English	9	B	68	C	Pass
Michael	Jordan	Geography	9	B	71	B	Pass
Michael	Jordan	Computer	9	B	71	B	Pass
Bryan	Adams	Geography	9	B	71	B	Pass
Bryan	Adams	English	9	B	72	B	Pass
Salman	Khan	Geography	9	B	74	B	Pass
Michael	Jordan	Math	9	B	76	B	Pass
Bryan	Adams	Math	9	B	85	A	Pass
Michael	Jordan	English	9	B	92	A	Pass
Bryan	Adams	Computer	9	B	92	A	Pass
Michael	Jordan	History	9	B	99	A	Pass
Arun	NULL	History	9	C	26	F	Fail!!!
Narendra	Modi	Computer	9	C	30	F	Fail!!!
Narendra	Modi	Science	9	C	38	F	Fail!!!
Arun	NULL	Math	9	C	38	F	Fail!!!
Arun	NULL	Geography	9	C	52	D	Pass
Narendra	Modi	English	9	C	53	D	Pass
Narendra	Modi	PT	9	C	56	D	Pass
Narendra	Modi	History	9	C	61	C	Pass
Narendra	Modi	Math	9	C	69	C	Pass
Arun	NULL	English	9	C	70	B	Pass
Arun	NULL	Computer	9	C	80	A	Pass
Arun	NULL	PT	9	C	81	A	Pass
Narendra	Modi	Geography	9	C	88	A	Pass
Arun	NULL	Science	9	C	89	A	Pass
Chris	Gayle	History	10	A	28	F	Fail!!!
Aslam	Khan	History	10	A	28	F	Fail!!!
Chris	Gayle	English	10	A	38	F	Fail!!!
Chris	Gayle	Geography	10	A	44	E	Pass
Albert	Khan	Science	10	A	69	C	Pass
Albert	Khan	History	10	A	69	C	Pass
Chris	Gayle	Science	10	A	72	B	Pass
Aslam	Khan	Geography	10	A	74	B	Pass
Albert	Khan	Math	10	A	76	B	Pass
Aslam	Khan	PT	10	A	79	B	Pass
Albert	Khan	English	10	A	80	A	Pass
Chris	Gayle	PT	10	A	81	A	Pass
Albert	Khan	PT	10	A	86	A	Pass
Aslam	Khan	Math	10	A	88	A	Pass
Aslam	Khan	Science	10	A	88	A	Pass

Aslam	Khan	Computer	10	A	94	A	Pass
Albert	Khan	Computer	10	A	95	A	Pass
Chris	Gayle	Computer	10	A	97	A	Pass
Aslam	Khan	English	10	A	97	A	Pass
Chris	Gayle	Math	10	A	98	A	Pass
Albert	Khan	Geography	10	A	98	A	Pass
Feroz	Khan	Science	10	B	27	F	Fail!!!
Michael	Philip	History	10	B	29	F	Fail!!!
Feroz	Khan	Math	10	B	32	F	Fail!!!
Chris	Adams	Computer	10	B	32	F	Fail!!!
Chris	Adams	History	10	B	34	F	Fail!!!
King	John	Computer	10	B	34	F	Fail!!!
Feroz	Khan	PT	10	B	37	F	Fail!!!
Feroz	Khan	History	10	B	42	E	Pass
Michael	Philip	Geography	10	B	46	E	Pass
King	John	History	10	B	50	D	Pass
Feroz	Khan	English	10	B	52	D	Pass
King	John	Math	10	B	55	D	Pass
King	John	English	10	B	59	D	Pass
Chris	Adams	PT	10	B	64	C	Pass
Michael	Philip	English	10	B	76	B	Pass
Chris	Adams	Math	10	B	78	B	Pass
Michael	Philip	Science	10	B	80	A	Pass
Feroz	Khan	Geography	10	B	80	A	Pass
King	John	Geography	10	B	82	A	Pass
King	John	PT	10	B	83	A	Pass
Michael	Philip	Math	10	B	83	A	Pass
Chris	Adams	Geography	10	B	87	A	Pass
King	John	Science	10	B	89	A	Pass
Chris	Adams	Science	10	B	94	A	Pass
Chris	Adams	English	10	B	94	A	Pass
Michael	Philip	Computer	10	B	95	A	Pass
Feroz	Khan	Computer	10	B	97	A	Pass
Michael	Philip	PT	10	B	99	A	Pass
Sonia	Gandhi	History	10	C	34	F	Fail!!!
Sonia	Gandhi	Geography	10	C	42	E	Pass

Sonia	Gandhi	PT	10	C	44	E	Pass
Sonia	Gandhi	Math	10	C	46	E	Pass
Rahul	Gandhi	PT	10	C	49	E	Pass
Rahul	Gandhi	Science	10	C	50	D	Pass
Sonia	Gandhi	English	10	C	54	D	Pass
Rahul	Gandhi	Math	10	C	62	C	Pass
Rahul	Gandhi	Computer	10	C	63	C	Pass
Rahul	Gandhi	English	10	C	63	C	Pass
Rahul	Gandhi	Geography	10	C	74	B	Pass
Rahul	Gandhi	History	10	C	76	B	Pass
Sonia	Gandhi	Computer	10	C	84	A	Pass
Sonia	Gandhi	Science	10	C	92	A	Pass

Procedure

1) procedure to find highest marks particular class and subject

```
MariaDB [sch_management_cs138]> DELIMITER $$
MariaDB [sch_management_cs138]> CREATE PROCEDURE HIGHESTMARKS(IN class int,IN subj varchar(20))
    ->
    -> BEGIN
    -> select fname, mname , classno , sec , marks , subject from student natural join report where (marks,subject,classno) in (select MAX(marks),
ssno from student natural join report where classno=class and subject=subj);
    -> END $$
Query OK, 0 rows affected (0.012 sec)
```

```
MariaDB [sch_management_cs138]> CALL HIGHESTMARKS(8,'Math')
    -> ;
+--------+-------+---------+-----+-------+---------+
| fname  | mname | classno | sec | marks | subject |
+--------+-------+---------+-----+-------+---------+
| Assadi | NULL  |       8 | A   |    99 | Math    |
+--------+-------+---------+-----+-------+---------+
1 row in set (0.001 sec)
```

```
MariaDB [sch_management_cs138]> select fname,mname,marks,subject from student natural join report where classno=8 and subject='Math' order by mar
+---------+-------+-------+---------+
| fname   | mname | marks | subject |
+---------+-------+-------+---------+
| Michael | NULL  |    44 | Math    |
| Assadi  | abdul |    46 | Math    |
| ASH     | NULL  |    49 | Math    |
| Michael | NULL  |    54 | Math    |
| MD      | abdul |    56 | Math    |
| Ashley  | NULL  |    60 | Math    |
| Rohith  | NULL  |    81 | Math    |
| Amith   | NULL  |    86 | Math    |
| joseph  | NULL  |    87 | Math    |
| Assadi  | NULL  |    99 | Math    |
+---------+-------+-------+---------+
10 rows in set (0.001 sec)
```

Triggers

1) Triggers to prevent from decreasing teacher salary

```
DELIMITER $$
CREATE TRIGGER newsalary BEFORE UPDATE ON teacher FOR EACH ROW
BEGIN
DECLARE msg varchar(50);
set msg='Cant decrease the salary';
if(new.salary<old.salary)
then
signal sqlstate '45000'
set MESSAGE_TEXT=msg ;
END IF;
END$$
```

DELIMITER ;

```
MariaDB [sch_management_cs138]> DELIMITER $$
MariaDB [sch_management_cs138]> CREATE TRIGGER newsalary BEFORE UPDATE ON teacher FOR EACH ROW
    -> BEGIN
    -> DECLARE msg varchar(50);
    -> set msg='Cant decrease the salary';
    -> if(new.salary<old.salary)
    -> then
    -> signal sqlstate '45000'
    -> set MESSAGE_TEXT=msg ;
    -> END IF;
    -> END$$
Query OK, 0 rows affected (0.065 sec)

MariaDB [sch_management_cs138]> DELIMITER ;
```

update teacher set salary=2000 where salary>2000;

```
MariaDB [sch_management_cs138]> DELIMITER ;
MariaDB [sch_management_cs138]> update teacher set salary=2000 where salary>2000;
ERROR 1644 (45000): Cant decrease the salary
MariaDB [sch_management_cs138]>
```

2) Trigger to prevent from hiring teachers below 18

```
DELIMITER $$
CREATE TRIGGER noteligible BEFORE INSERT ON teacher FOR EACH ROW
BEGIN
DECLARE message varchar(50);
set message='AGAINST THE LAW UNDER 18';
if(new.age<18)
then
```

signal sqlstate '45000'
set MESSAGE_TEXT=message ;
END IF;
END$$
DELIMITER ;
insert into teacher values('emp709','Ali',null,null,17,30000,1,'ajad420',null,7);

```
MariaDB [sch_management_cs138]> DELIMITER $$
MariaDB [sch_management_cs138]> CREATE TRIGGER noteligible BEFORE INSERT ON teacher FOR EACH ROW
    -> BEGIN
    -> DECLARE message varchar(50);
    -> set message='AGAINST THE LAW UNDER 18';
    -> if(new.age<18)
    -> then
    -> signal sqlstate '45000'
    -> set MESSAGE_TEXT=message ;
    -> END IF;
    -> END$$
Query OK, 0 rows affected (0.012 sec)

MariaDB [sch_management_cs138]> DELIMITER ;
MariaDB [sch_management_cs138]> insert into teacher values('emp709','Ali',null,null,17,30000,1,'ajad420',null,7);
ERROR 1644 (45000): AGAINST THE LAW UNDER 18
MariaDB [sch_management_cs138]>
```

3) Trigger to prevent from demoting a student from higher class to lower class

```
DELIMITER $$
CREATE TRIGGER classnotvalid2 BEFORE update
ON student FOR EACH ROW
BEGIN
DECLARE message varchar(50);
DECLARE message2 varchar(50);
set message='Classes only till 10';
set message2='Cant demote class';
if(new.classno>10)
then
signal sqlstate '45000'
set MESSAGE_TEXT=message ;
elseif(new.classno<old.classno)
then
signal sqlstate '45000'
set MESSA
GE_TEXT=message2 ;
END IF;
END$$
DELIMITER ;
```

```
MariaDB [sch_management_cs138]> DELIMITER $$
MariaDB [sch_management_cs138]> CREATE TRIGGER classnotvalid2 BEFORE update
    -> ON student FOR EACH ROW
    -> BEGIN
    -> DECLARE message varchar(50);
    -> DECLARE message2 varchar(50);
    -> set message='Classes only till 10';
    -> set message2='Cant demote class';
    -> if(new.classno>10)
    -> then
    -> signal sqlstate '45000'
    -> set MESSAGE_TEXT=message ;
    -> elseif(new.classno<old.classno)
    -> then
    -> signal sqlstate '45000'
    -> set MESSAGE_TEXT=message2 ;
    -> END IF;
    -> END$$
Query OK, 0 rows affected (0.019 sec)
```

```
MariaDB [sch_management_cs138]>   update  student set classno=9 where classno=10;
ERROR 1644 (45000): Cant demote class
MariaDB [sch_management_cs138]>
```

Views

1) A view to find the students and their corresponding achievements

CREATE VIEW student_achivements AS SELECT sid, fname,lname,classno, sec,event,category,place FROM student NATURAL JOIN extraactivities;

```
MariaDB [sch_management_cs138]> CREATE VIEW student_achivements AS SELECT sid, fname,lname,classno, sec,event,category,place FROM student NATURAL
 JOIN extraactivities;
Query OK, 0 rows affected (0.006 sec)
```

```
MariaDB [sch_management_cs138]> select * from  student_achivements;
+-------+----------+---------+---------+-----+------------+-------------+-------+
| sid   | fname    | lname   | classno | sec | event      | category    | place |
+-------+----------+---------+---------+-----+------------+-------------+-------+
| stu10 | virat    | Kholi   |       9 | A   | Debate     | environment |     2 |
| stu11 | Shahrukh | Khan    |       9 | A   | Debate     | Politics    |     3 |
| stu13 | Bryan    | Adams   |       9 | B   | Sportsmeet | Football    |     1 |
| stu15 | Salman   | Khan    |       9 | B   | Sportsmeet | Cricket     |     1 |
| stu19 | Chris    | Gayle   |      10 | A   | Talentshow | Dancing     |     1 |
| stu19 | Chris    | Gayle   |      10 | A   | Talentshow | Singing     |     2 |
| stu22 | Chris    | Adams   |      10 | B   | Sportsmeet | boxing      |     3 |
| stu22 | Chris    | Adams   |      10 | B   | Talentshow | Dancing     |     3 |
| stu25 | Rahul    | Gandhi  |      10 | C   | Debate     | Politics    |     1 |
| stu25 | Rahul    | Gandhi  |      10 | C   | Talentshow | Dancing     |     2 |
| stu27 | King     | John    |      10 | B   | Debate     | environment |     2 |
| stu27 | King     | John    |      10 | B   | Debate     | Politics    |     3 |
| stu5  | Michael  | Jackson |       8 | B   | Sportsmeet | sprint      |     1 |
| stu9  | MD       | khader  |       8 | C   | Debate     | environment |     1 |
+-------+----------+---------+---------+-----+------------+-------------+-------+
14 rows in set (0.001 sec)
```

Queries on the above view

a)Find names of all students who have won in the event debate
select fname,lname ,classno,sec,event,category,place from student_achivements where event='Debate' order by category,place;

```
MariaDB [sch_management_cs138]> select fname,lname ,classno,sec,event,category,place from  student_achivements where event='Debate' order by cate
gory,place;
+----------+--------+---------+-----+--------+-------------+-------+
| fname    | lname  | classno | sec | event  | category    | place |
+----------+--------+---------+-----+--------+-------------+-------+
| MD       | khader |       8 | C   | Debate | environment |     1 |
| virat    | Kholi  |       9 | A   | Debate | environment |     2 |
| King     | John   |      10 | B   | Debate | environment |     2 |
| Rahul    | Gandhi |      10 | C   | Debate | Politics    |     1 |
| Shahrukh | Khan   |       9 | A   | Debate | Politics    |     3 |
| King     | John   |      10 | B   | Debate | Politics    |     3 |
+----------+--------+---------+-----+--------+-------------+-------+
6 rows in set (0.001 sec)
```

b)find all students who have won 1st place in various events
select fname,lname ,classno,sec,event,category,place from student_achivements where place=1;

```
MariaDB [sch_management_cs138]> select fname,lname ,classno,sec,event,category,place from  student_achivements where place=1;
+---------+---------+---------+-----+------------+-------------+-------+
| fname   | lname   | classno | sec | event      | category    | place |
+---------+---------+---------+-----+------------+-------------+-------+
| Bryan   | Adams   |       9 | B   | Sportsmeet | Football    |     1 |
| Salman  | Khan    |       9 | B   | Sportsmeet | Cricket     |     1 |
| Chris   | Gayle   |      10 | A   | Talentshow | Dancing     |     1 |
| Rahul   | Gandhi  |      10 | C   | Debate     | Politics    |     1 |
| Michael | Jackson |       8 | B   | Sportsmeet | sprint      |     1 |
| MD      | khader  |       8 | C   | Debate     | environment |     1 |
+---------+---------+---------+-----+------------+-------------+-------+
6 rows in set (0.001 sec)
```

Finding total wins in all the events for each class and section
select classno,sec,count(*) as totalwins from student_achivements group by classno,sec order by totalwins desc;

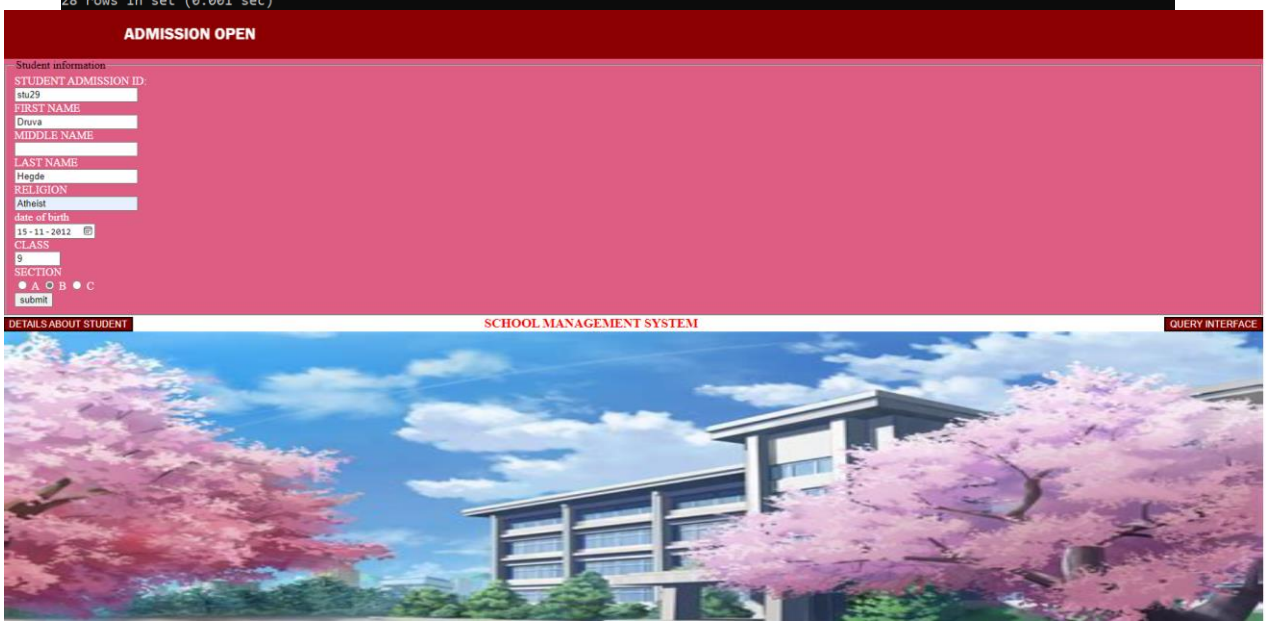
```
MariaDB [sch_management_cs138]> select classno,sec,count(*) as totalwins from  student_achivements group by classno,sec order by totalwins desc;
+---------+-----+-----------+
| classno | sec | totalwins |
+---------+-----+-----------+
|      10 | B   |         4 |
|      10 | C   |         2 |
|       9 | A   |         2 |
|       9 | B   |         2 |
|      10 | A   |         2 |
|       8 | B   |         1 |
|       8 | C   |         1 |
+---------+-----+-----------+
7 rows in set (0.001 sec)
```

Developing a Frontend

The frontend should support

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

```
MariaDB [sch_management_cs138]> select * from student;
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
| sid   | fname    | mname  | lname    | religion  | dob        | leadersid | classno | sec | admin_no |
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
| stu1  | ASH      | NULL   | NULL     | Hindu     | 2009-11-01 | NULL      |       8 | A   | ajad420  |
| stu10 | virat    | NULL   | Kholi    | Hindu     | 2008-11-01 | NULL      |       9 | A   | ajad420  |
| stu11 | Shahrukh | NULL   | Khan     | Muslim    | 2008-05-06 | stu10     |       9 | A   | ajad420  |
| stu12 | Amrith   | NULL   | NULL     | Hindu     | 2008-04-20 | stud10    |       9 | A   | ajad420  |
| stu13 | Bryan    | NULL   | Adams    | Christian | 2008-10-05 | NULL      |       9 | B   | ajad421  |
| stu14 | Michael  | B      | Jordan   | Christian | 2008-07-24 | stu13     |       9 | B   | ajad422  |
| stu15 | Salman   | NULL   | Khan     | Muslim    | 2008-12-20 | stud13    |       9 | B   | ajad423  |
| stu16 | Narendra | NULL   | Modi     | Hindu     | 2008-01-05 | NULL      |       9 | C   | ajad421  |
| stu17 | Amith    | NULL   | Shah     | Hindu     | 2008-07-04 | stu16     |       8 | C   | ajad422  |
| stu18 | Arun     | NULL   | NULL     | NULL      | 2008-12-13 | stud16    |       9 | C   | ajad423  |
| stu19 | Chris    | NULL   | Gayle    | NULL      | 2007-11-01 | NULL      |      10 | A   | ajad420  |
| stu2  | joseph   | NULL   | NULL     | Christian | 2009-05-06 | stu1      |       8 | A   | ajad420  |
| stu20 | Albert   | NULL   | Khan     | Muslim    | 2007-05-06 | stu19     |      10 | A   | ajad420  |
| stu21 | Aslam    | NULL   | Khan     | Athesit   | 2007-04-20 | stud19    |      10 | A   | ajad420  |
| stu22 | Chris    | NULL   | Adams    | Christian | 2007-10-05 | NULL      |      10 | B   | ajad421  |
| stu23 | Michael  | B      | Philip   | Christian | 2007-07-24 | stu22     |      10 | B   | ajad422  |
| stu24 | Feroz    | NULL   | Khan     | Muslim    | 2007-12-20 | stud22    |      10 | B   | ajad423  |
| stu25 | Rahul    | NULL   | Gandhi   | Hindu     | 2007-01-05 | NULL      |      10 | C   | ajad421  |
| stu26 | Sonia    | NULL   | Gandhi   | Hindu     | 2007-07-04 | stu25     |      10 | C   | ajad422  |
| stu27 | King     | Luther | John     | Christian | 2007-12-13 | stud25    |      10 | B   | ajad423  |
| stu28 | Andrew   |        | Flintoff | Christian | 2012-11-15 | NULL      |       9 | B   | NULL     |
| stu3  | Assadi   | NULL   | NULL     | Muslim    | 2009-04-20 | stud1     |       8 | A   | ajad420  |
| stu4  | Ashley   | NULL   | singh    | Sikh      | 2009-10-05 | NULL      |       8 | B   | ajad421  |
| stu5  | Michael  | NULL   | Jackson  | Christian | 2009-07-24 | stu4      |       8 | B   | ajad422  |
| stu6  | Assadi   | abdul  | khader   | Muslim    | 2009-12-20 | stud5     |       8 | B   | ajad423  |
| stu7  | Rohith   | NULL   | sharma   | Hindu     | 2009-01-05 | stud8     |       8 | C   | ajad421  |
| stu8  | Michael  | NULL   | Smith    | Christian | 2009-07-04 | NULL      |       8 | C   | ajad422  |
| stu9  | MD       | abdul  | khader   | Muslim    | 2009-12-02 | stud8     |       8 | C   | ajad423  |
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
28 rows in set (0.001 sec)
```

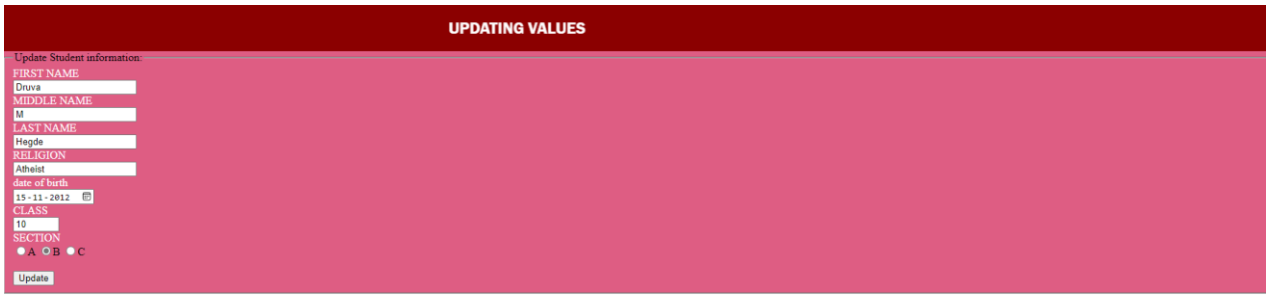


```
MariaDB [sch_management_cs138]> select * from student;
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
| sid   | fname    | mname  | lname    | religion  | dob        | leadersid | classno | sec | admin_no |
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
| stu1  | ASH      | NULL   | NULL     | Hindu     | 2009-11-01 | NULL      |       8 | A   | ajad420  |
| stu10 | virat    | NULL   | Kholi    | Hindu     | 2008-11-01 | NULL      |       9 | A   | ajad420  |
| stu11 | Shahrukh | NULL   | Khan     | Muslim    | 2008-05-06 | stu10     |       9 | A   | ajad420  |
| stu12 | Amrith   | NULL   | NULL     | Hindu     | 2008-04-20 | stud10    |       9 | A   | ajad420  |
| stu13 | Bryan    | NULL   | Adams    | Christian | 2008-10-05 | NULL      |       9 | B   | ajad421  |
| stu14 | Michael  | B      | Jordan   | Christian | 2008-07-24 | stu13     |       9 | B   | ajad422  |
| stu15 | Salman   | NULL   | Khan     | Muslim    | 2008-12-20 | stud13    |       9 | B   | ajad423  |
| stu16 | Narendra | NULL   | Modi     | Hindu     | 2008-01-05 | NULL      |       9 | C   | ajad421  |
| stu17 | Amith    | NULL   | Shah     | Hindu     | 2008-07-04 | stu16     |       8 | C   | ajad422  |
| stu18 | Arun     | NULL   | NULL     | NULL      | 2008-12-13 | stud16    |       9 | C   | ajad423  |
| stu19 | Chris    | NULL   | Gayle    | NULL      | 2007-11-01 | NULL      |      10 | A   | ajad420  |
| stu2  | joseph   | NULL   | NULL     | Christian | 2009-05-06 | stu1      |       8 | A   | ajad420  |
| stu20 | Albert   | NULL   | Khan     | Muslim    | 2007-05-06 | stu19     |      10 | A   | ajad420  |
| stu21 | Aslam    | NULL   | Khan     | Athesit   | 2007-04-20 | stud19    |      10 | A   | ajad420  |
| stu22 | Chris    | NULL   | Adams    | Christian | 2007-10-05 | NULL      |      10 | B   | ajad421  |
| stu23 | Michael  | B      | Philip   | Christian | 2007-07-24 | stu22     |      10 | B   | ajad422  |
| stu24 | Feroz    | NULL   | Khan     | Muslim    | 2007-12-20 | stud22    |      10 | B   | ajad423  |
| stu25 | Rahul    | NULL   | Gandhi   | Hindu     | 2007-01-05 | NULL      |      10 | C   | ajad421  |
| stu26 | Sonia    | NULL   | Gandhi   | Hindu     | 2007-07-04 | stu25     |      10 | C   | ajad422  |
| stu27 | King     | Luther | John     | Christian | 2007-12-13 | stud25    |      10 | B   | ajad423  |
| stu28 | Andrew   |        | Flintoff | Christian | 2012-11-15 | NULL      |       9 | B   | NULL     |
| stu29 | DRUVA    |        | HEGDE    | Atheist   | 2012-11-15 | NULL      |       9 | B   | NULL     |
| stu3  | Assadi   | NULL   | NULL     | Muslim    | 2009-04-20 | stud1     |       8 | A   | ajad420  |
| stu4  | Ashley   | NULL   | singh    | Sikh      | 2009-10-05 | NULL      |       8 | B   | ajad421  |
| stu5  | Michael  | NULL   | Jackson  | Christian | 2009-07-24 | stu4      |       8 | B   | ajad422  |
| stu6  | Assadi   | abdul  | khader   | Muslim    | 2009-12-20 | stud5     |       8 | B   | ajad423  |
| stu7  | Rohith   | NULL   | sharma   | Hindu     | 2009-01-05 | stud8     |       8 | C   | ajad421  |
| stu8  | Michael  | NULL   | Smith    | Christian | 2009-07-04 | NULL      |       8 | C   | ajad422  |
| stu9  | MD       | abdul  | khader   | Muslim    | 2009-12-02 | stud8     |       8 | C   | ajad423  |
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
29 rows in set (0.001 sec)
```

SID	First Name	Middle name	Last Name	Religion	DOB	class	sec	
stu1	ASH			Hindu	2009-11-01	8	A	Edit Delete
stu3	Assadi			Muslim	2009-04-20	8	A	Edit Delete
stu2	joseph			Christian	2009-05-06	8	A	Edit Delete
stu6	Assadi	abdul	khader	Muslim	2009-12-20	8	B	Edit Delete
stu5	Michael		Jackson	Christian	2009-07-24	8	B	Edit Delete
stu4	Ashley		singh	Sikh	2009-10-05	8	B	Edit Delete
stu8	Michael		Smith	Christian	2009-07-04	8	C	Edit Delete
stu7	Rohith		sharma	Hindu	2009-01-05	8	C	Edit Delete
stu9	MD	abdul	khader	Muslim	2009-12-02	8	C	Edit Delete
stu17	Amith		Shah	Hindu	2008-07-04	8	C	Edit Delete
stu11	Shahrukh		Khan	Muslim	2008-05-06	9	A	Edit Delete
stu10	virat		Kholi	Hindu	2008-11-01	9	A	Edit Delete
stu12	Amrith			Hindu	2008-04-20	9	A	Edit Delete
stu29	Druva		Hegde	Atheist	2012-11-15	9	B	Edit Delete

UPDATE

Druva Hegde
Changing middle name from null to M and class to 10



Record updated successfully. DETAILS ABOUT STUDENT

```
MariaDB [sch_management_cs138]> select * from student;
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
| sid   | fname    | mname  | lname    | religion  | dob        | leadersid | classno | sec | admin_no |
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
| stu1  | ASH      | NULL   | NULL     | Hindu     | 2009-11-01 | NULL      |       8 | A   | ajad420  |
| stu10 | virat    | NULL   | Kholi    | Hindu     | 2008-11-01 | NULL      |       9 | A   | ajad420  |
| stu11 | Shahrukh | NULL   | Khan     | Muslim    | 2008-05-06 | stu10     |       9 | A   | ajad420  |
| stu12 | Amrith   | NULL   | NULL     | Hindu     | 2008-04-20 | stud10    |       9 | A   | ajad420  |
| stu13 | Bryan    | NULL   | Adams    | Christian | 2008-10-05 | NULL      |       9 | B   | ajad421  |
| stu14 | Michael  | B      | Jordan   | Christian | 2008-07-24 | stu13     |       9 | B   | ajad422  |
| stu15 | Salman   | NULL   | Khan     | Muslim    | 2008-12-20 | stud13    |       9 | B   | ajad423  |
| stu16 | Narendra | NULL   | Modi     | Hindu     | 2008-01-05 | NULL      |       9 | C   | ajad421  |
| stu17 | Amith    | NULL   | Shah     | Hindu     | 2008-07-04 | stu16     |       8 | C   | ajad422  |
| stu18 | Arun     | NULL   | NULL     | NULL      | 2008-12-13 | stud16    |       9 | C   | ajad423  |
| stu19 | Chris    | NULL   | Gayle    | NULL      | 2007-11-01 | NULL      |      10 | A   | ajad420  |
| stu2  | joseph   | NULL   | NULL     | Christian | 2009-05-06 | stu1      |       8 | A   | ajad420  |
| stu20 | Albert   | NULL   | Khan     | Muslim    | 2007-05-06 | stu19     |      10 | A   | ajad420  |
| stu21 | Aslam    | NULL   | Khan     | Athesit   | 2007-04-20 | stud19    |      10 | A   | ajad420  |
| stu22 | Chris    | NULL   | Adams    | Christian | 2007-10-05 | NULL      |      10 | B   | ajad421  |
| stu23 | Michael  | B      | Philip   | Christian | 2007-07-24 | stu22     |      10 | B   | ajad422  |
| stu24 | Feroz    | NULL   | Khan     | Muslim    | 2007-12-20 | stud22    |      10 | B   | ajad423  |
| stu25 | Rahul    | NULL   | Gandhi   | Hindu     | 2007-01-05 | NULL      |      10 | C   | ajad421  |
| stu26 | Sonia    | NULL   | Gandhi   | Hindu     | 2007-07-04 | stu25     |      10 | C   | ajad422  |
| stu27 | King     | Luther | John     | Christian | 2007-12-13 | stud25    |      10 | B   | ajad423  |
| stu28 | Andrew   |        | Flintoff | Christian | 2012-11-15 | NULL      |       9 | B   | NULL     |
| stu29 | DRUVA    | M      | HEGDE    | Atheist   | 2012-11-15 | NULL      |      10 | B   | NULL     |
| stu3  | Assadi   | NULL   | NULL     | Muslim    | 2009-04-20 | stud1     |       8 | A   | ajad420  |
| stu4  | Ashley   | NULL   | singh    | Sikh      | 2009-10-05 | NULL      |       8 | B   | ajad421  |
| stu5  | Michael  | NULL   | Jackson  | Christian | 2009-07-24 | stu4      |       8 | B   | ajad422  |
| stu6  | Assadi   | abdul  | khader   | Muslim    | 2009-12-20 | stud5     |       8 | B   | ajad423  |
| stu7  | Rohith   | NULL   | sharma   | Hindu     | 2009-01-05 | stud8     |       8 | C   | ajad421  |
| stu8  | Michael  | NULL   | Smith    | Christian | 2009-07-04 | NULL      |       8 | C   | ajad422  |
| stu9  | MD       | abdul  | khader   | Muslim    | 2009-12-02 | stud8     |       8 | C   | ajad423  |
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
29 rows in set (0.001 sec)
```

stu13	Bryan		Adams	Christian	2008-10-05	9	B	Edit Delete
stu15	Salman		Khan	Muslim	2008-12-20	9	B	Edit Delete
stu16	Narendra		Modi	Hindu	2008-01-05	9	C	Edit Delete
stu18	Arun				2008-12-13	9	C	Edit Delete
stu21	Aslam		Khan	Athesit	2007-04-20	10	A	Edit Delete
stu20	Albert		Khan	Muslim	2007-05-06	10	A	Edit Delete
stu19	Chris		Gayle		2007-11-01	10	A	Edit Delete
stu27	King	Luther	John	Christian	2007-12-13	10	B	Edit Delete
stu24	Feroz		Khan	Muslim	2007-12-20	10	B	Edit Delete
stu23	Michael	B	Philip	Christian	2007-07-24	10	B	Edit Delete
stu22	Chris		Adams	Christian	2007-10-05	10	B	Edit Delete
stu29	Druva	M	Hegde	Atheist	2012-11-15	10	C	Edit Delete
stu26	Sonia		Gandhi	Hindu	2007-07-04	10	C	Edit Delete
stu25	Rahul		Gandhi	Hindu	2007-01-05	10	C	Edit Delete

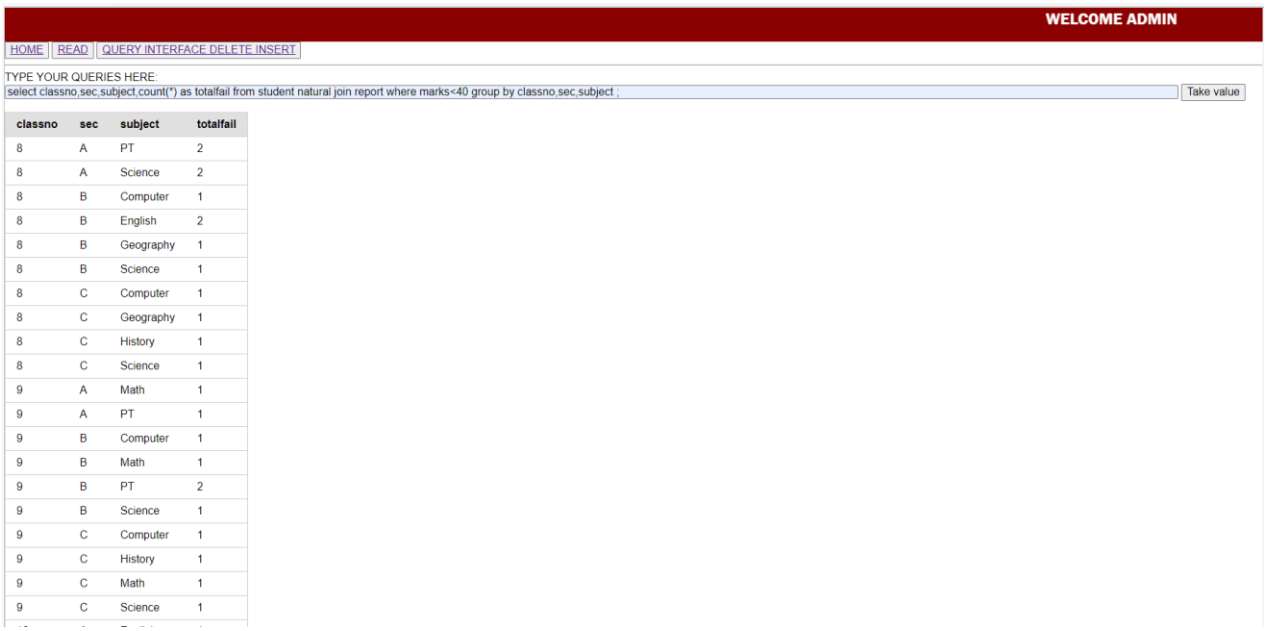
Delete
Druva M Hegde

```
MariaDB [sch_management_cs138]> select * from student;
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
| sid   | fname    | mname  | lname    | religion  | dob        | leadersid | classno | sec | admin_no |
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
| stu1  | ASH      | NULL   | NULL     | Hindu     | 2009-11-01 | NULL      |       8 | A   | ajad420  |
| stu10 | virat    | NULL   | Kholi    | Hindu     | 2008-11-01 | NULL      |       9 | A   | ajad420  |
| stu11 | Shahrukh | NULL   | Khan     | Muslim    | 2008-05-06 | stu10     |       9 | A   | ajad420  |
| stu12 | Amrith   | NULL   | NULL     | Hindu     | 2008-04-20 | stud10    |       9 | A   | ajad420  |
| stu13 | Bryan    | NULL   | Adams    | Christian | 2008-10-05 | NULL      |       9 | B   | ajad421  |
| stu14 | Michael  | B      | Jordan   | Christian | 2008-07-24 | stu13     |       9 | B   | ajad422  |
| stu15 | Salman   | NULL   | Khan     | Muslim    | 2008-12-20 | stud13    |       9 | B   | ajad423  |
| stu16 | Narendra | NULL   | Modi     | Hindu     | 2008-01-05 | NULL      |       9 | C   | ajad421  |
| stu17 | Amith    | NULL   | Shah     | Hindu     | 2008-07-04 | stu16     |       8 | C   | ajad422  |
| stu18 | Arun     | NULL   | NULL     | NULL      | 2008-12-13 | stud16    |       9 | C   | ajad423  |
| stu19 | Chris    | NULL   | Gayle    | NULL      | 2007-11-01 | NULL      |      10 | A   | ajad420  |
| stu2  | joseph   | NULL   | NULL     | Christian | 2009-05-06 | stu1      |       8 | A   | ajad420  |
| stu20 | Albert   | NULL   | Khan     | Muslim    | 2007-05-06 | stu19     |      10 | A   | ajad420  |
| stu21 | Aslam    | NULL   | Khan     | Athesit   | 2007-04-20 | stud19    |      10 | A   | ajad420  |
| stu22 | Chris    | NULL   | Adams    | Christian | 2007-10-05 | NULL      |      10 | B   | ajad421  |
| stu23 | Michael  | B      | Philip   | Christian | 2007-07-24 | stu22     |      10 | B   | ajad422  |
| stu24 | Feroz    | NULL   | Khan     | Muslim    | 2007-12-20 | stud22    |      10 | B   | ajad423  |
| stu25 | Rahul    | NULL   | Gandhi   | Hindu     | 2007-01-05 | NULL      |      10 | C   | ajad421  |
| stu26 | Sonia    | NULL   | Gandhi   | Hindu     | 2007-07-04 | stu25     |      10 | C   | ajad422  |
| stu27 | King     | Luther | John     | Christian | 2007-12-13 | stud25    |      10 | B   | ajad423  |
| stu28 | Andrew   |        | Flintoff | Christian | 2012-11-15 | NULL      |       9 | B   | NULL     |
| stu3  | Assadi   | NULL   | NULL     | Muslim    | 2009-04-20 | stud1     |       8 | A   | ajad420  |
| stu4  | Ashley   | NULL   | singh    | Sikh      | 2009-10-05 | NULL      |       8 | B   | ajad421  |
| stu5  | Michael  | NULL   | Jackson  | Christian | 2009-07-24 | stu4      |       8 | B   | ajad422  |
| stu6  | Assadi   | abdul  | khader   | Muslim    | 2009-12-20 | stud5     |       8 | B   | ajad423  |
| stu7  | Rohith   | NULL   | sharma   | Hindu     | 2009-01-05 | stud8     |       8 | C   | ajad421  |
| stu8  | Michael  | NULL   | Smith    | Christian | 2009-07-04 | NULL      |       8 | C   | ajad422  |
| stu9  | MD       | abdul  | khader   | Muslim    | 2009-12-02 | stud8     |       8 | C   | ajad423  |
+-------+----------+--------+----------+-----------+------------+-----------+---------+-----+----------+
28 rows in set (0.001 sec)
```

Record deleted successfully. DETAILS ABOUT STUDENT ADMIT NEW STUDENTS

stu11	Shahrukh		Khan	Muslim	2008-05-06	9	A	Edit Delete
stu28	Andrew		Flintoff	Christian	2012-11-15	9	B	Edit Delete
stu14	Michael	B	Jordan	Christian	2008-07-24	9	B	Edit Delete
stu13	Bryan		Adams	Christian	2008-10-05	9	B	Edit Delete
stu15	Salman		Khan	Muslim	2008-12-20	9	B	Edit Delete
stu16	Narendra		Modi	Hindu	2008-01-05	9	C	Edit Delete
stu18	Arun				2008-12-13	9	C	Edit Delete
stu21	Aslam		Khan	Athesit	2007-04-20	10	A	Edit Delete
stu20	Albert		Khan	Muslim	2007-05-06	10	A	Edit Delete
stu19	Chris		Gayle		2007-11-01	10	A	Edit Delete
stu27	King	Luther	John	Christian	2007-12-13	10	B	Edit Delete
stu22	Chris		Adams	Christian	2007-10-05	10	B	Edit Delete
stu24	Feroz		Khan	Muslim	2007-12-20	10	B	Edit Delete
stu23	Michael	B	Philip	Christian	2007-07-24	10	B	Edit Delete
stu25	Rahul		Gandhi	Hindu	2007-01-05	10	C	Edit Delete
stu26	Sonia		Gandhi	Hindu	2007-07-04	10	C	Edit Delete

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



classno	sec	subject	totalfail
8	A	PT	2
8	A	Science	2
8	B	Computer	1
8	B	English	2
8	B	Geography	1
8	B	Science	1
8	C	Computer	1
8	C	Geography	1
8	C	History	1
8	C	Science	1
9	A	Math	1
9	A	PT	1
9	B	Computer	1
9	B	Math	1
9	B	PT	2
9	B	Science	1
9	C	Computer	1
9	C	History	1
9	C	Math	1
9	C	Science	1

```
MariaDB [sch_management_cs138]> select classno,sec,subject,count(*) as totalfail from student natural join report where marks<40 group by classno
,sec,subject ;
+---------+-----+-----------+-----------+
| classno | sec | subject   | totalfail |
+---------+-----+-----------+-----------+
|       8 | A   | PT        |         2 |
|       8 | A   | Science   |         2 |
|       8 | B   | Computer  |         1 |
|       8 | B   | English   |         2 |
|       8 | B   | Geography |         1 |
|       8 | B   | Science   |         1 |
|       8 | C   | Computer  |         1 |
|       8 | C   | Geography |         1 |
|       8 | C   | History   |         1 |
|       8 | C   | Science   |         1 |
|       9 | A   | Math      |         1 |
|       9 | A   | PT        |         1 |
|       9 | B   | Computer  |         1 |
|       9 | B   | Math      |         1 |
|       9 | B   | PT        |         2 |
|       9 | B   | Science   |         1 |
|       9 | C   | Computer  |         1 |
|       9 | C   | History   |         1 |
|       9 | C   | Math      |         1 |
|       9 | C   | Science   |         1 |
|      10 | A   | English   |         1 |
|      10 | A   | History   |         2 |
|      10 | B   | Computer  |         2 |
|      10 | B   | History   |         2 |
|      10 | B   | Math      |         1 |
|      10 | B   | PT        |         1 |
|      10 | B   | Science   |         1 |
|      10 | C   | History   |         1 |
+---------+-----+-----------+-----------+
```