

Course Title : Database System Sessional
Course Code : CCE - 224

Lab Problem : 01

Submitted To

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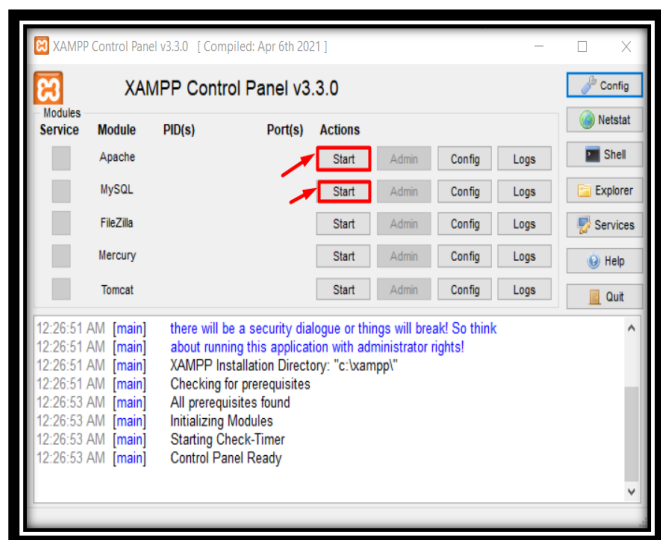
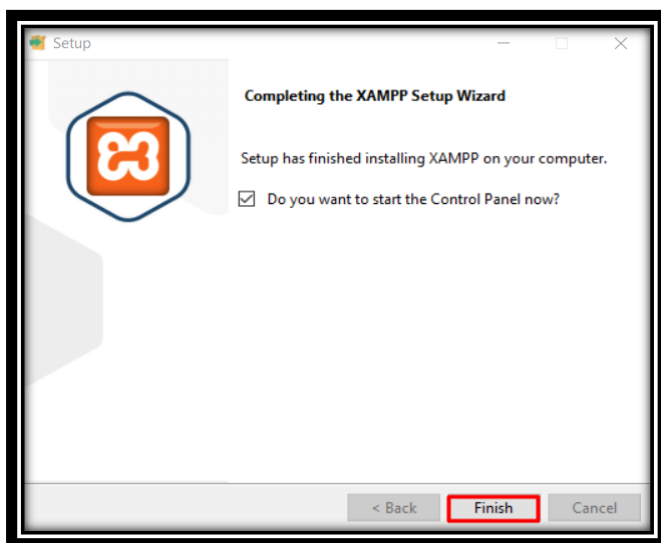
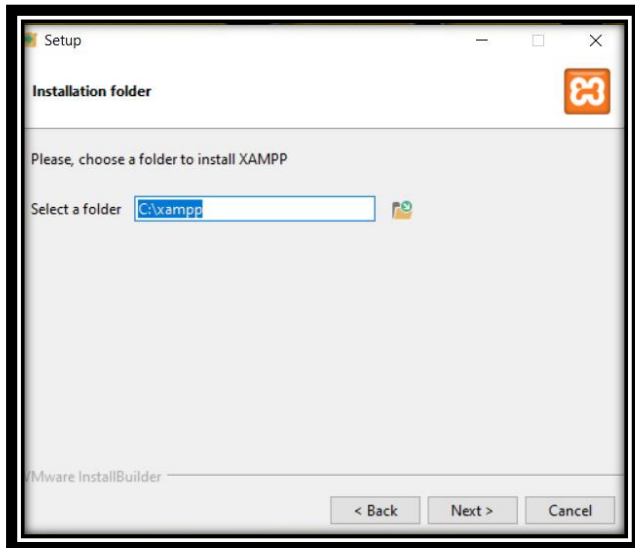
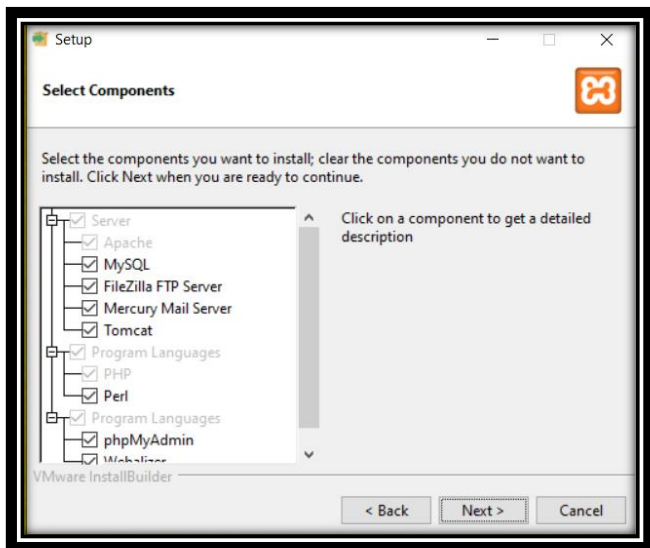
Patuakhali Science & Technology University
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1. Install XAMP and write short notes about XAMPP on every Components.

XAMPP is a software package that allows you to create a web server environment on your computer. The name XAMPP is an acronym for cross-platform, Apache, MySQL, PHP, and Perl. These are the components that make up the XAMPP package.

- ❖ **Apache:** Apache is an open-source web server software that allows you to host websites and web applications. It is the most widely used web server software in the world, and XAMPP includes Apache as its web server component.
- ❖ **MySQL:** MySQL is a popular open-source relational database management system that is used to store data for web applications. It is included in XAMPP to provide a local database solution for web development.
- ❖ **FileZilla:** FileZilla is an FTP client that allows you to transfer files between your local machine and a remote server. It is included in XAMPP to provide a local FTP solution for web development.
- ❖ **Mercury Mail Transport System:** Mercury Mail Transport System is a mail server that allows you to send and receive emails on your local machine. It is included in XAMPP to provide a local email solution for web development.
- ❖ **PHP:** PHP is a server-side scripting language that is used to create dynamic web content. It is widely used in web development, and XAMPP includes PHP to allow you to create and test PHP-based web applications on your local machine.
- ❖ **phpMyAdmin:** phpMyAdmin is a web-based tool for managing MySQL databases. It allows you to easily create, edit, and delete databases and tables, as well as run SQL queries.





2. Create a Database as your id name and create all the table that discuss in the university database schema as below.

❖ Create database

```
CREATE DATABASE Mohidul_1902016;
```

❖ classroom(building, room_number, capacity)

```
CREATE TABLE Classroom (  
    building VARCHAR(255),  
    room_number INT,  
    capacity INT  
);
```

❖ department(dept_name, building, budget)

```
CREATE TABLE department (  
    dept_name VARCHAR(20),  
    building VARCHAR(15),  
    budget NUMERIC(12, 2),  
    PRIMARY KEY (dept_name)  
);
```

❖ course(course_id, title, dept_name, credits)

```
CREATE TABLE course (  
    course_id VARCHAR(7),  
    title VARCHAR(50),  
    dept_name VARCHAR(20),  
    credits NUMERIC(2,0),  
    PRIMARY KEY (course_id),  
    FOREIGN KEY (dept_name) REFERENCES department(dept_name)  
);
```

❖ instructor(ID, name, dept_name, salary)

```
CREATE TABLE instructor (  
    ID VARCHAR(5),  
    name VARCHAR(20) NOT NULL,  
    dept_name VARCHAR(20),  
    salary NUMERIC(8,2),  
    PRIMARY KEY (ID),  
    FOREIGN KEY (dept_name) REFERENCES department(dept_name)  
);
```

❖ section(course_id, sec_id, semester, year, building, room_number, time_slot_id)

```
CREATE TABLE section (  
  course_id VARCHAR(8),  
  sec_id VARCHAR(8),  
  semester VARCHAR(6),  
  year NUMERIC(4,0),  
  building VARCHAR(15),  
  room_number VARCHAR(7),  
  time_slot_id VARCHAR(4),  
  PRIMARY KEY (course_id, sec_id, semester, year),  
  FOREIGN KEY (course_id) REFERENCES course(course_id)  
);
```

❖ teaches(ID, course_id, sec_id, semester, year)

```
CREATE TABLE teaches (  
  ID VARCHAR(5),  
  course_id VARCHAR(8),  
  sec_id VARCHAR(8),  
  semester VARCHAR(6),  
  year NUMERIC(4,0),  
  PRIMARY KEY (ID, course_id, sec_id, semester, year),  
  FOREIGN KEY (course_id, sec_id, semester, year) REFERENCES  
section(course_id, sec_id, semester, year),  
  FOREIGN KEY (ID) REFERENCES instructor(ID)  
);
```

❖ student(ID, name, dept_name, tot_cred)

```
CREATE TABLE student (  
  ID VARCHAR(5),  
  name VARCHAR(20) NOT NULL,  
  dept_name VARCHAR(20),  
  tot_cred NUMERIC(3, 0),  
  PRIMARY KEY (ID),  
  FOREIGN KEY (dept_name) REFERENCES department(dept_name)  
);
```

❖ takes(ID, course_id, sec_id, semester, year, grade)

```
CREATE TABLE takes (  
  ID VARCHAR(5),  
  course_id VARCHAR(255),  
  sec_id VARCHAR(255),  
  semester VARCHAR(255),  
  year NUMERIC(4),  
  grade VARCHAR(2),  
  PRIMARY KEY (ID),  
  FOREIGN KEY (ID) REFERENCES student(ID),  
  FOREIGN KEY (course_id, sec_id, semester, year) REFERENCES  
section(course_id, sec_id, semester, year)  
);
```

❖ advisor(s_ID, i_ID)

```
CREATE TABLE IF NOT EXISTS advisor (  
    s_ID VARCHAR(5),  
    i_ID CHAR(5),  
    PRIMARY KEY (s_ID),  
    FOREIGN KEY (s_ID) REFERENCES student(ID),  
    FOREIGN KEY (i_ID) REFERENCES instructor(ID)  
);
```

❖ time_slot(time_slot_id, day, start_time, end_time)

```
CREATE TABLE time_slot (  
    time_slot_id VARCHAR(255),  
    day VARCHAR(255),  
    start_time VARCHAR(255),  
    end_time VARCHAR(255),  
    PRIMARY KEY (time_slot_id)  
);
```

❖ prereq(course_id, prereq_id)

```
CREATE TABLE prereq (  
    course_id VARCHAR(255),  
    prereq_id VARCHAR(255),  
    PRIMARY KEY (course_id, prereq_id),  
    FOREIGN KEY (course_id) REFERENCES course(course_id)  
);
```

3. Solve all the queries in Chapter 3 Introduction to SQL Lecture basis on 21.03.2023. Write the query first and then write the SQL solution

❖ Insert into Classroom Table

```
INSERT INTO Classroom (building, room_number, capacity) VALUES ('Jamall Hall', 102, 60);
```

✅ 1 row inserted. (Query took 0.0032 seconds.)

```
INSERT INTO Classroom (building, room_number, capacity) VALUES  
('Jamall Hall', 102, 60);
```

❖ Insert into department Table

```
INSERT INTO department (dept_name, building, budget) VALUES ('Computer Science', 'Engineering', 500000.00);
```

✓ 1 row inserted. (Query took 0.0004 seconds.)

```
INSERT INTO department (dept_name, building, budget) VALUES ('Computer Science', 'Engineering', 500000.00);
```

❖ Insert into course Table

```
INSERT INTO course (course_id, title, dept_name, credits) VALUES ('CS101', 'Introduction to Computer Science', 'Computer Science', 3);
```

✓ 1 row inserted. (Query took 0.0004 seconds.)

```
INSERT INTO course (course_id, title, dept_name, credits) VALUES ('CS101', 'Introduction to Computer Science', 'Computer Science', 3);
```

❖ Insert into instructor Table

```
INSERT INTO instructor (ID, name, dept_name, salary) VALUES ('101', 'John Doe', 'Computer Science', 80000.00);
```

✓ 1 row inserted. (Query took 0.0003 seconds.)

```
INSERT INTO instructor (ID, name, dept_name, salary) VALUES ('101', 'John Doe', 'Computer Science', 80000.00);
```

❖ select name from instructor;

				name
<input type="checkbox"/>	 Edit	 Copy	 Delete	Jane Smith
<input type="checkbox"/>	 Edit	 Copy	 Delete	Robert Johnson
<input type="checkbox"/>	 Edit	 Copy	 Delete	Karen Lee
<input type="checkbox"/>	 Edit	 Copy	 Delete	William Chen
<input type="checkbox"/>	 Edit	 Copy	 Delete	Linda Kim
<input type="checkbox"/>	 Edit	 Copy	 Delete	David Lee
<input type="checkbox"/>	 Edit	 Copy	 Delete	Jennifer Wong
<input type="checkbox"/>	 Edit	 Copy	 Delete	Michael Davis
<input type="checkbox"/>	 Edit	 Copy	 Delete	Emily Chen
<input type="checkbox"/>	 Edit	 Copy	 Delete	Thomas Kim

❖ **SELECT dept_name FROM instructor;**

				dept_name	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	
<input type="checkbox"/>	Edit	Copy	Delete	Computer Science	

❖ **SELECT DISTINCT dept_name FROM instructor;**
















✓ Showing rows 0 - 4 (5 total, Query took 0.0003 seconds.)

SELECT DISTINCT dept_name FROM instructor;

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)]

☐ Show all | Number of rows: 25 Filter rows:

Extra options

							dept_name
<input type="checkbox"/>		Edit		Copy		Delete	Business Administrat
<input type="checkbox"/>		Edit		Copy		Delete	Computer Science
<input type="checkbox"/>		Edit		Copy		Delete	English
<input type="checkbox"/>		Edit		Copy		Delete	History
<input type="checkbox"/>		Edit		Copy		Delete	Mathematics

❖ SELECT DISTINCT dept_name FROM instructor;

✓ Showing rows 0 - 4 (5 total, Query took 0.0003 seconds.)

```
SELECT DISTINCT dept_name FROM instructor;
```

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code]

☐ Show all | Number of rows: 25 | Filter rows:

Extra options

					dept_name
<input type="checkbox"/>	Edit	Copy	Delete		Business Administrat
<input type="checkbox"/>	Edit	Copy	Delete		Computer Science
<input type="checkbox"/>	Edit	Copy	Delete		English
<input type="checkbox"/>	Edit	Copy	Delete		History
<input type="checkbox"/>	Edit	Copy	Delete		Mathematics

❖ SELECT ID, name, dept_name, salary * 1.1 FROM instructor;

✓ Showing rows 0 - 9 (10 total, Query took 0.0003 seconds.)

```
SELECT ID, name, dept_name, salary * 1.1 FROM instructor;
```

☐ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

☐ Show all | Number of rows: 25 | Filter rows: Search this table | Sort by k

Extra options

					ID	name	dept_name	salary * 1.1
<input type="checkbox"/>	Edit	Copy	Delete		102	Jane Smith	Business Administrat	82500.000
<input type="checkbox"/>	Edit	Copy	Delete		103	Robert Johnson	Computer Science	93500.000
<input type="checkbox"/>	Edit	Copy	Delete		104	Emily Davis	English	66000.000
<input type="checkbox"/>	Edit	Copy	Delete		105	William Brown	History	77000.000
<input type="checkbox"/>	Edit	Copy	Delete		106	Sarah Wilson	Mathematics	99000.000
<input type="checkbox"/>	Edit	Copy	Delete		107	David Lee	Business Administrat	88000.000
<input type="checkbox"/>	Edit	Copy	Delete		108	Karen Martin	Computer Science	82500.000
<input type="checkbox"/>	Edit	Copy	Delete		109	Michael Hernandez	English	93500.000
<input type="checkbox"/>	Edit	Copy	Delete		110	Susan Kim	History	71500.000
<input type="checkbox"/>	Edit	Copy	Delete		111	Brian Thompson	Mathematics	88000.000

❖ **SELECT name FROM instructor WHERE dept_name = 'Computer Science' AND salary > 70000;**

✓ Showing rows 0 - 1 (2 total, Query took 0.0004 seconds.)

```
SELECT name FROM instructor WHERE dept_name = 'Computer Science' AND salary > 70000;
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 ▼

Extra options



name

☐ Edit Copy Delete Robert Johnson

☐ Edit Copy Delete Karen Martin

☐ Check all With selected: Edit Copy

Delete Export

❖ **SELECT name, instructor.dept_name, building FROM instructor, department WHERE instructor.dept_name= department.dept_name;**

✓ Showing rows 0 - 9 (10 total, Query took 0.0004 seconds.)

```
SELECT name, instructor.dept_name, building FROM instructor, department WHERE instructor.dept_name= department.dept_name;
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 ▼ | Filter rows:

Extra options

name	dept_name	building
Jane Smith	Business Administrat	Business
David Lee	Business Administrat	Business
Robert Johnson	Computer Science	Engineering
Karen Martin	Computer Science	Engineering
Emily Davis	English	Arts
Michael Hernandez	English	Arts
William Brown	History	Social Sciences
Susan Kim	History	Social Sciences
Sarah Wilson	Mathematics	Science
Brian Thompson	Mathematics	Science

❖ **SELECT name, course_id FROM instructor, teaches WHERE instructor.ID= teaches.ID;**

✓ Showing rows 0 - 0 (1 total, Query took 0.0003 seconds.)

```
SELECT name, course_id FROM instructor, teaches WHERE instructor.ID= teaches.ID;
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

name	course_id
------	-----------

Jane Smith	BA101
------------	-------

☐ Show all | Number of rows: 25 | Filter rows: Search this table

❖ **SELECT name, course_id FROM instructor, teaches WHERE instructor.ID= teaches.ID and instructor.dept_name = 'Computer Science';**

✓ Showing rows 0 - 0 (1 total, Query took 0.0018 seconds.)

```
SELECT name, course_id FROM instructor, teaches WHERE instructor.ID= teaches.ID and instructor.dept_name = 'Computer Science';
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

name	course_id
------	-----------

Jane Smith	BA101
------------	-------

☐ Show all | Number of rows: 25 | Filter rows: Search this table

❖ **SELECT name, course_id FROM instructor, teaches WHERE instructor.ID= teaches.ID;**

✓ Showing rows 0 - 0 (1 total, Query took 0.0003 seconds.)

```
SELECT name, course_id FROM instructor, teaches WHERE instructor.ID= teaches.ID;
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 | Filter rows: Search this table

Extra options

name	course_id
------	-----------

Jane Smith	BA101
------------	-------

☐ Show all | Number of rows: 25 | Filter rows: Search this table

❖ **SELECT name as instructor_name, course_id FROM instructor, teaches WHERE instructor.ID= teaches.ID;**

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available. ⓘ

✓ Showing rows 0 - 0 (1 total, Query took 0.0004 seconds.)

```
SELECT name as instructor_name, course_id FROM instructor, teaches
WHERE instructor.ID= teaches.ID;
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 ▾ Filter rows:

Extra options

instructor_name	course_id
Jane Smith	BA101

❖ **SELECT T.name, S.course_id FROM instructor as T, teaches as S WHERE T.ID= S.ID;**

⚠ Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available. ⓘ

✓ Showing rows 0 - 0 (1 total, Query took 0.0003 seconds.)

```
SELECT T.name, S.course_id FROM instructor as T, teaches as S WHERE
T.ID= S.ID;
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 ▾ Filter rows:

Extra options

name	course_id
Jane Smith	BA101

❖ **SELECT DISTINCT T.name FROM instructor as T, instructor as S WHERE T.salary > S.salary and S.dept_name = 'Biology';**

✓ Showing rows 0 - 2 (3 total, Query took 0.0004 seconds.)

```
SELECT DISTINCT T.name FROM instructor as T, instructor as S WHERE  
T.salary > S.salary and S.dept_name = 'Biology';
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 Filter rows:

Extra options



name

<input type="checkbox"/>	Edit	Copy	Delete	Robert Johnson
<input type="checkbox"/>	Edit	Copy	Delete	Sarah Wilson
<input type="checkbox"/>	Edit	Copy	Delete	Michael Hernandez

❖ **SELECT dept_name FROM department WHERE building LIKE '%Science%';**

✓ Showing rows 0 - 2 (3 total, Query took 0.0002 seconds.)

```
SELECT dept_name FROM department WHERE building LIKE '%Science%';
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 Filter rows:

Extra options



dept_name

<input type="checkbox"/>	Edit	Copy	Delete	Biology
<input type="checkbox"/>	Edit	Copy	Delete	History
<input type="checkbox"/>	Edit	Copy	Delete	Mathematics



☐ Check all

With selected:

Edit

Copy

Delete

❖ **SELECT instructor.* FROM instructor, teaches WHERE instructor.ID= teaches.ID;**

✓ Showing rows 0 - 0 (1 total, Query took 0.0004 seconds.)

```
SELECT instructor.* FROM instructor, teaches WHERE instructor.ID=
teaches.ID;
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 ▼ Filter rows:

Extra options



ID	name	dept_name	salary
102	Jane Smith	Computer Science	75000.00



Edit



Copy



Delete

❖ **SELECT name FROM instructor where dept_name = 'Physics' order by name;**

```
SELECT name FROM instructor where dept_name = 'Physics' order by name;
```

☐ Profiling [[Edit inline](#)] [[Edit](#)] [[Explain SQL](#)] [[Create PHP code](#)] [[Refresh](#)]

☐ Show all | Number of rows: 25 ▼ Filter rows:

Extra options



name
William Brown



Edit



Copy



Delete