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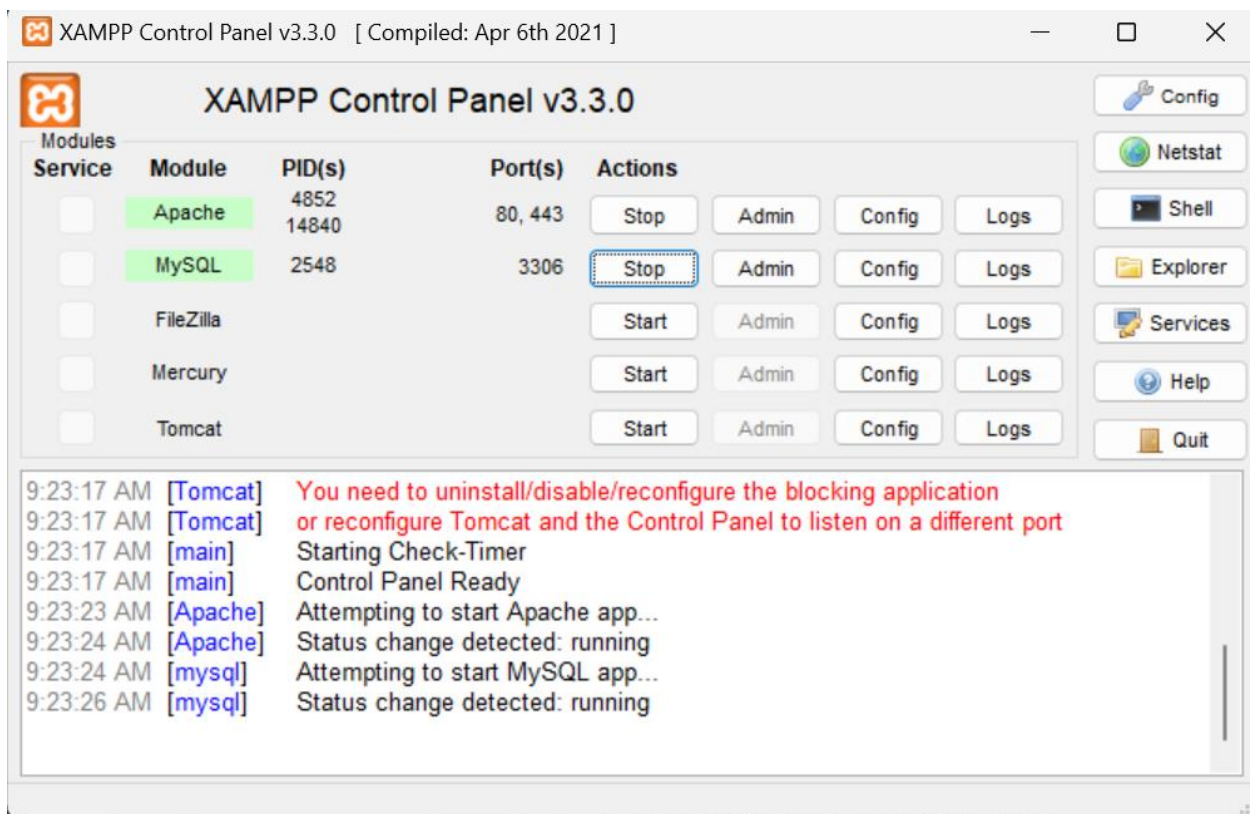
**Section:** BSCS-6A

# Database Systems Labtask 6

## Task 1:

### Create Database & Table:


First we open Xampp control panel and start the Apache and MYSQL servers.



Then we create a database on phpMyAdmin under the name “student\_db” and we create a table named “students” inside it.

Server: 127.0.0.1 » Database: student\_db

Structure SQL Search Query Export Import

 No tables found in database.


 **Create new table**

Table name:  Number of columns:  **Create**

Then we insert the following attributes: id (primary key, auto-increment), name (varchar), email (varchar, unique), phone (varchar), dob (date), gender (enum: 'Male', 'Female', 'Other'), address (text), department (varchar), cgpa (decimal), enrollment\_date (date).

Table name:  Add  column(s) **Go**

Name	Type	Length/Values	Default	Collation	Attributes	Null	Index
<input type="text" value="id"/> <small>Pick from Central Columns</small>	INT	<input type="text"/>	None			<input type="checkbox"/>	PRIMARY
<input type="text" value="name"/> <small>Pick from Central Columns</small>	VARCHAR	255	None			<input type="checkbox"/>	---
<input type="text" value="email"/> <small>Pick from Central Columns</small>	VARCHAR	255	None			<input type="checkbox"/>	UNIQUE
<input type="text" value="phone"/> <small>Pick from Central Columns</small>	VARCHAR	20	None			<input type="checkbox"/>	---
<input type="text" value="dob"/> <small>Pick from Central Columns</small>	DATE	<input type="text"/>	None			<input type="checkbox"/>	---
<input type="text" value="gender"/> <small>Console</small>	ENUM	'Male','Female','Other'	None			<input type="checkbox"/>	---

These are the attributes inserted:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 <b>id</b> 🔑	int(11)			No	None		AUTO_INCREMENT	Change  Drop  More
<input type="checkbox"/>	2 <b>name</b>	varchar(255)	utf8mb4_general_ci		No	None			Change  Drop  More
<input type="checkbox"/>	3 <b>email</b> 📧	varchar(255)	utf8mb4_general_ci		No	None			Change  Drop  More
<input type="checkbox"/>	4 <b>phone</b>	varchar(20)	utf8mb4_general_ci		No	None			Change  Drop  More
<input type="checkbox"/>	5 <b>dob</b>	date			No	None			Change  Drop  More
<input type="checkbox"/>	6 <b>gender</b>	enum('Male', 'Female', 'Other')	utf8mb4_general_ci		No	None			Change  Drop  More
<input type="checkbox"/>	7 <b>address</b>	text	utf8mb4_general_ci		No	None			Change  Drop  More
<input type="checkbox"/>	8 <b>department</b>	varchar(100)	utf8mb4_general_ci		No	None			Change  Drop  More
<input type="checkbox"/>	9 <b>cgpa</b>	decimal(3,2)			No	None			Change  Drop  More
<input type="checkbox"/>	10 <b>enrollment_date</b>	date			No	None			Change  Drop  More

Then create a folder “connectivity\_lab” in Xampp/htdocs folder and create a new file connection.php file inside connectivity\_lab folder in VS Code, containing the following code:

```

Connection.php X
C: > xampp > htdocs > Connectivity_lab > 🐘 Connection.php
1  <?php
2  $servername = "localhost";
3  $username = "root";
4  $password = "";
5  // Create connection
6  $conn = mysqli_connect($servername, $username, $password);
7  // Check connection
8  if (!$conn) {
9      die("Connection failed: " . mysqli_connect_error());
10 }
11 echo "Connected Successfully";
12 ?>

```

Run it on localhost to see this:

Connected Successfully

Create a new file Create\_db.php to create database from php scripts.

```
Create_db.php X
C: > xampp > htdocs > Connectivity_lab > Create_db.php
1  <?php
2  $servername = "localhost";
3  $username = "root";
4  $password = "";
5  // Create connection
6  $conn = mysqli_connect($servername, $username, $password);
7  // Check connection
8  if (!$conn) {
9      die("Connection failed: " . mysqli_connect_error());
10 }
11 echo "Connected Successfully";
12 ?>
```

Then run it on localhost. The following will be displayed:

---

Connected Successfully

Now we create a new file Create\_table.php to create database from php scripts.

```
Create_table.php X
C: > xampp >htdocs > Connectivity_lab > Create_table.php

1  <?php
2  include 'Connection.php';
3  $db_name = "Connection_db";
4  $conn = mysqli_connect($servername, $username, $password, $db_name);
5  if (!$conn) {
6      die("Connection failed: " . mysqli_connect_error());
7  }
8  $sql = "CREATE TABLE Students (
9      id INT(11) AUTO_INCREMENT PRIMARY KEY,
10     name VARCHAR(100) NOT NULL,
11     email VARCHAR(100) UNIQUE NOT NULL,
12     phone VARCHAR(20),
13     dob DATE,
14     gender ENUM('Male', 'Female', 'Other') NOT NULL,
15     address TEXT,
16     department VARCHAR(50),
17     cgpa DECIMAL(3,2),
18     enrollment_date DATE
19 );";
20 if (mysqli_query($conn, $sql)) {
21     echo "Table Students created successfully";
22 } else {
23     echo "Error creating table: " . mysqli_error($conn);
24 }
25 mysqli_close($conn);
26 ?>
```

After running it on localhost, you will see:

Table Students created successfully.

---

## Task 2:

Create a student (insert):

Now create another file add\_student.php with the following code:

mp > htdocs > Connectivity\_lab > add\_student.php



```
<?php
// Connect to the database
$conn = mysqli_connect("localhost", "root", "", "student_db");
// Check if the form is submitted
if (isset($_POST['submit'])) {
    $name = $_POST['name'];
    $email = $_POST['email'];
    $phone = $_POST['phone'];
    $dob = $_POST['dob'];
    $gender = $_POST['gender'];
    $address = $_POST['address'];
    $department = $_POST['department'];
    $cgpa = $_POST['cgpa'];
    $enrollment_date = $_POST['enrollment_date'];
    // Prepare SQL statement
    $sql = "INSERT INTO Students (name, email, phone, dob, gender, address, department, cgpa, enrollment_d
    | | VALUES (?, ?, ?, ?, ?, ?, ?, ?, ?)";
    $stmt = mysqli_prepare($conn, $sql);
    mysqli_stmt_bind_param($stmt, "sssssssd", $name, $email, $phone, $dob, $gender, $address, $department

    if (mysqli_stmt_execute($stmt)) {
        echo "Student added successfully!";
    } else {
        echo "Error: " . mysqli_error($conn);
    }
    mysqli_stmt_close($stmt);
}
mysqli_close($conn);
}
```

After running it on localhost, we will see:

---

## Add New Student

Name:	<input type="text" value="Urooba Gohar"/>
Email:	<input type="text" value="uroobagh123@gmail.com"/>
Phone:	<input type="text" value="03001234567"/>
Date of Birth:	<input type="text" value="01/01/2001"/> 
Gender:	<input type="text" value="Female"/>
Address:	<input type="text" value="street 1"/>
Department:	<input type="text" value="CS"/>
CGPA:	<input type="text" value="2.41"/>
Enrollment Date:	<input type="text" value="08/21/2022"/> 
<input type="button" value="Add Student"/>	

[View Students](#)

After entering details of the student and clicking on “add student”, the following is displayed:

---

Student added successfully!

---

### Task 3:

Read Students (select):

Now we write the following code to display all students in HTML table using php script:

```
C: > xampp > htdocs > Connectivity_lab > view_students.php

1  <?php
2  $conn = mysqli_connect("localhost", "root", "", "student_db");
3  // Check connection
4  if (!$conn) {
5      die("Connection failed: " . mysqli_connect_error());
6  }
7  // Fetch all students
8  $result = mysqli_query($conn, "SELECT * FROM Students");
9  ?>
10 <h2>Students List</h2>
11 <table border="1">
12     <tr>
13         <th>ID</th>
14         <th>Name</th>
15         <th>Email</th>
16         <th>Phone</th>
17         <th>DOB</th>
18         <th>Gender</th>
19         <th>Address</th>
20         <th>Department</th>
21         <th>CGPA</th>
22         <th>Enrollment Date</th>
23         <th>Actions</th>
24     </tr>
25     <?php while ($row = mysqli_fetch_assoc($result)) { ?>
26         <tr>
27             <td><?= $row['id'] ?></td>
28             <td><?= $row['name'] ?></td>
29             <td><?= $row['email'] ?></td>
```

This is the output after running on localhost:

### Students List

ID	Name	Email	Phone	DOB	Gender	Address	Department	CGPA	Enrollment Date	Actions
1	Urooba Gohar	uroobagh123@gmail.com	03001234567	2001-01-01	Female	street 1	CS	2.41	0000-00-00	<a href="#">Edit</a> <a href="#">Delete</a>

[Add New Student](#)

## Task 4:

### Update student details (update):

First we add an “Edit” button for each student in view\_students.php.



```
<a href= add_student.php >Add New Student</a>
<a href="edit_student.php?id=<?= $row['id'] ?>">Edit</a>
```

Which is displayed like this:

## Students List

ID	Name	Email	Phone	DOB	Gender	Address	Department	CGPA	Enrollment Date	Actions
1	Urooba Gohar	uroobagh123@gmail.com	03001234567	2001-01-01	Female	street 1	CS	2.41	0000-00-00	<a href="#">Edit</a> <a href="#">Delete</a>

[Add New Student](#) [Edit](#)

Now let's create a new file name edit\_student.php and add the following code:

```
C: > xampp > htdocs > Connectivity_lab > edit_student.php

1  <?php
2  // Database connection
3  $conn = mysqli_connect("localhost", "root", "", "student_db");
4  // Check connection
5  if (!$conn) {
6      die("Connection failed: " . mysqli_connect_error());
7  }
8  // Initialize an empty row to prevent undefined variable errors
9  $row = [
10     'id' => '',
11     'name' => '',
12     'email' => '',
13     'phone' => '',
14     'dob' => '',
15     'gender' => '',
16     'address' => '',
17     'department' => '',
18     'cgpa' => '',
19     'enrollment_date' => ''
20 ];
21 // Fetch student data if ID is provided
22 if (isset($_GET['id']) && is_numeric($_GET['id'])) {
23     $id = $_GET['id'];
24     // Secure query using prepared statements
25     $stmt = mysqli_prepare($conn, "SELECT * FROM Students WHERE id = ?");
26     mysqli_stmt_bind_param($stmt, "i", $id);
27     mysqli_stmt_execute($stmt);
28     $result = mysqli_stmt_get_result($stmt);
29 
```


This is how it looks like:


# Edit Student


Name:

Email:

Phone:


DOB:  

Gender:  

Address: 

Department:

CGPA:

Enrollment Date:  

[Back](#)

---

## Task 5:

### Delete a student (delete):

First we add a “Delete” button in view\_students.php.

```
<a href="delete_student.php?id=<?= $row['std_id'] ?>"
  onclick="return confirm('Are you sure you want to delete this student?');">
  Delete
</a>
```

This is how it looks like:

ID	Name	Email
1	Urooba Gohar	uroobagh123@g

[Add New Student](#) [Edit](#) [Delete](#)

Now let's create a new file name delete\_student.php and add the following code:

```
> xampp > htdocs > Connectivity_lab > delete_student.php
1  <?php
2  // Database connection
3  $conn = mysqli_connect("localhost", "root", "", "student_db");
4
5  if (!$conn) {
6      die("Connection failed: " . mysqli_connect_error());
7  }
8
9  // Debugging: Print received GET parameters
10 if (!isset($_GET['id']) || !is_numeric($_GET['id'])) {
11     die("<p style='color: red;'>Error: Missing or invalid student ID!</p>");
12 }
13
14 $id = (int) $_GET['id']; // Convert to integer
15
16 // Check if student exists
17 $check_stmt = mysqli_prepare($conn, "SELECT * FROM Students WHERE id = ?");
18 mysqli_stmt_bind_param($check_stmt, "i", $id);
19 mysqli_stmt_execute($check_stmt);
20 $result = mysqli_stmt_get_result($check_stmt);
21
22 if (!mysqli_fetch_assoc($result)) {
23     die("<p style='color: red;'>Error: Student not found in the database!</p>");
24 }
25 mysqli_stmt_close($check_stmt);
26
27 // Delete student
28 $delete_stmt = mysqli_prepare($conn, "DELETE FROM Students WHERE id = ?");
29 mysqli_stmt_bind_param($delete_stmt, "i", $id);
```

This is how it looks like:

## Students List

ID	Name	Email	Phone	DOB	Gender	Address	Department	CGPA	Enrollment Date	Actions
----	------	-------	-------	-----	--------	---------	------------	------	-----------------	---------

[Add New Student](#) [Edit](#) [Delete](#)

## Task 6:

### Search students:

We implement a search bar in view\_students.php to find students by name, email, or department.

```
// Search functionality
$search = "";
if (isset($_GET['search'])) {
    $search = mysqli_real_escape_string($conn, $_GET['search']);
    $query = "SELECT * FROM Students WHERE name LIKE '%$search%' OR email LIKE '%$search%' OR department L";
} else {
    $query = "SELECT * FROM Students";
}

$result = mysqli_query($conn, $query);
?>
```

It will look like this:

## Students List

ID	Name	Email	Phone	Department	Actions
----	------	-------	-------	------------	---------

[Add New Student](#)

## Task 7:

### Filter students by department:

To filter students based on their department, add a dropdown.

```
// Fetch unique departments for the dropdown
$dept_result = mysqli_query($conn, "SELECT DISTINCT department FROM Students");

// Search and filter logic
$search = "";
$department = "";
$query = "SELECT * FROM Students WHERE 1"; // Default query

if (isset($_GET['search']) && !empty($_GET['search'])) {
    $search = trim($_GET['search']);
    $query .= " AND (name LIKE ? OR email LIKE ? OR department LIKE ?)";
}
if (isset($_GET['department']) && !empty($_GET['department'])) {
    $department = $_GET['department'];
    $query .= " AND department = ?";
}
```

This is the output after running it on localhost:

## Students List

Search by name, email, or department  All Departments

ID	Name	Email	Department	Actions
----	------	-------	------------	---------

[Add New Student](#)

## Task 8:

Sort students:

Now we provide sorting options by name, CGPA, or enrollment date.

```
// Search, filter, and sort logic
$search = "";
$department = "";
$sort = "id"; // Default sorting column
$order = "ASC"; // Default order
```

This is how it looks like:

## Students List

Search by name, email, or c  All Departments

Sort by: [Name](#) | [CGPA](#) | [Enrollment Date](#)

ID	Name	Email	Department	CGPA	Enrollment Date	Actions
----	------	-------	------------	------	-----------------	---------

[Add New Student](#)

## Task 9:

### Validate Input Data:

To validate user input, we edit view\_students.php.


```
<form method="POST">
  Name: <input type="text" name="name" required><br>
  Email: <input type="email" name="email" required><br>
  Department:
  <select name="department" required>
    <option value="">Select Department</option>
    <option value="CS">Computer Science</option>
    <option value="EE">Electrical Engineering</option>
    <option value="BBA">Business Administration</option>
  </select><br>
  CGPA: <input type="number" name="cgpa" step="0.01" min="0.0" max="4.0" required><br>
  <button type="submit">Add Student</button>
</form>
```

This is how it looks like:

## Add New Student

Name:

Email:

Department:  

CGPA:

[View Students](#)

---

### **Task 10:**

#### Display student details:

Now we edit the view\_students.php such that clicking on a student's name should open a student\_details.php page showing all details.

C: > xampp > htdocs > Connectivity\_lab > student\_details.php

```
1  <?php
2  // Database connection
3  $conn = mysqli_connect("localhost", "root", "", "student_db");
4
5  // Check connection
6  if (!$conn) {
7      die("Connection failed: " . mysqli_connect_error());
8  }
9
10 // Validate student ID
11 if (!isset($_GET['id']) || !ctype_digit($_GET['id'])) {
12     die("<p style='color: red;'>Error: Invalid or missing student ID</p>");
13 }
14
15 $id = (int) $_GET['id']; // Convert to integer
16
17 // Fetch student details
18 $stmt = mysqli_prepare($conn, "SELECT * FROM Students WHERE std_id = ?");
19 mysqli_stmt_bind_param($stmt, "i", $id);
20 mysqli_stmt_execute($stmt);
21 $result = mysqli_stmt_get_result($stmt);
22 $student = mysqli_fetch_assoc($result);
23
24 if (!$student) {
25     die("<p style='color: red;'>Error: Student not found in the database!</p>");
26 }
27
28 mysqli_stmt_close($stmt);
29 mysqli_close($conn);
```

---