Project

Subject: Database Systems

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Section: C

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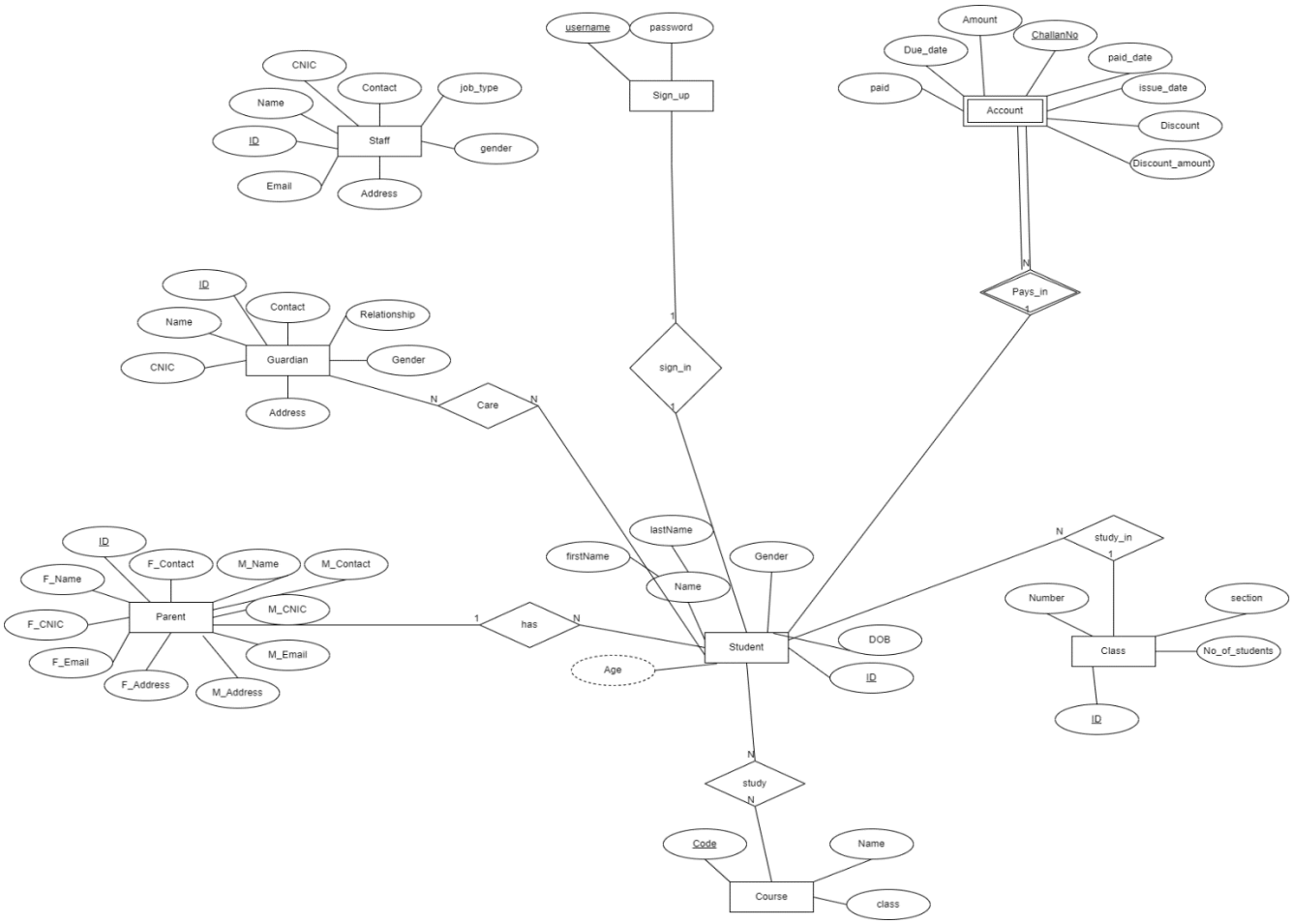
Entity Relationship Diagram:



Relational Schema:

Staff

ID	CNIC	Name	Address	Contact_no	Job_type	Email

Student

ID	firstName	lastName	DOB	Age	Gender	Parents_id	Class_id

Class

Class_ID	Number	Section	No_of_Students

Course

Code	C_Name	Class

Study

Student_id	Course_Code

Parents

ID	F_Name	F_cnic	F_address	F_contactNo	F_email
M_Name	M_cnic	M_address	M_contactNo		

Guardian

ID	Name	cnic	address	contactNo	Relationship	Gender

Care

Child_id	Guardian_Id

Sign_up

UserName	Passcode	S_id

Account

ChallanNo	Amount	Discount	Due_date	paid_date	issue_date	s_id	Discount_amount	paid

Table Description:

1. Class:

Each class has an id and section, class id is auto-incremented. Class id and number are composite keys and each class has a certain number of students.

2. Course:

Course include course_id as a primary key which is auto incremented. Corse has a name as well as a class it is offered in.

3. Parent:

Every student has parents. Parent id is the primary key which is auto-incremented. Every father and mother have cnic number, contact number, address and email.

4. Guardian:

Each guardian has guardian id as primary key which will be auto-incremented.

Guardian has a name, address, cnic, contact number and relationship with the student.

5. Sign-Up:

Every student has to sign up before registration where they will be assigned username and password. Student id is present here as a foreign key.

6. Staff:

Every staff has an id which is auto-incremented. It also has name, address, contact number, cnic, as well as the organization where they work as a foreign key.

7. Student:

Every student has an id as a primary key which is auto-incremented, as well as name, gender, date of birth. It also has a class id where he studies as a foreign key.

8. Study:

Every student study some course. Each course has an id and course code which are stored as a composite key in the study table.

9. Care:

For students with guardian, child id and guardian id are stored as a foreign key as well as a composite key.

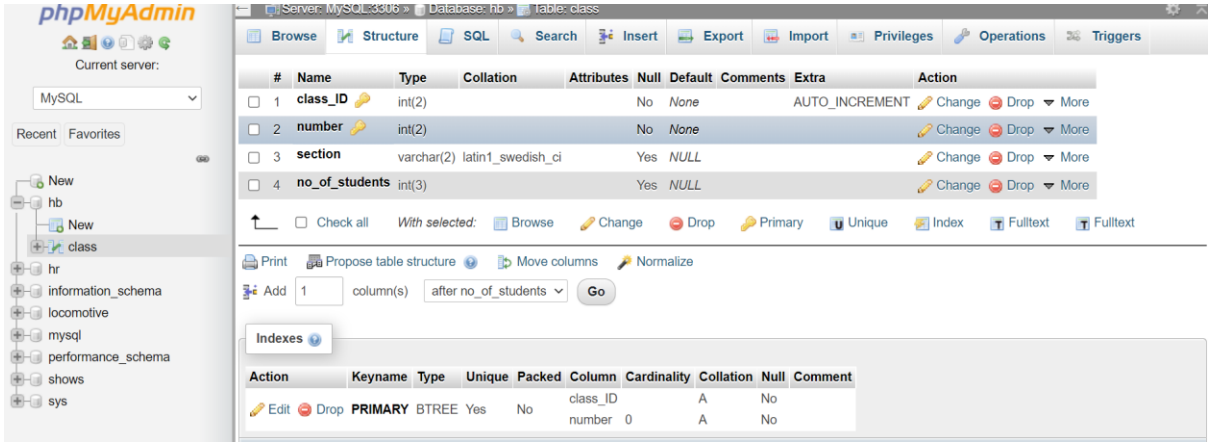
10. Account:

In order to pay fee a challan form is generated; challan number is stored as a primary key. Student id is stored as a foreign key for the student who is paying fee. Other attributed include amount, discount, due date, issuance date and paying date.

SQL statements used to create tables:

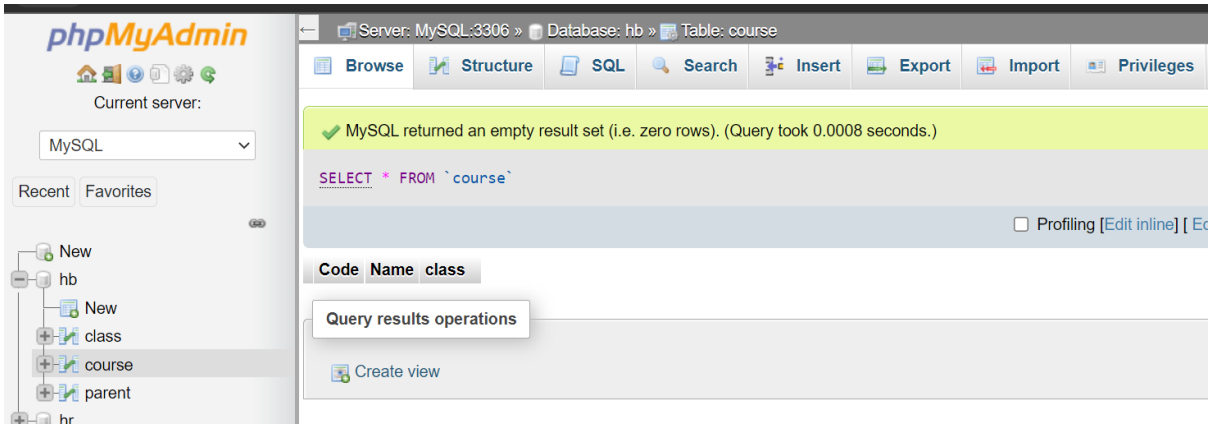
1. Class:

```
CREATE TABLE Class
(
   class_ID INT(2) AUTO_INCREMENT,
   number INT(2),
   section VARCHAR(2),
   Primary KEY(class_ID,number),
   no_of_students INT(3)
);
```



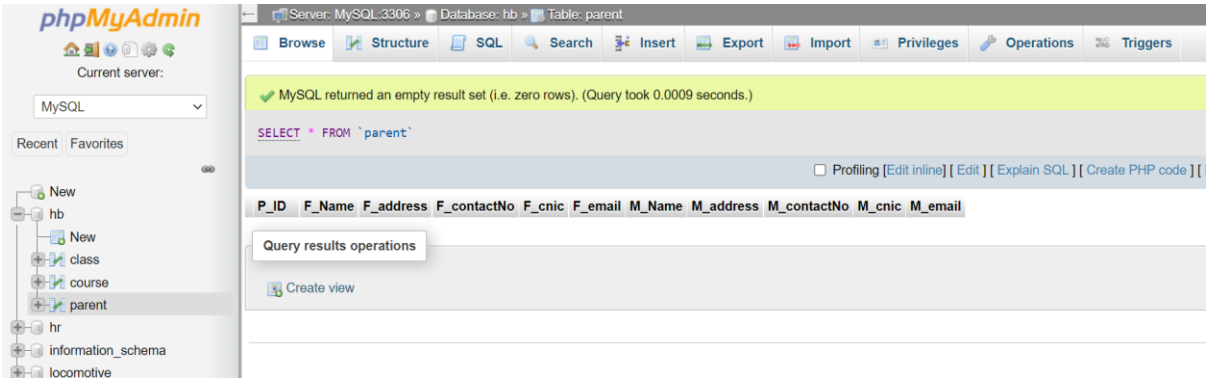
2. Course:

```
CREATE TABLE Course
(
   Code VARCHAR(4) PRIMARY KEY,
   Name VARCHAR(15),
   class INT(2)
);
```



3. Parent:

```
CREATE TABLE Parent
(
   P_ID INT(5) PRIMARY KEY AUTO_INCREMENT,
   F_Name VARCHAR(30),
   F_address VARCHAR(50),
   F_contactNo CHAR(11) UNIQUE,
   F_cnic CHAR(13) UNIQUE,
   F_email VARCHAR(20) UNIQUE,
   M_Name VARCHAR(30),
   M_address VARCHAR(50),
   M_contactNo CHAR(11) UNIQUE,
   M_cnic CHAR(13) UNIQUE,
   M_email VARCHAR(20) UNIQUE
);
```



4. Guardian:

```
CREATE TABLE Guardian
```

(

G_ID INT(5) PRIMARY KEY AUTO_INCREMENT,

G_Name VARCHAR(30),

G_address VARCHAR(50),

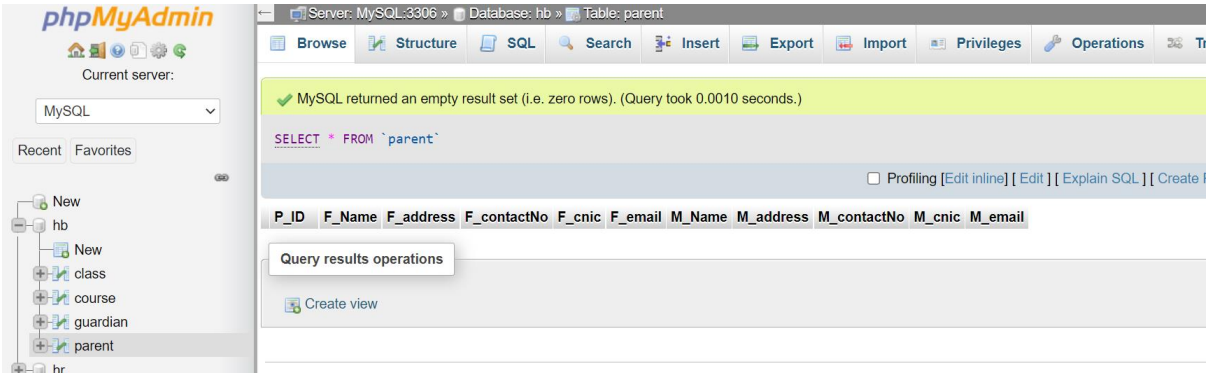
G_contactNo CHAR(11) UNIQUE,

G_cnic CHAR(13) UNIQUE,

G_gender VARCHAR(6),

G_relationship VARCHAR(50)

);



5.Sign up:

CREATE TABLE Sign_up

(

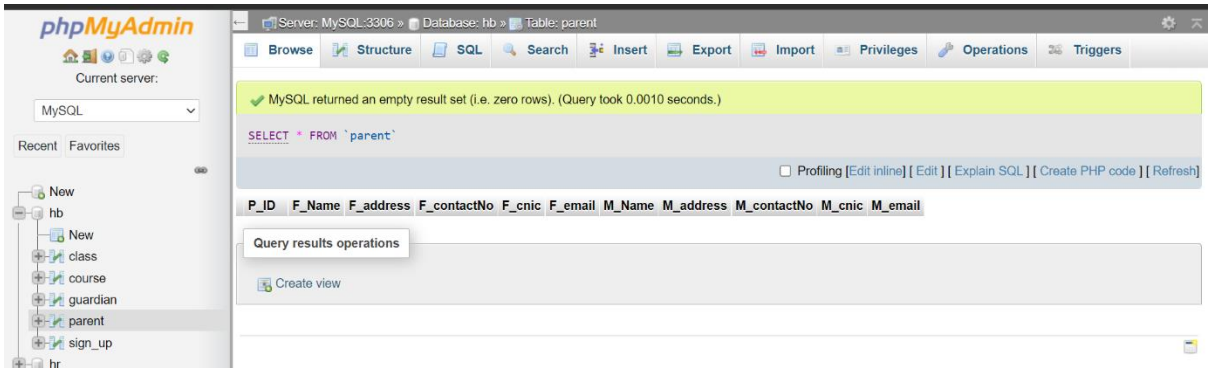
username VARCHAR(25) PRIMARY KEY,

passcode VARCHAR(10),

s_id INT(3),

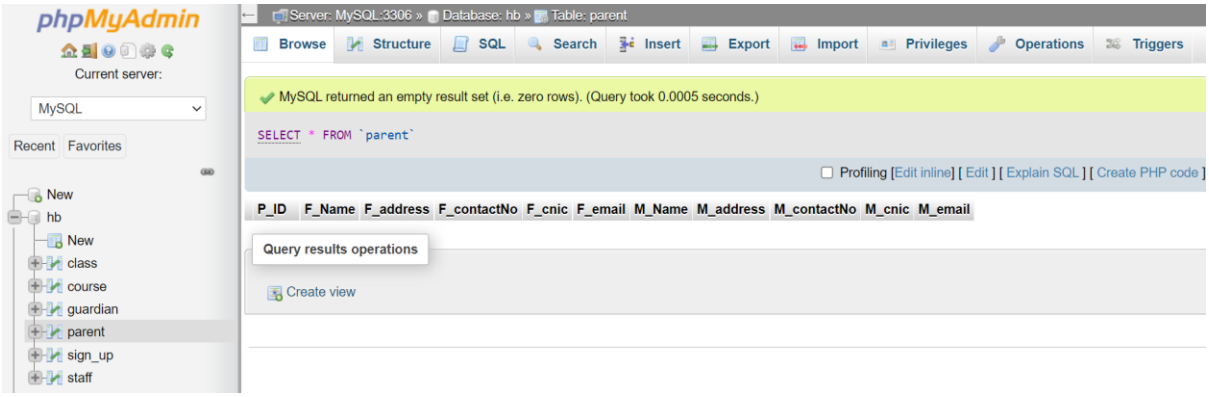
FOREIGN KEY (s_id) REFERENCES student(ID)

);



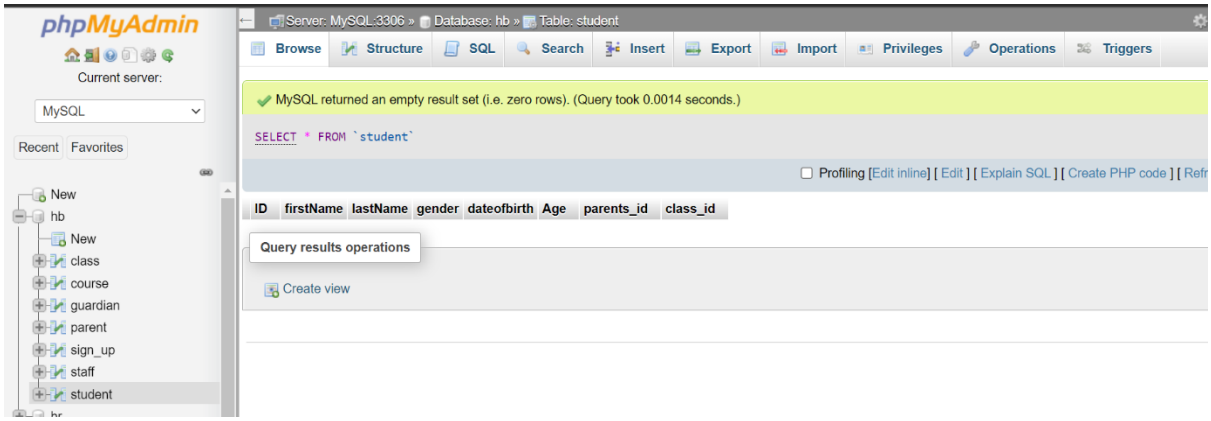
6. Staff:

```
CREATE TABLE Staff
(
        ID INT(5) PRIMARY KEY AUTO_INCREMENT,
   firstName VARCHAR(15),
   lastName VARCHAR(15),
   address VARCHAR(50),
   contactNo CHAR(11) UNIQUE,
   cnic CHAR(13) UNIQUE,
   gender VARCHAR(6),
   email VARCHAR(20) UNIQUE,
   job_type VARCHAR(20),
   NGO_name VARCHAR(20),
   FOREIGN KEY (NGO_name) REFERENCES ngo(Name)
);
```



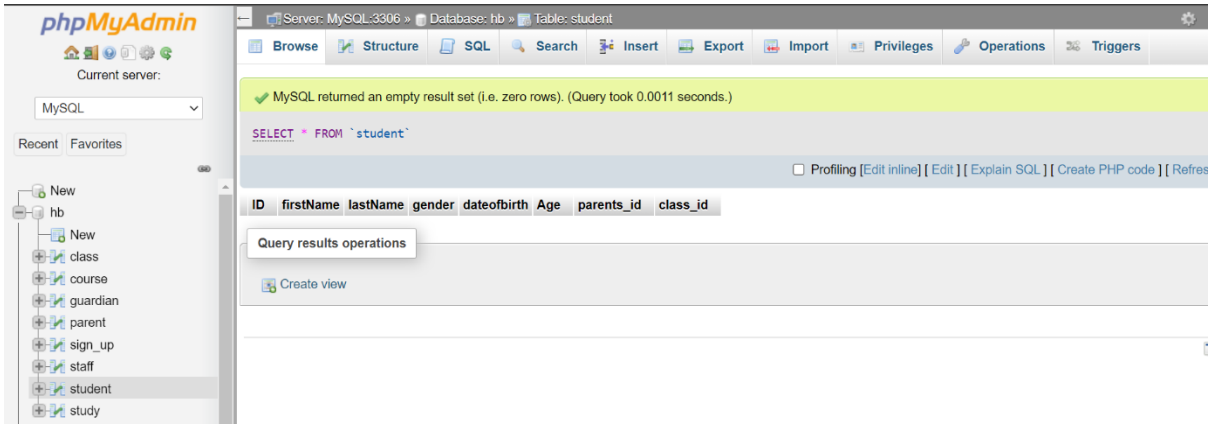
7. Student:

```
CREATE TABLE Student
(
        ID INT(5) PRIMARY KEY AUTO_INCREMENT,
   firstName VARCHAR(15),
   lastName VARCHAR(15),
   gender VARCHAR(6),
   dateofbirth date,
   Age INT(2),
   parents_id INT(3),
   FOREIGN KEY (parents_id) REFERENCES parent(P_ID),
   class_id INT(2),
   FOREIGN KEY (class_id) REFERENCES class(class_ID)
);
```



8. Study:

```
CREATE TABLE study
(
   student_id INT(5),
   course_code VARCHAR(5),
   PRIMARY KEY (student_id,course_code)
);
```



9. Care:

```
CREATE TABLE care
(
   child_id INT(5),
```

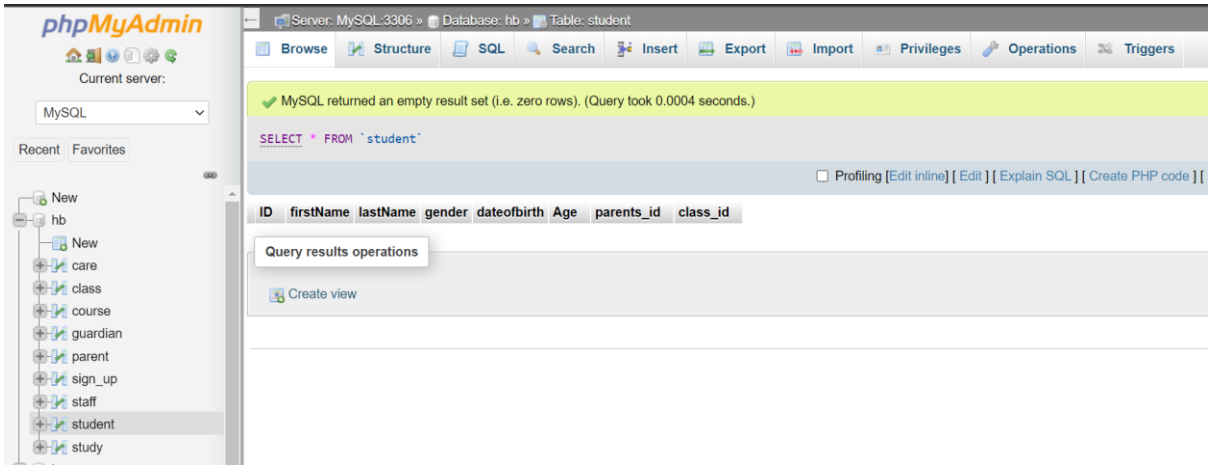
FOREIGN KEY (child_id) REFERENCES student(ID),

guardian_id INT(5),

FOREIGN KEY (guardian_id) REFERENCES guardian(G_ID),

PRIMARY KEY (child_id,guardian_id)

);



10. Account:

CREATE TABLE Account

(

challanNo INT(8) PRIMARY KEY AUTO_INCREMENT,

Amount INT(6),

Discount INT(3),

Discounted_amount INT(6),

paid tinyint(1),

Due_date date,

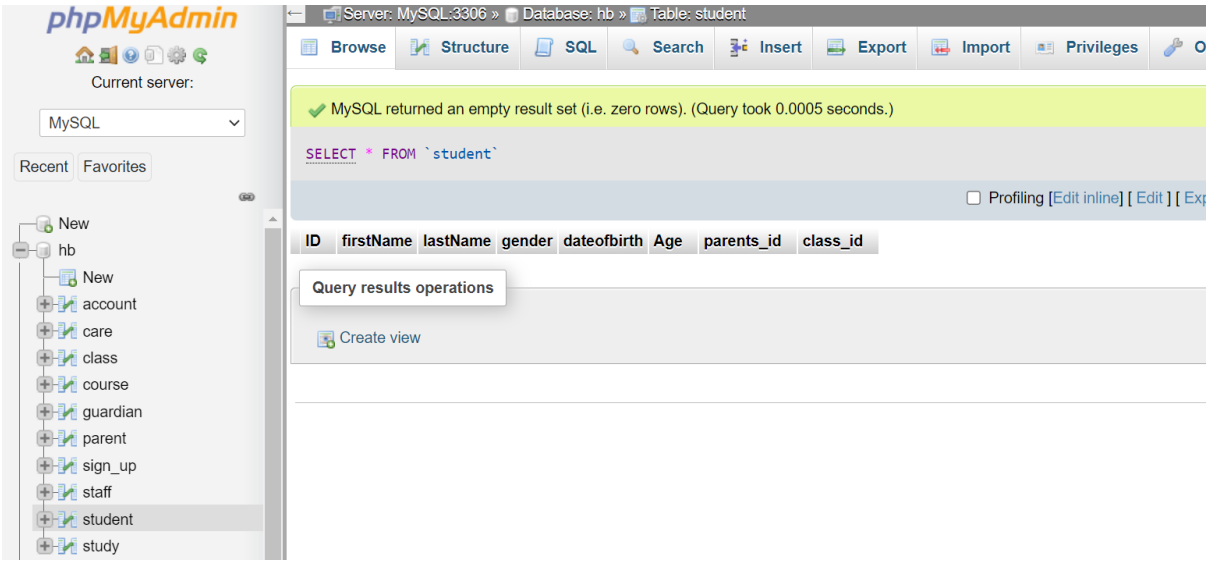
issue_date date,

paid_date date,

s_id INT(5),

FOREIGN KEY (s_id) REFERENCES student(ID)

);



Sql statements to populate tables:

INSERT INTO staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)

VALUES ('Umar','Butt','F6 Islamabad','03331234567','342011921234','umar001@gmail.com','President','Male');

INSERT INTO staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)

VALUES ('Ali','Butt','F8/4 Islamabad','03331234578','34201195566','ali001@gmail.com','President','Male');

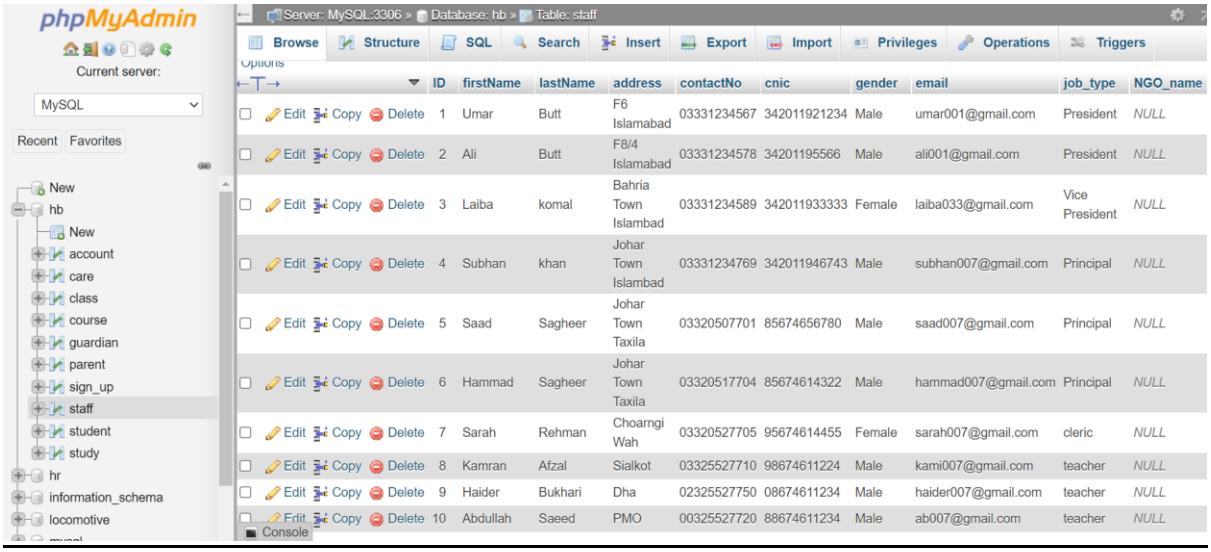
INSERT INTO staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)

```
VALUES ('Laiba','komal','Bahria Town
Islambad','03331234589','342011933333','laiba033@gmail.com','Vice
President','Female');

INSERT INTO
staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)

VALUES ('Subhan','khan','Johar Town
Islambad','03331234769','342011946743','subhan007@gmail.com','Principal','
Male');

INSERT INTO
staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)

VALUES ('Saad','Sagheer','Johar Town
Taxila','03320507701','85674656780','saad007@gmail.com','Principal','Male');


INSERT INTO
staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)

VALUES ('Hammad','Sagheer','Johar Town
Taxila','03320517704','85674614322','hammad007@gmail.com','Principal','Ma
le');

INSERT INTO
staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)

VALUES ('Sarah','Rehman','Choarngi
Wah','03320527705','95674614455','sarah007@gmail.com','cleric','Female');

INSERT INTO
staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)

VALUES
('Kamran','Afzal','Sialkot','03325527710','98674611224','kami007@gmail.com',
'teacher','Male');

INSERT INTO
staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)
```

VALUES
('Haider','Bukhari','Dha','02325527750','08674611234','haider007@gmail.com','teacher','Male');

INSERT INTO
staff(firstName,lastName,address,contactNo,cnic,email,job_type,gender)

VALUES
('Abdullah','Saeed','PMO','00325527720','88674611234','ab007@gmail.com','teacher','Male');



Insert into
parent(F_name,F_address,F_contactNo,F_cnic,F_email,M_name,M_address,M_contactNo,M_cnic,M_email)

Values('Wasim','Lahore','012345','12345','wasim@gmail.com','Rubina','Lahore','012346','123456','rubina@gmail.com');

Insert into
parent(F_name,F_address,F_contactNo,F_cnic,F_email,M_name,M_address,M_contactNo,M_cnic,M_email)

Values('Ashraf','Pindi','112345','22345','ash@gmail.com','Salma','Pindi','212346','323456','salma@gmail.com');

Insert into parent(F_name,F_address,F_contactNo,F_cnic,F_email,M_name,M_address,M_contactNo,M_cnic,M_email)

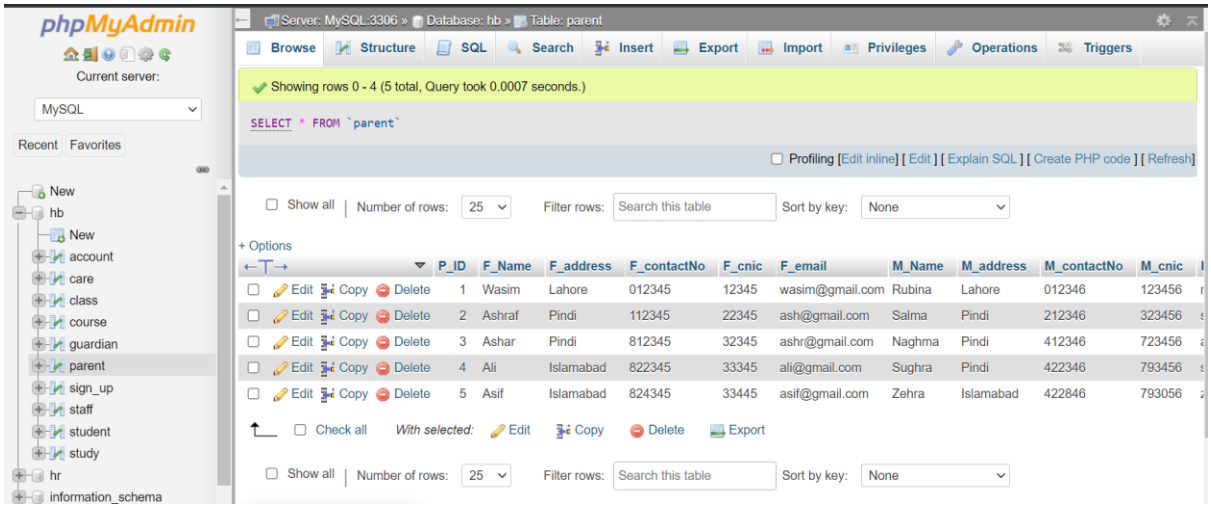
Values('Ashar','Pindi','812345','32345','ashr@gmail.com','Naghma','Pindi','412346','723456','ashr@gmail.com');

Insert into parent(F_name,F_address,F_contactNo,F_cnic,F_email,M_name,M_address,M_contactNo,M_cnic,M_email)

Values('Ali','Islamabad','822345','33345','ali@gmail.com','Sughra','Pindi','422346','793456','sugh@gmail.com');

Insert into parent(F_name,F_address,F_contactNo,F_cnic,F_email,M_name,M_address,M_contactNo,M_cnic,M_email)

Values('Asif','Islamabad','824345','33445','asif@gmail.com','Zehra','Islamabad','422846','793056','zehra@gmail.com');



Sql Queries:

Query 1:

```
DELIMITER
  //
CREATE PROCEDURE StudentsName()
BEGIN
  SELECT ID, CONCAT(firstName," ",lastName) AS NAME FROM `student`;
END //
DELIMITER
  ;
```

Query 2:

```
DELIMITER
  //
CREATE PROCEDURE motherspouses()
BEGIN
  SELECT M_Name AS "Mothers", F_Name AS "Their Spouses" FROM parent;
END //
DELIMITER
;
```

Query 3:

```
DELIMITER //
CREATE PROCEDURE guardianRelations()
```

```
BEGIN


SELECT CONCAT(firstName," ",lastName) AS Name, G_Name AS
Guardian_Name, G_relationship AS Relationship FROM student JOIN care ON
student.ID = care.child_id JOIN guardian ON guardian.G_ID = care.guardian_id
GROUP BY student.ID;


END //


DELIMITER

;
```

Query 4:

```
DELIMITER

  //

CREATE PROCEDURE stundent_parent()

BEGIN

  SELECT CONCAT(firstName," ",lastName) AS NAME, F_Name AS
Father_Name, M_Name AS Mother_Name

  FROM

     student JOIN parent ON student.parent_id = parent.P_ID;

END //

DELIMITER

  ;
```

Query 5:

```
DELIMITER
  //
CREATE PROCEDURE sibilings_inSameClass()
BEGIN
  SELECT GROUP_CONCAT(CONCAT(A.firstName," ",B.lastName) SEPARATOR
',') AS Siblings
  FROM
    student A JOIN student B ON A.parent_id = B.parent_id
    GROUP by A.class_id;
END //
DELIMITER
  ;
```

Query 10:

```
DELIMITER
  //
CREATE PROCEDURE classChangeHistory()
BEGIN
  SELECT * FROM classrecord WHERE studentID = 1;
END //
DELIMITER
  ;
```

Query 12

```
SELECT class.number AS class ,class.section, class.no_of_students FROM  class;

SELECT COUNT(*) AS Male_students,class.number AS class,class.section AS
section FROM student JOIN class ON student.class_id = class.class_ID

WHERE student.ID  IN (SELECT ID FROM student WHERE student.gender =
"male");

SELECT COUNT(*) AS Female_students,class.number AS class,class.section AS
section FROM student JOIN class ON student.class_id = class.class_ID

WHERE student.ID  IN (SELECT ID FROM student WHERE student.gender =
"female");
```

Query 14

```
SELECT CONCAT(firstName," ",lastName) AS NAME, gender, dateofbirth,
parent.F_Name, parent.M_Name, guardian.G_Name FROM student,  parent,
guardian,care WHERE student.ID = 1 AND student.parent_id = parent.P_ID
AND care.child_id = student.ID AND guardian.G_ID = care.guardian_id;

SELECT GROUP_CONCAT(CONCAT(A.firstName," ",B.lastName) SEPARATOR ',')
AS Siblings FROM student A JOIN student B ON A.parent_id = B.parent_id AND
A.ID=1;
```

Query 15

```
SELECT parent.F_Name AS Father_Name, parent.M_Name AS Mother_Name,
CONCAT(S.firstName," ",S.lastName) AS Name, S.class_id, guardian.G_Name
AS Guardian

FROM parent JOIN student S ON parent.P_ID = S.parent_id AND parent.P_ID =
1 JOIN care ON care.child_id=S.ID JOIN guardian ;
```