Module Leader:	Mr. Chathura W. Wickramasinghe
Team No:	C2
Submission Date:	22nd of March 2024

Student Id	Student Name
20231264	B.G.R Disansa
20232025	H.T. I Pathiraja
20232020	P.K.Bogoda
20231255	K.P.Geeganage

20231311	B. K. D. Cooray

Acknowledgments

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I would also like to extend my gratitude as the group leader to my group members for providing all the facilities that were required to successfully do this project.

With sincere gratitude
C2

Table of contents

List of figures

PART A (50%)
Question 1
1.

Entities:

- Branch:
  - o Attributes: BranchNumber (PK), Branch Address (Street, City, State, ZipCode), TelephoneNumber
- Staff:
  - o Attributes: StaffNumber (PK), Name (FirstName, LastName), Position, Address, Salary
  - o Relationships: Managed by (Branch), Manages (Branch)

- DVD:
  - o Attributes: CatalogNumber (PK), DVDNumber (PK), Title, Category, DailyRental, Cost, Status, MainActors, Director
  - o Relationships: Belongs to (Branch)
- Member:
  - o Attributes: MemberNumber (PK), FirstName, LastName, Address, RegistrationDate
- Rental:
  - o Attributes: RentalNumber (PK), MemberFullName, MemberNumber, DVDNumber, Title, DailyRental, RentDate, ReturnDate
  - o Relationships: Rented by (Member), Rented from (Branch), Rents (DVD)

Relationships:

- Managed by:
  - o The one-to-one relationship between Branch and Staff where each branch is managed by one staff member (the manager), and each staff member manages only one branch.

- Manages:
  - o One-to-many relationship between Staff and branch manager, and each branch manager manages one or more staff members.

- Belongs to:
  - o One-to-many relationship between DVD and Branch where each DVD belongs to one branch, and each branch can have multiple DVDs.

- Rented by:
  - o One-to-many relationship between Member and Rental where each member can rent multiple DVDs, and each rental is associated with one member.

- Rented from:
  - o One-to-many relationship between Branch and Rental where each branch can have multiple rentals, and each rental is associated with one branch.

- Rents:
  - o One-to-many relationship between DVD and Rental where each DVD can be rented multiple times, and each rental is associated with one DVD.
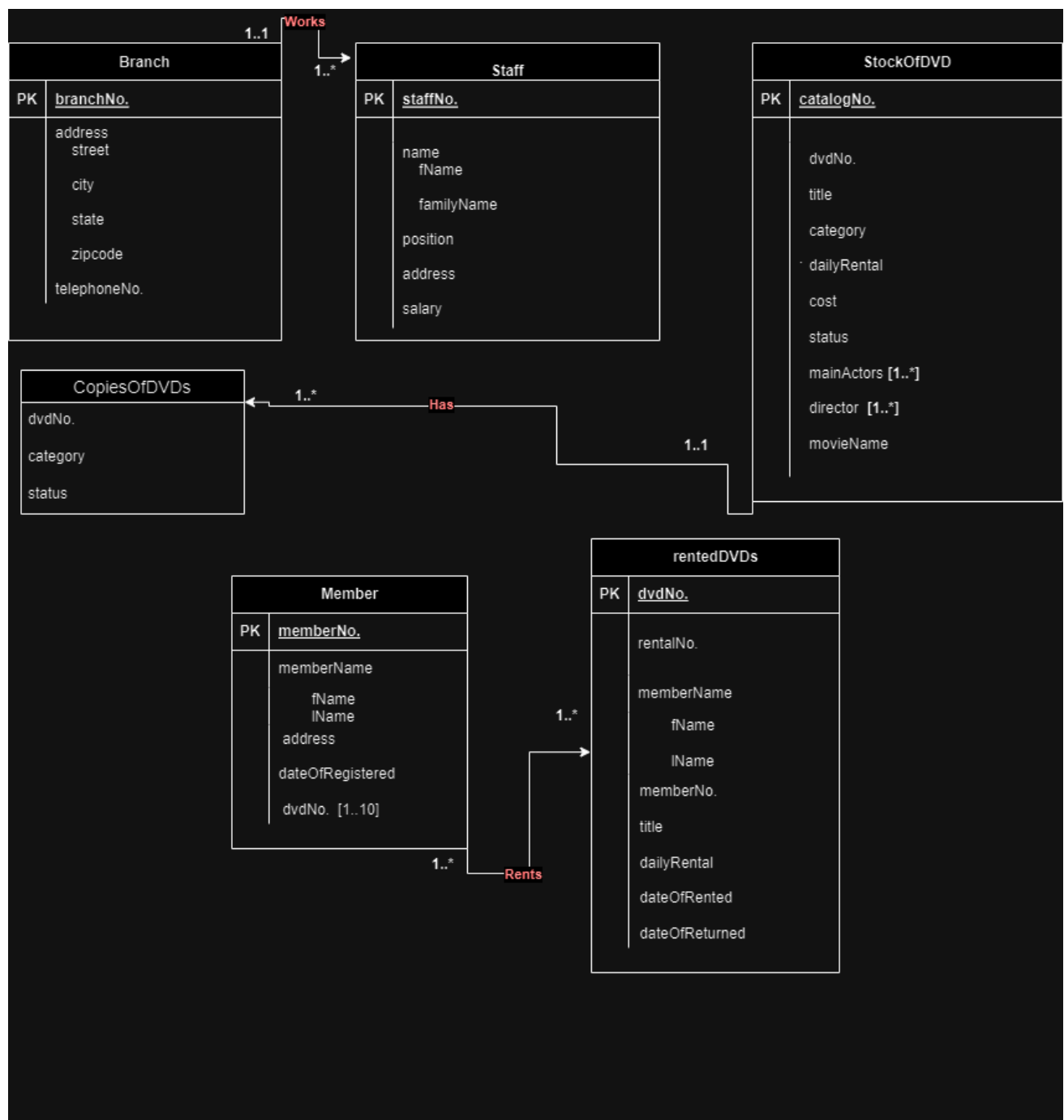
2.

Branch		
PK	branchNo.	
	address	
	street	
	city	
	state	
	zipcode	
	telephoneNo.	

Works
1..1
1..*

Staff	
PK	staffNo.
	name
	fName
	familyName
	position
	address
	salary

StockOfDVD	
PK	catalogNo.
	dvdNo.
	title
	category
	dailyRental
	cost
	status
	mainActors [1..*]
	director [1..*]
	movieName

CopiesOfDVDs
dvdNo.
category
status

Has
1..*
1..1

Member	
PK	memberNo.
	memberName
	fName
	lName
	address
	dateOfRegistered
	dvdNo. [1..10]

1..*
Rents
1..*

rentedDVDs	
PK	dvdNo.
	rentalNo.
	memberName
	fName
	lName
	memberNo.
	title
	dailyRental
	dateOfRented
	dateOfReturned

Figure 1ER Diagram

Question 2
Creating Table branch

```
CREATE TABLE `branch`
(
    `BranchNo` int(2) NOT NULL,
    `BranchAddress` varchar(70) NOT NULL,
    PRIMARY KEY(`BranchNo`)
);
```
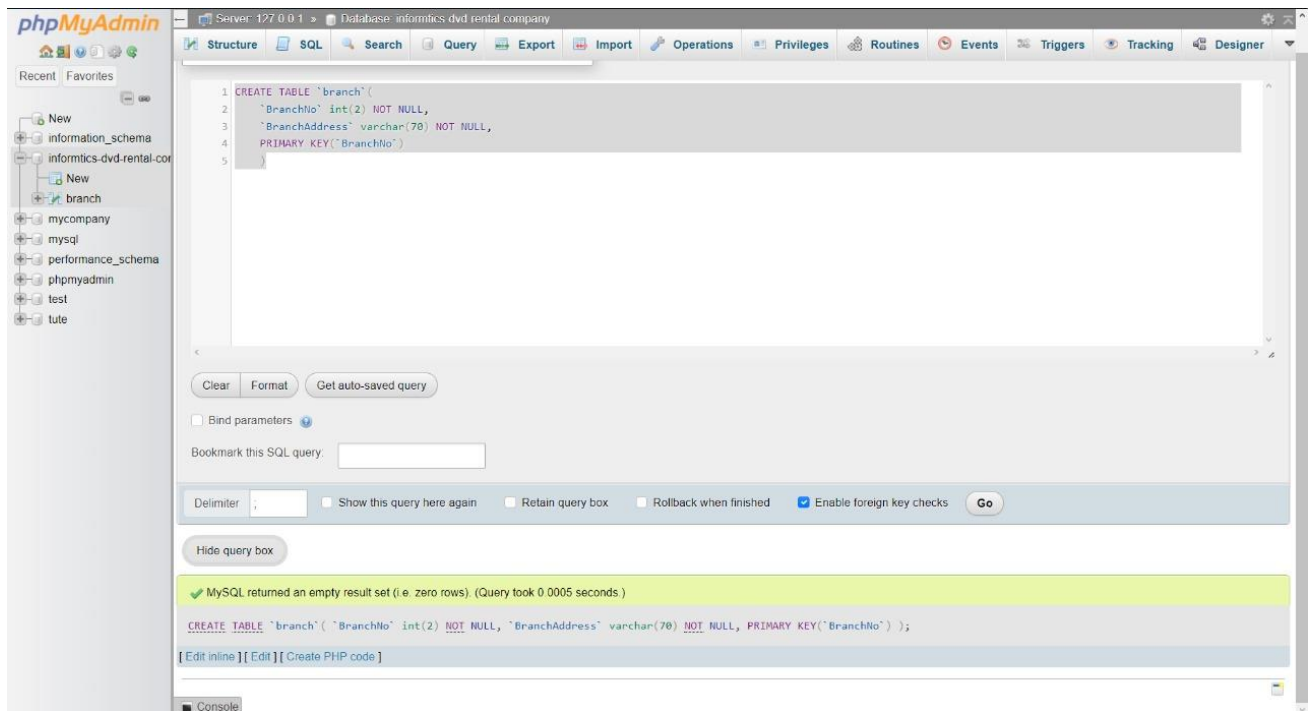

Figure 2 Creating the Table `branch`

Creating Table staff

```
CREATE TABLE `staff`
(
    `StaffNo` INT (10) NOT NULL,
    `Name` VARCHAR (25) NOT NULL,
    `Position` VARCHAR (10) NOT NULL,
    `Address` VARCHAR (30) NOT NULL,
    `Salary` INT (8) NOT NULL,
    `Manager` INT (1) NULL,
    PRIMARY KEY(`StaffNo`)
);
```
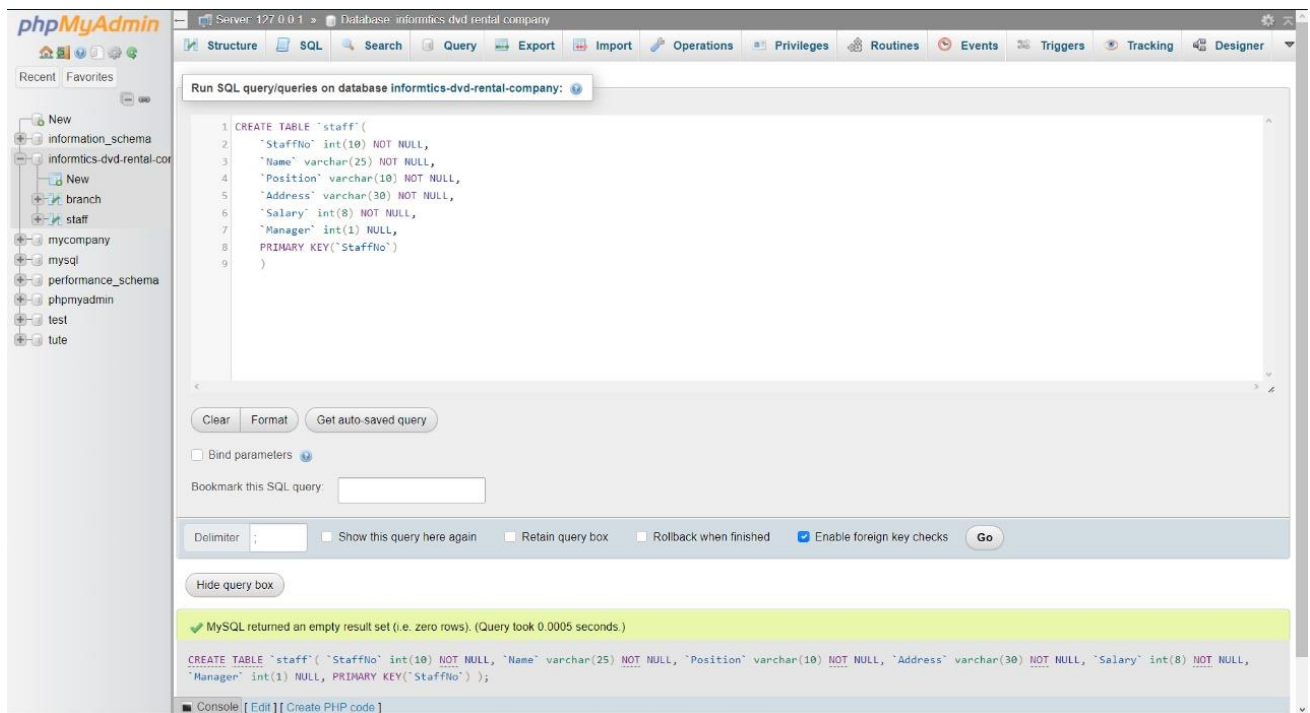
Figure 3Creating the Table `staff`

Creating Table DVD

```
CREATE TABLE `DVD`
(
    `CatalogNo` INT (8) NOT NULL,
    `DVDNo` INT (8) NOT NULL,
    `Title` VARCHAR (20) NOT NULL,
    `Category` VARCHAR (10) NOT NULL,
    `Cost` INT (5) NOT NULL,
    `Status` INT (1) NOT NULL,
    `MainActors` VARCHAR (20) NOT NULL,
    `Director` VARCHAR (15) NOT NULL,
    PRIMARY KEY(`CatalogNo`)
)
```
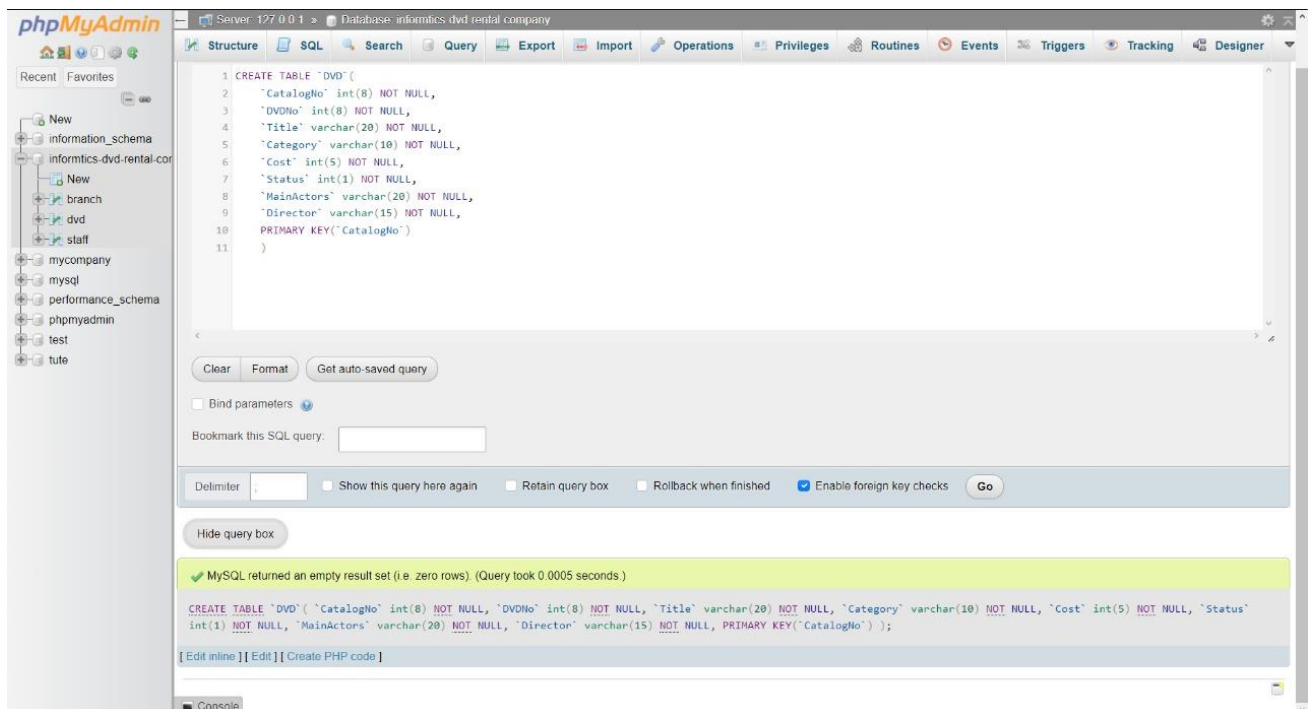
Figure 4Creating the Table `DVD`

Creating Table Memebers
CREATE TABLE `Members`
(
   `MemberNo` INT (8) NOT NULL,
   `Name` VARCHAR (18) NOT NULL,
   `Address` VARCHAR (25) NOT NULL,
   `RegistrationDate` VARCHAR (9) NOT NULL,
   PRIMARY KEY(`MemberNo`)
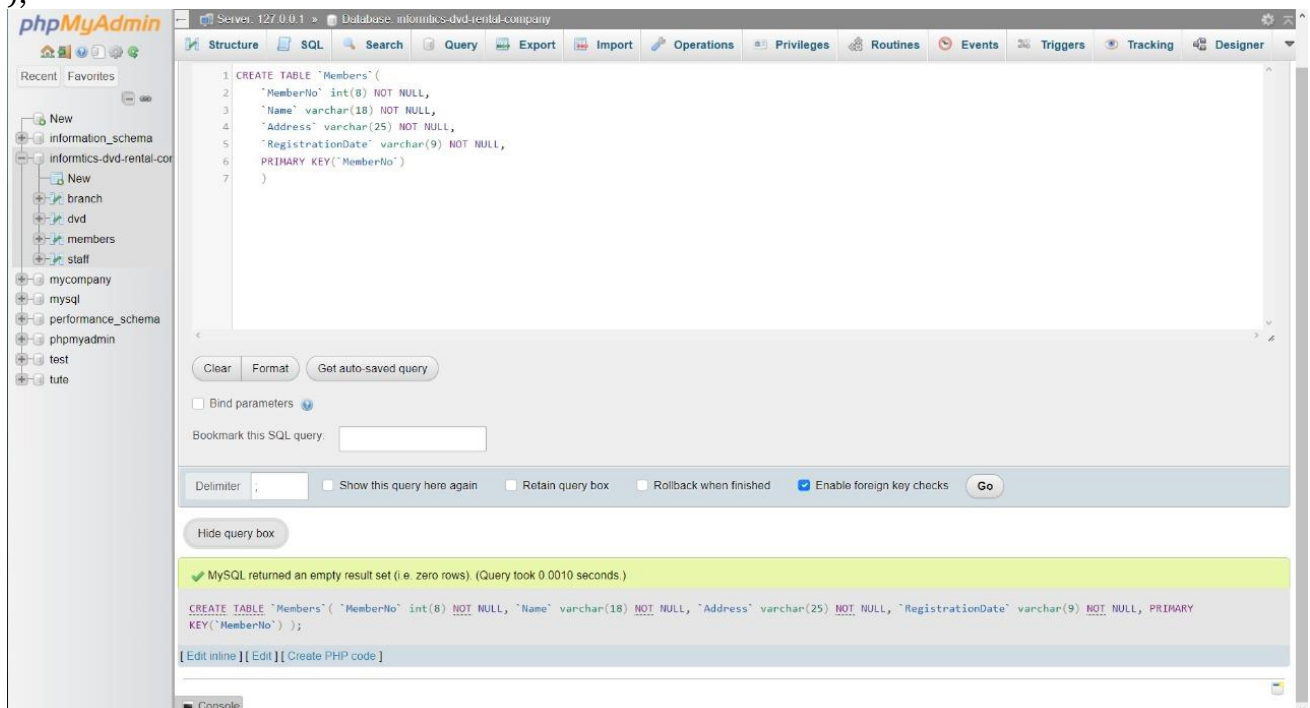);

Figure 5Creating the Table `Memebers`

Creating Table Rentals

```
CREATE TABLE `Rentals`
(
    `RentalNo` INT (8) NOT NULL,
    `MemberNo` INT (8) NOT NULL,
    `Title` VARCHAR (20) NOT NULL,
    `DailyRentalCost` INT (5) NOT NULL,
    `RetalDate` VARCHAR (9) NOT NULL,
    `ReturnlDate` VARCHAR (9) NULL,
    PRIMARY KEY(`RentalNo`)
);
```
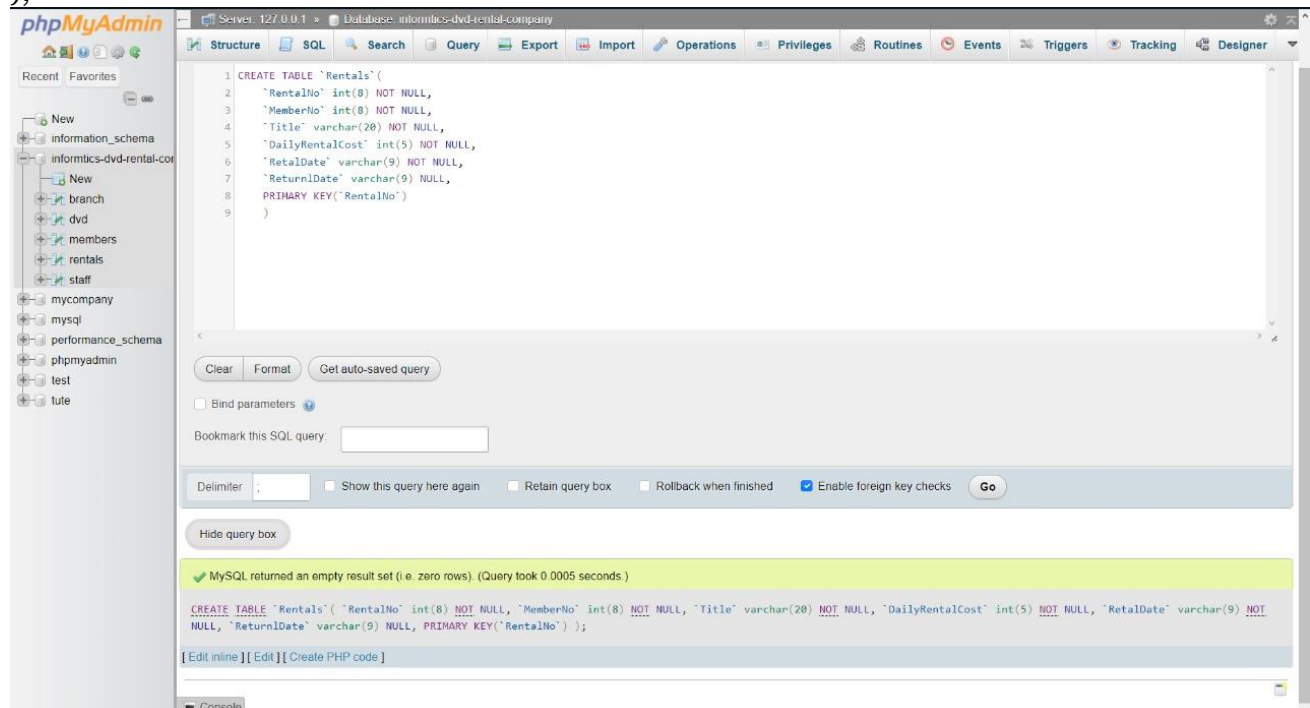

Figure 6Creating the Table `Rentals`

Question 3

Primary Keys:
- **Entity Name**: branch
    - **Primary Key**: BranchNo
    - **Attribute Name**: BranchNo
- **Entity Name**: DVD
    - **Primary Key**: CatalogNo
    - **Attribute Name**: CatalogNo
- **Entity Name**: Members
    - **Primary Key**: MemberNo
    - **Attribute Name**: MemberNo
- **Entity Name**: Rentals
    - **Primary Key**: RentalNo
    - **Attribute Name**: RentalNo
- **Entity Name:** staff
    - **Primary Key:** StaffNo
    - **Attribute Name:** StaffNo

Foreign Keys:
- **Entity Name**: Rentals
    - **Foreign Key**: MemberNo
    - **Referencing Entity**: Member
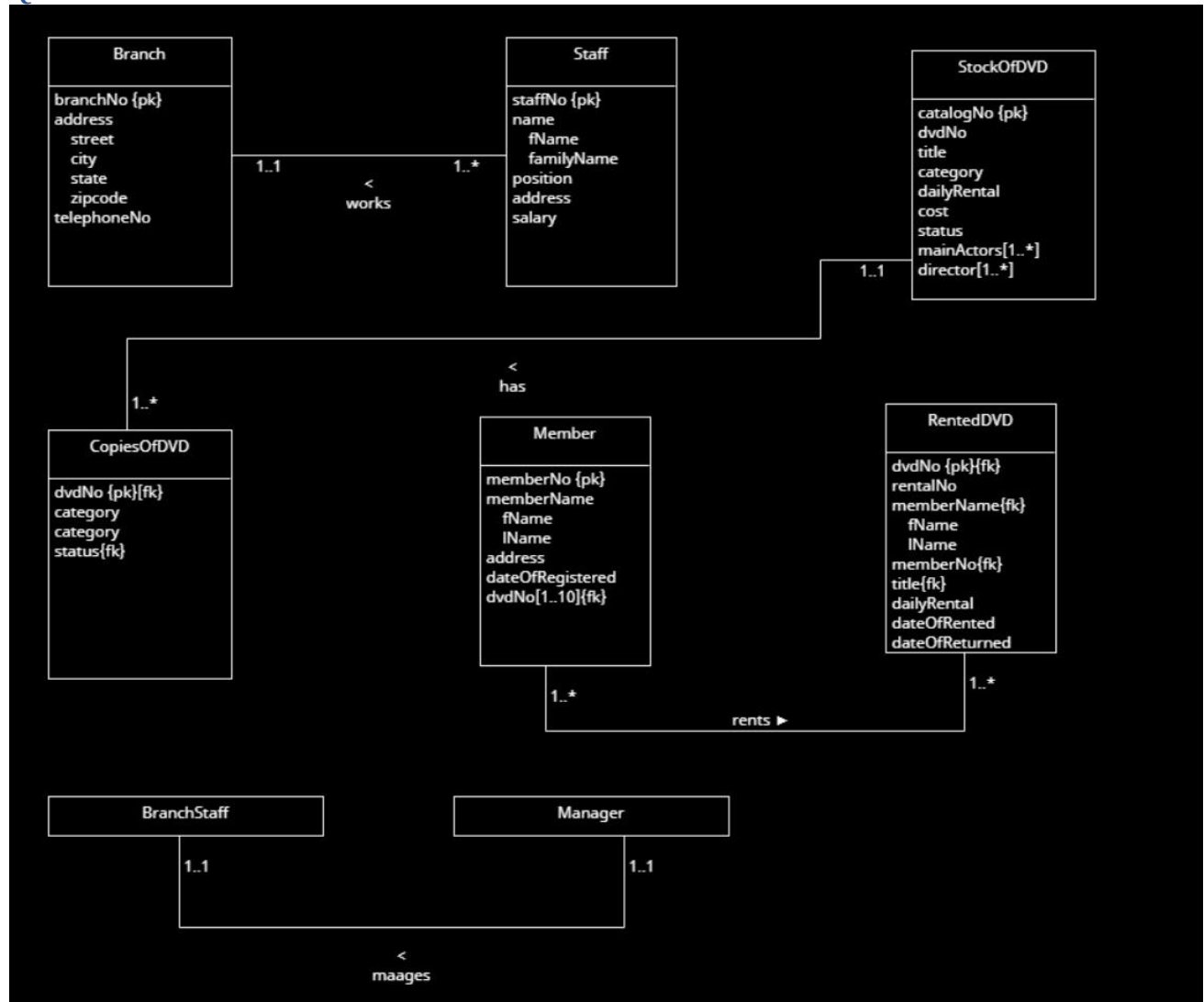
PART B (50%)
Question 1

Figure 7ER Diagram

Question 2
Creating Table Department
CREATE TABLE Department
(
      departmentID VARCHAR (6) NOT NULL,
      departmentName VARCHAR (35) NOT NULL,
      PRIMARY KEY (departmentID)
);
Creating Table Diagnosis
CREATE TABLE Diagnosis
 (
      id CHAR (4) NOT NULL,
      description VARCHAR (25) NOT NULL,
      PRIMARY KEY (id)
);

Creating Table Prescription
```
CREATE TABLE Prescription
(
        precID CHAR (3) NOT NULL,
        details VARCHAR (255),
        PRIMARY KEY (precID)
);
```
Creating Table Test
```
CREATE TABLE Test
(
        testID VARCHAR (5) NOT NULL,
        description VARCHAR (5) NOT NULL,
        PRIMARY KEY (testID)
);
```
Creating Table Patient
```
CREATE TABLE Patient
(
        ssn VARCHAR (10) NOT NULL,
        fName VARCHAR (6) NOT NULL,
        lName VARCHAR (8) NOT NULL,
        dob DATE NOT NULL,
        address VARCHAR (50) NOT NULL,
        gender VARCHAR (6) NOT NULL,
        PRIMARY KEY (ssn)
);
```
Creating Table Doctor
```
CREATE TABLE Doctor
(
        doctorID VARCHAR (7) NOT NULL,
        fName VARCHAR (8) NOT NULL,
        lName VARCHAR (9) NOT NULL,
        contact INTEGER (8) NOT NULL,
        address VARCHAR (50) NOT NULL,
        department VARCHAR (6) NOT NULL,
        PRIMARY KEY (doctorID),
        FOREIGN KEY (department) REFERENCES Department(departmentID)
)
```
Creating Table Consult
```
CREATE TABLE Consult
(
        consultID CHAR (4) NOT NULL,
        patientSSN VARCHAR (10) NOT NULL,
        doctorID VARCHAR (7) NOT NULL,
        dateTime DATETIME NOT NULL,
        typeofConsult VARCHAR (20) NOT NULL,
        prescription CHAR (3) NOT NULL,
        diagnosisID CHAR (4) NOT NULL,
        test VARCHAR (5) NOT NULL,
        PRIMARY KEY (consultID),
        FOREIGN KEY (patientSSN) REFERENCES Patient(ssn),
        FOREIGN KEY (doctorID) REFERENCES Doctor(doctorID),
        FOREIGN KEY (prescription) REFERENCES Prescription(precID),
        FOREIGN KEY (diagnosisID) REFERENCES Diagnosis(id),
        FOREIGN KEY (test) REFERENCES Test(testID)
```

);
Question 3
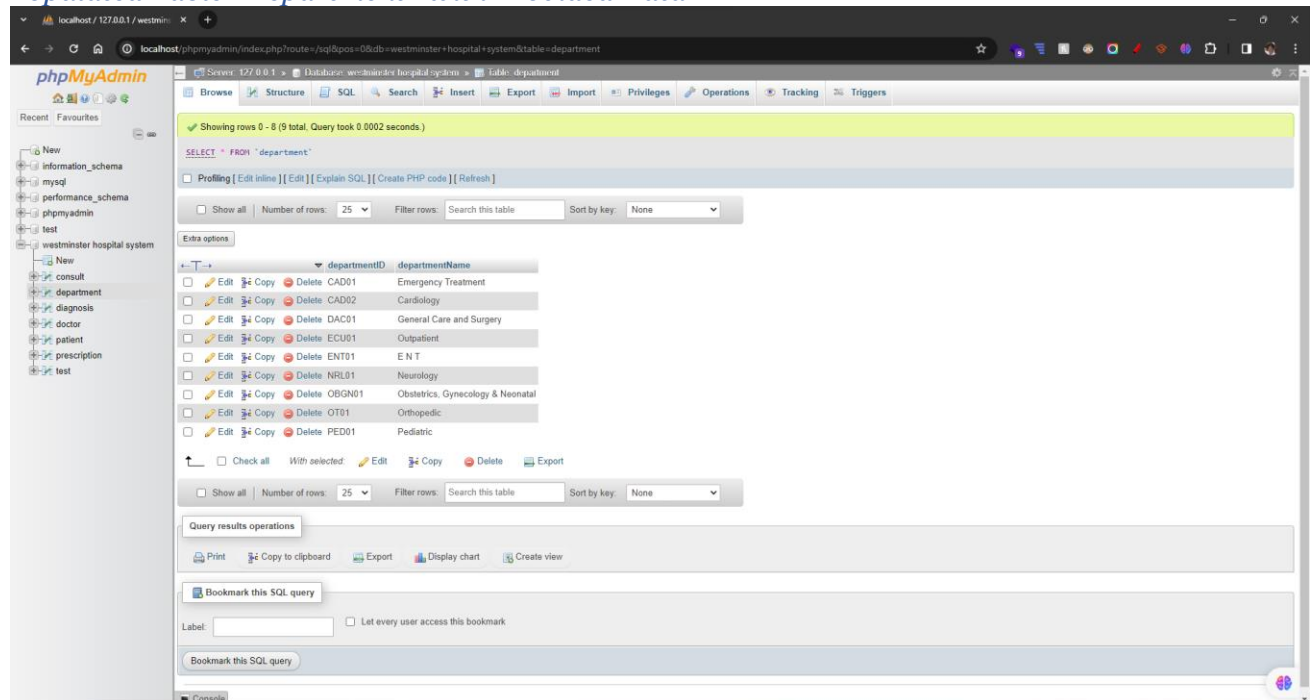a)

Populated Table `Department` with Provided Data

Figure 8Admin View of Consult Table
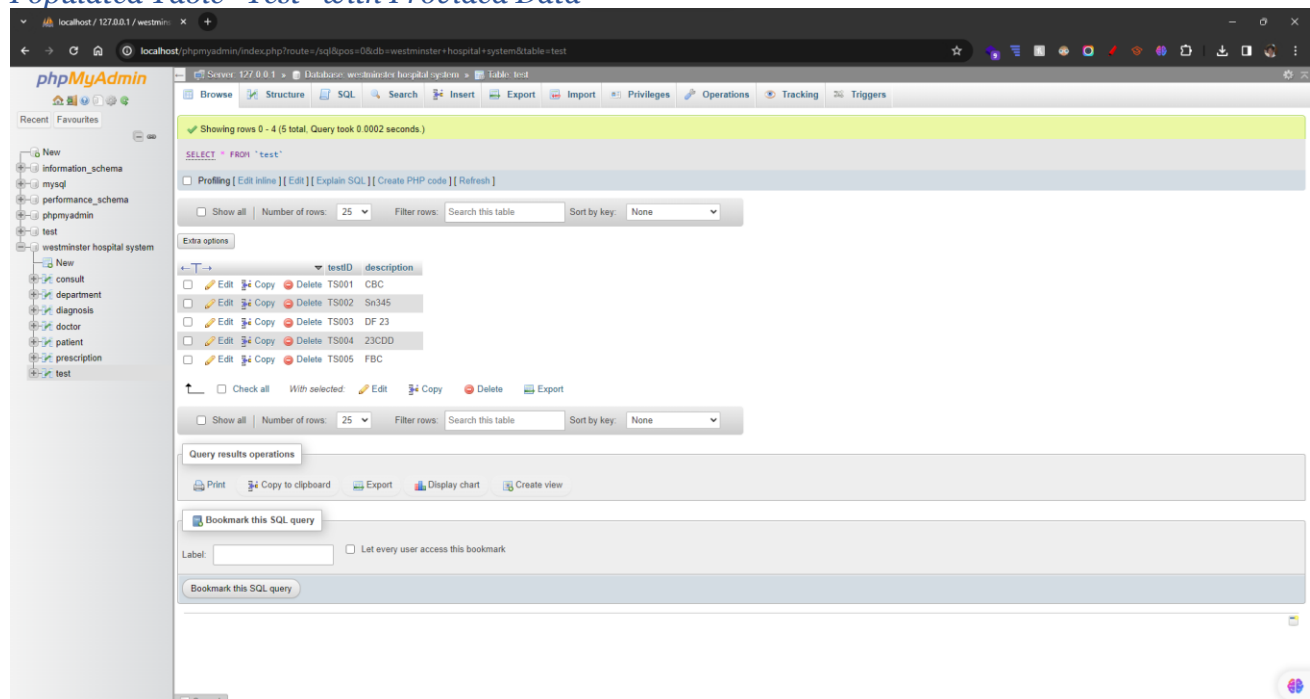
Populated Table `Test` with Provided Data

Figure 9Admin View of Test Table

Populated Table `Prescription` with Provided Data

Figure 10Admin View of Prescription Table

Populated Table `Department` with Provided Data

Figure 11Admin View of Department Table

Populated Table `Doctor` with Provided Data

Figure 12Admin View of Doctor Table

Populated Table `Patient` with Provided Data

Figure 13Admin View of Patient Table

Populated Table `Diagnosis` with Provided Data

Figure 14Admin View of Diagnosis Table

Populated Table `consult` with Provided Data

Figure 15Admin View of consult Table

b)

Populated Table `Departement` using SQL Query
INSERT INTO Department (departmentID, departmentName) VALUES
('CAD01', 'Emergency Treatment'),
('CAD02', 'Cardiology'),
('DAC01', 'General Care and Surgery'),
('ECU01', 'Outpatient'),
('ENT01', 'E N T'),

('NRL01', 'Neurology'),
('OBGN01', 'Obstetrics, Gynecology & Neonatal'),
('OT01', 'Orthopedic'),
('PED01', 'Pediatric');

Populated Table `Test` using SQL Query

INSERT INTO Test (testID, description) VALUES
('TS001', 'CBC'),
('TS002', 'Sn345'),
('TS003', 'DF 234 with urine Culture'),
('TS004', '23CDD WBC with Urine culture'),
('TS005', 'FBC');

Populated Table `Prescription` using SQL Query

INSERT INTO Prescription (precID, details) VALUES
('p01', '500mg of Amoxicillin, three times a day for seven days.'),
('p02', 'Phenoxy methyl penicillin 500mg b.d. for splenectomy prophylaxis'),
('p03', 'Esomeprazole 40 mg twice a day'),
('p04', 'Indomethacin 20 three times a day 5 days'),
('p05', 'Zaart 50 two times a day before meals one month');

Populated Table `Department` using SQL Query

INSERT INTO Department (departmentID, departmentName) VALUES
('CAD01', 'Emergency Treatment'),
('CAD02', 'Cardiology'),
('DAC01', 'General Care and Surgery'),
('ECU01', 'Outpatient'),
('ENT01', 'E N T'),
('NRL01', 'Neurology'),
('OBGN01', 'Obstetrics, Gynecology & Neonatal'),
('OT01', 'Orthopedic'),
('PED01', 'Pediatric');

Populated Table `Doctor` using SQL Query

INSERT INTO Doctor (doctorID, fName, lName, contact, address, department) VALUES
('D1134', 'Maggie', 'Pierce', 11234432, '33, Redwood Rd, Staffordshire', 'CAD02'),
('D123', 'Miranda', 'Bailey', 11234467, '12 Park Road, London', 'DAC01'),
('D334', 'Meredeth', 'Grey', 11234543, '22, Keele', 'DAC01'),
('D435', 'Derek', 'Shepherd', 11234568, '12 Fairview, Mount Bay', 'NRL01'),
('D554', 'Christina', 'Yang', 11234564, '33, Victoria Place', 'CAD01'),
('D665', 'Owen', 'Hunt', 12344432, '55 Kwan Avenue Swinburne', 'CAD01'),
('DC124', 'April', 'Kepner', 11234324, '34 East London', 'ECU01'),
('DC13335', 'Addison', 'Montgomery', 11234563, '12, Park View Terrace', 'OBGN01'),
('DC2234', 'Alex', 'Karev', 11234543, '22 Redmond Street', 'PED01'),
('DC3345', 'Callie', 'Torres', 11234533, '14, Berry Bell Avenue', 'OT01'),
('DC556', 'Mark', 'Sloan', 11234567, '12 New Castle, London', 'ENT01');

Populated Table `Patient` using SQL Query

INSERT INTO Patient (ssn, fName, lName, dob, address, gender) VALUES
('AAGG8822', 'Sam', 'Smith', '1998-12-09', '71 Cherry Court, SOUTHAMPTON', 'Male'),
('pa03', 'Damien', 'Johnes', '1978-05-01', '60 Park Terrace, Girton', 'Male'),
('pa23', 'Noah', 'Williams', '1985-04-01', '56 Bootham Terrace, Redhill', 'Male'),
('pa24', 'Oliver', 'Brown', '1994-03-06', '5 Folkestone Road, Winskill', 'Male'),
('pa25', 'George', 'Evans', '1990-02-06', '5 Connery Rd, Maiden\'s Green', 'Male'),
('pa26', 'Olivia', 'Stevens', '1984-02-10', '1 Carnaby Street, Sidcup', 'Female'),
('pa27', 'Octavia', 'Jenkins', '1989-11-04', '34 Abbey Road, London', 'Female'),
('pa28', 'Anne', 'Pearson', '1992-12-12', 'The Gables, London', 'Female'),
('pa29', 'Meryl', 'Murray', '1995-05-09', '15 Manchester Road, Doncaster', 'Female'),
('pa30', 'Leo', 'Cooke', '1991-03-07', '483 The Grove, HEMEL HEMPSTEAD', 'Male');

Populated Table `Diagnosis` using SQL Query
INSERT INTO Diagnosis (id, description) VALUES
('D098', 'Noncardiac Chest Pain'),
('D099', 'TMJ syndrome'),
('D100', 'Pneumothorax'),
('D101', 'Vitamin Deficiency'),
('D102', 'Vitamin Deficiency'),
('D103', 'Minor concussion'),
('D104', 'Sleeping disorder');

Populated Table `Consult` using SQL Query
INSERT INTO Consult (consultID, patientSSN, doctorID, dateTime, typeofConsult, prescription, diagnosisID, test) VALUES
('cs01', 'AAGG8822', 'D123', '2022-01-31 08:35:00', 'General Consultation', 'p01', 'D098', 'TS001'),
('cs02', 'pa03', 'DC556', '2022-02-01 08:35:00', 'Ear Checkup', 'p02', 'D099', 'TS002'),
('cs03', 'pa24', 'DC124', '2022-02-02 08:35:00', 'Emergency Treatment', 'p03', 'D100', 'TS003'),
('cs04', 'pa27', 'DC13335', '2022-02-03 08:35:00', 'Routine Check UP', 'p04', 'D101', 'TS004'),
('cs05', 'pa28', 'D123', '2022-02-04 08:35:00', 'Consult', 'p05', 'D102', 'TS005'),
('cs06', 'pa29', 'DC2234', '2022-02-05 08:35:00', 'Consult', 'p06', 'D103', NULL),
('cs07', 'pa30', 'DC3345', '2022-02-06 08:35:00', 'Consult', 'p07', 'D104', NULL);
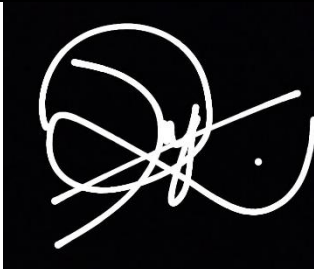
Assumptions

- We are not adding the any rows that don't work with the foreign key constraints (Applied in the 'Consult' table)

Self-Evaluation

Self-Evaluation of B.G.R Disansa

Student Name:	B.G.R Disansa	Student Id:	20231264

State what tasks you carried out in the project.

I created tables such as Patient, Doctor, Prescription, Diagnosis, Test, Department, and Consult. Including the structure of each table and primary keys and foreign keys, and I have found entities, and relationships given a scenario as well.

Part A Question 1 a), Part B Question 2, Supported in Part B Question 3

State what you enjoyed and did not enjoy about teamwork.

Working with a team, tasks can be divided among team members based on their expertise, in turn having an efficient and faster project completion.
A fact I didn't enjoy is the dependency on others to complete their tasks on time, delays from one member can hold back other members as well.

State what you learned about teamwork.

I learned about teamwork with colleagues with different skills, knowledge, and perspectives.

State what skills you gained/learned from undertaking the project.

Documentation, SQL Programming, Teamwork

State any strengths about yourself that emerged while undertaking the project.

I have communicated well with team remembers throughout the project, My communication skills fascinated collaboration.

State any weaknesses about yourself that emerged while undertaking the project.

I generally manage time well, but in this instance, I underestimated the time required for the tasks and struggled with deadlines.

State how you would do things better if you were to undertake the project again.

I would start by prioritizing tasks more efficiently and focusing on important components.

Has undertaking this module made you reflect on/change your course?

I may consider taking additional courses or pursuing further studies in related fields.

Additional general or project-specific comments:

Student Signature:		Date:	22nd March 2024

Self-Evaluation of P.K.Bogoda

Student Name:	P.K.Bogoda	Student Id:	20232020

State what tasks you carried out in the project.

Part A- Question 1- 2)
Part B- Question 1

State what you enjoyed and did not enjoy about teamwork.

Enjoyed working as a team.
Could learn the lecture contents through group discussions.

State what you learned about teamwork.

Learned how to divide the work with
others and listen to other group members
ideas.

State what skills you gained/learned from undertaking the project.

Working as a team, listen to others opinions, Helping others to get work done
successfully.

State any strengths about yourself that emerged while undertaking the project.

Creativity, Problem-Solving, Emotional Intelligence, Communicational Skills

State any weaknesses about yourself that emerged while undertaking the project.

Little experience in certain areas
Lacking confidence at times

State how you would do things better if you were to undertake the project again.

Improve the project planning and quality.
Stay in touch with the group more often.

Has undertaking this module made you reflect on/change your course?

Yes. Understood the progress in the module of study over time.

Additional general or project specific comments:

This course work has made good progress in the module academic areas.			
Student Signature:		*Date:*	*22.03.2024*

Self-Evaluation of K.P.Geeganage

Student Name:	*Kavindu Pabasara Geeganage*	*Student Id:*	*20231255*

State what tasks you carried out in the project.
Part A Question 2 Part B Question 1

State what you enjoyed and did not enjoy about teamwork.
I enjoyed everyone participating and helping each other out but I disliked a few people not paying attention

State what you learned about teamwork.
It gets the job done quickly and more efficiently

State what skills you gained/learned from undertaking the project.
How to have a better understanding of team members and the SQL queries and relationship diagrams

State any strengths about yourself that emerged while undertaking the project.
Taking care of the relationship diagrams

State any weaknesses about yourself that emerged while undertaking the project.
The difficulty to work on time

State how you would do things better if you were to undertake the project again.
Have the goal to finish the project early so we have more time to check for errors

Has undertaking this module made you reflect on/change your course?
No

Additional general or project specific comments:

Student Signature:	K.P.Geeganage	Date:	3/21/2024

Self-Evaluation of H.T. I Pathiraja

Student Name:	H T I Pathiraja	Student Id:	20232025

State what tasks you carried out in the project.

- Designed and implemented the database schema for the DVD rental system.
- Developed SQL queries for creating tables (branch, staff, DVD, Members, Rentals) with appropriate attributes and constraints.
- Implemented primary and foreign keys to ensure data integrity and relational integrity.
- Tested database functionalities and ensured smooth integration with the rental system.

State what you enjoyed and did not enjoy about teamwork.

I was pleased with the team's cooperative work, particularly during the brainstorming sessions where we talked about SQL implementation techniques and database design. Seeing everyone's distinct viewpoints come together to produce an all-encompassing solution was satisfying. Decision-making processes occasionally suffered from delays due to conflicting schedules and handling different points of view.

State what you learned about teamwork.

I gained an understanding of the value of teamwork and effective communication through this project. Recognizing the advantages and disadvantages of every team member helped us divide work effectively and use individual knowledge to achieve group success.

State what skills you gained/learned from undertaking the project.

- proficiency in SQL query optimization and structure of databases concepts.
- enhanced teamwork and communication abilities as a result of active cooperation.
- improved problem-solving skills through the resolution of obstacles during project development.

State any strengths about yourself that emerged while undertaking the project.

My ability to adapt to changing project requirements and work effectively under pressure emerged as a strength. I also demonstrated strong analytical skills when identifying and resolving database-related issues.

State any weaknesses about yourself that emerged while undertaking the project.

I identified few issues with task manager at times. Additionally, managing time effectively amidst competing priorities was an area I recognized for improvement.

State how you would do things better if you were to undertake the project again.

In future projects, I would strive to establish clearer communication with team members and manage time with correct decision making. I would allocate more time for thorough testing and debugging to mitigate potential setbacks during project execution.

Has undertaking this module made you reflect on/change your course?

Undertaking this module provided valuable insights into database management and software development processes. It reinforced my interest in database systems and solidified my decision to pursue further studies or certifications in this field.

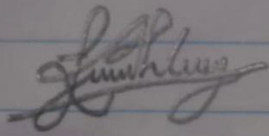| Additional general or project specific comments:			
Overall, this project was a valuable learning experience that not only enhanced my technical skills but also sharpened my interpersonal and organizational abilities. I am proud of our team's achievements and look forward to applying these newfound skills in future endeavors.			
Student Signature:		**Date:**	**21/03/2024**

Self-Evaluation of B. K. D. Cooray

Student Name:	B. K. D. Cooray	Student Id:	20231311

State what tasks you carried out in the project.

I populated the tables with data provided in the project context. This involved writing SQL INSERT INTO statements to add records to each table, ensuring data consistency and integrity.

Part B Question 3

State what you enjoyed and did not enjoy about teamwork.

Being part of a team provides a support system where team members can encourage and motivate each other, especially during challenging phases of the project.
In a team environment, different team members may have conflicting ideas or opinions on how to approach certain tasks or decisions. Resolving these conflicts requires compromise and open-mindedness, which can sometimes be challenging to achieve.

State what you learned about teamwork.

Conflicts or disagreements may arise during teamwork, but it's important to address them constructively and find mutually acceptable solutions. Active listening, empathy, and compromise are essential skills for resolving conflicts and maintaining positive working relationships.

State what skills you gained/learned from undertaking the project.

Collaboration and Teamwork: Working as part of a team on the project enhanced my collaboration and teamwork skills. I learned to communicate effectively with team members, share ideas, coordinate tasks, and support each other to achieve project goals collectively.

State any strengths about yourself that emerged while undertaking the project.

Adaptability: I demonstrated adaptability by being receptive to feedback, adjusting to changes in project requirements or priorities, and adopting new approaches or techniques as needed. I remained flexible and open-minded, allowing me to effectively navigate evolving project dynamics.

State any weaknesses about yourself that emerged while undertaking the project.

Difficulty Delegating: While I enjoy taking ownership of tasks and ensuring their completion, I recognize the importance of delegating responsibilities and trusting others to contribute. Learning to delegate effectively and empower team members can alleviate workload and foster a more collaborative environment.

State how you would do things better if you were to undertake the project again.

Enhance Communication: I would strive to improve communication with team members, stakeholders, and collaborators by fostering open dialogue, actively listening to feedback, and providing regular updates on project status. Clear and transparent communication would promote collaboration, mitigate misunderstandings, and ensure alignment on project objectives and expectations.

Has undertaking this module made you reflect on/change your course?

Undertaking the database management module has broadened my understanding of database systems and collaboration, potentially influencing my consideration of further studies in related

fields while emphasizing the importance of teamwork and effective communication in project-based environments.			
Additional general or project-specific comments:			
Student Signature:		**Date:**	**22ⁿᵈ March 2024**

References

1. Lutkevich, B. and Hughes, A. (2022) *foreign key*.

    https://www.techtarget.com/searchoracle/definition/foreign-key.

2. GfG (2024) *Introduction of ER model*. https://www.geeksforgeeks.org/introduction-of-er-model/.

3. *SQL DROP TABLE Statement* (no date).

    https://www.w3schools.com/sql/sql_drop_table.asp.