Terna Engineering College
Computer Engineering Department

Program: Sem V

Course: Web Technology Laboratory (CSL504)

Faculty: Mrs Reshma Koli

LAB Manual

PART A

Experiment No.08

A.1 Aim:

Database connectivity

A.2 Prerequisite:
- Knowledge of PHP.
- Web Browser, Web Server (PHP, MySql), Notepad.
- Installation of XAMPP or WAMP Server.

A.3 Outcome:

After successful completion of this experiment students will be able to Evaluate client and server side technologies and create Interactive web pages using PHP with database connectivity using MySQL (XAMPP/WAMPP).

A.4 Theory:

PHP and MySQL Database Introduction

➢ What is MySQL?
- MySQL is an open-source relational database management system (RDBMS). It is the most popular database system used with PHP. MySQL is developed, distributed, and supported by Oracle Corporation.
- The data in a MySQL database are stored in tables which consist of columns and rows.
- MySQL is a database system that runs on a server.
- MySQL is ideal for both small and large applications.
- MySQL is very fast, reliable, and easy to use database system.It uses standard SQL.
- MySQL compiles on a number of platforms.

- ➢ Downloading MySQL Database
  - ● MySQL can be downloaded for free from this link.

- ➢ How to connect PHP with MySQL Database?
  - ● PHP 5 and later can work with a MySQL database using:
    - ➔ MySQLi extension.
    - ➔ PDO (PHP Data Objects).

- ➢ Difference BetweenMySQLi and PDO
  - ● PDO works on 12 different database systems, whereas MySQLi works only with MySQL databases.
  - ● Both PDO and MySQLi are object-oriented, but MySQLi also offers a procedural API.
  - ● If at some point of the development phase, the user or the development team wants to change the database then it is easier to do that in PDO than MySQLi as PDO supports 12 different database systems.He would have to only change the connection string and a few queries. With MySQLi,he will need to rewrite the entire code including the queries.

- ➢ There are three ways of working with MySQl and PHP
  1. MySQLi (object-oriented)
  2. MySQLi (procedural)
  3. PDO

- ➢ Connecting to MySQL database using PHP
  - ● There are 3 ways in which we can connect to MySQl from PHP as listed above and described below:

- ➢ Using MySQLi object-oriented procedure:
  - ● We can use the MySQLi object-oriented procedure to establish a connection to MySQL database from a PHP script.

➢ **Syntax:**

```php
<?php
$servername = "localhost";
$username = "username";
$password = "password";

// Creating connection
$conn = new mysqli($servername, $username, $password);

// Checking connection
if ($conn->connect_error) {
die("Connection failed: " . $conn->connect_error);
}
echo "Connected successfully";
?>
```

Output:

Connected successfully

PART B

(Students must submit the soft copy as per following segments within two hours of the practical. The soft copy must be uploaded on the Blackboard or emailed to the concerned lab in charge faculties at the end of the practical in case the there is no Blackboard access available)
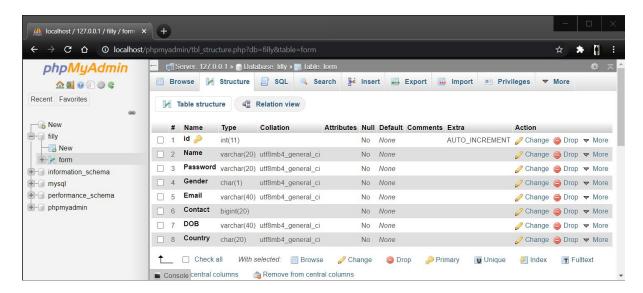
Roll No. 50	Name: Amey Thakur
Class: TE-Comps B	Batch: B3
Date of Experiment: 04/09/2020	Date of Submission: 04/09/2020
Grade :	

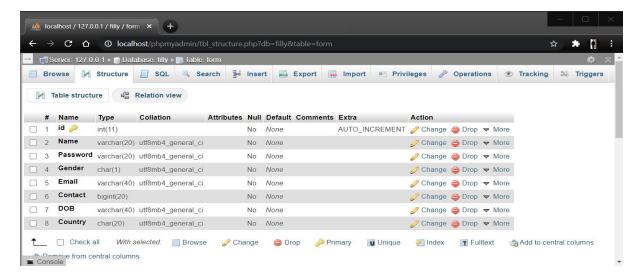## B.1 Web page Snapshot: (Add all snapshots of output.)
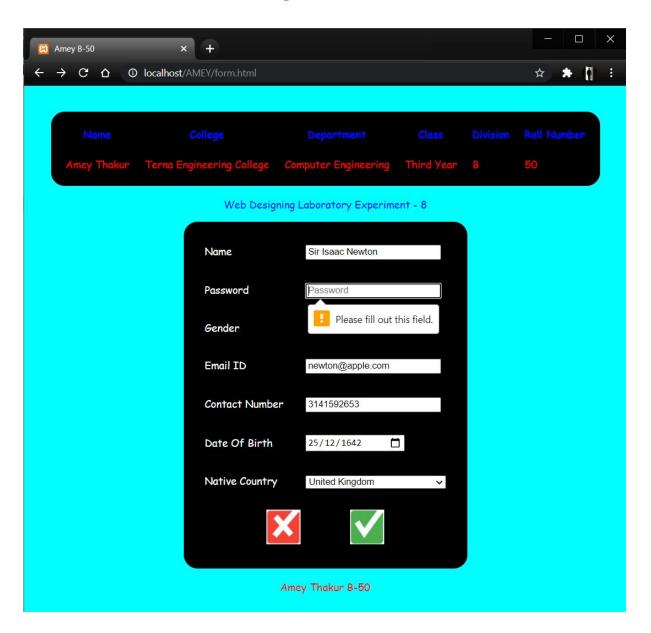
- Registration form

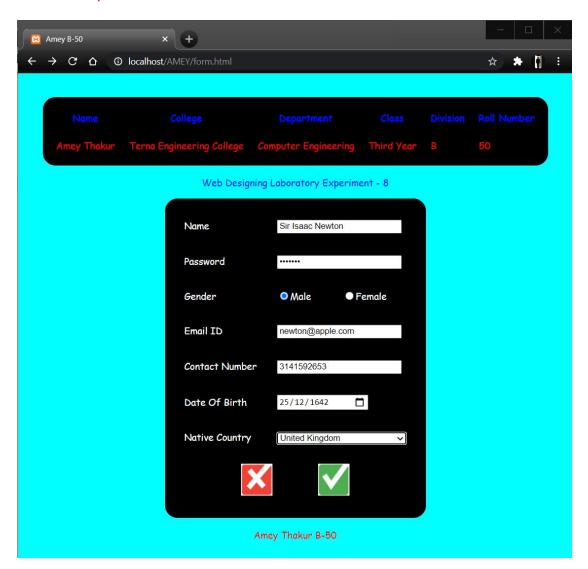- **Database: filly >> Table: form**

- **Database > Table > Structure**

- **Database > Table > Browse**

- Form validation > Error messages

- **Form input**

- **Form success message**

- **Form filled with same email address**

Name	College	Department	Class	Division	Roll Number
Amey Thakur	Terna Engineering College	Computer Engineering	Third Year	B	50

Web Designing Laboratory Experiment - 8

Name	Sir Isaac Newton
Password	••••••••••••••••••
Gender	● Male ○ Female
Email ID	newton@apple.com
Contact Number	3141592653
Date Of Birth	25 / 12 / 1642
Native Country	United Kingdom

Amey Thakur B-50

- **Form failure message**

Email Address is Already Registered

Amey B-50

- **Recorded data**

- **Form inputs > Database > Table > Browse**

- **Database > Table > Inputs**

SELECT * FROM `form`

id	Name	Password	Gender	Email	Contact	DOB	Country
1	Amey Thakur	Engineering	M	ameythakur@student.com	2718281828	20-07-2000	India
2	Sir Issac Newton	Gravity	M	newton@apple.com	3141592653	25-12-1642	United Kingdom
3	Marie Curie	Radioactivity	F	mariecurie@radium.com	1256637062	07-11-1867	Poland
4	A.P.J.Abdul Kalam	MissileMan	M	abdulkalam@isro.com	2997924580	15-10-1931	India
5	Werner Heisenberg	AtomicTheory	M	wernerheisenberg@plank.com	1239841984	05-10-1901	Germany
6	Sigmund Freud	Psychoanalytics	M	sigmundfreud@psychoanalysis.com	6022140760	06-05-1856	Czech Republic

B.2 Web page source code:
(Add source code of web pages)

- **FORM.HTML**

```html
<!DOCTYPE html>
<html lang="en" dir="ltr">
 <head>
   <meta charset="utf-8">
   <meta name="viewport" content="width=device-width">
   <meta name="description" content="form">
   <meta name="keywords" content="regisrtration form">
   <meta name="author" content="Amey Thakur">
   <title>Amey B-50</title>
   <link rel="stylesheet" href="./css/style.css">
 </head>
 <body>

   <br>
   <aside id="sidebar">
         <p>
         <table border="0" bgcolor="#000000" align="center" cellspacing= "20">
         <tr style="color:#000dff">
         <th >Name</th>
         <th>College</th>
         <th>Department</th>
         <th>Class</th>
         <th>Division</th>
         <th>Roll Number</th>

         </tr>
         <tr style="color:#ff0000">
         <td>Amey Thakur</td>
         <td>Terna Engineering College</td>
         <td>Computer Engineering</td>
         <td>Third Year</td>
         <td>B</td>
         <td>50</td>
         </tr>
         </table>
         </p>
         </aside>

         <center>
             <p style="color:#000dff">Web Designing Laboratory Experiment - 8</p>
         </center>
```

```html
<form action="insert.php" method="POST">
 <table border="0" bgcolor="#000000" align="center" cellspacing= "30">

   <div>
    <tr>
         <td>Name</td>
         <td><input type="text" placeholder="Your Name" size="25" name="Name" required></td>
    </tr>
   </div>

   <div>
    <tr>
          <td>Password</td>
          <td><input type="password" placeholder="Password" size="25" name="Password" required></td>
    </tr>
   </div>

   <div>
    <tr>
     <td>Gender</td>
     <td>
      <input type="radio" name="Gender" value="M" required>Male
                     &nbsp &nbsp &nbsp &nbsp &nbsp
      <input type="radio" name="Gender" value="F" required>Female
     </td>
    </tr>
   </div>

<div>
    <tr>
      <td>Email ID</td>
      <td><input type="email" placeholder="Email Address" size="25" name="Email" required></td>
    </tr>
   </div>

<div>
    <tr>
         <td>Contact Number</td>
         <td><input type="phone" placeholder="Phone Number" size="25" name="Contact" required></td>
    </tr>
   </div>
```

```html
<div>
    <tr>
      <td><label for="DOB">Date Of Birth</label></td>
      <td><input type="date" name="DOB"></td>
    </tr>
  </div>

<div>
   <tr>
      <td>Native Country</td>
      <td>
<select name="Country" required>
  <option selected hidden value="">Select Your Country</option>
  <option value="Afganistan">Afghanistan</option>
  <option value="Albania">Albania</option>
  <option value="Algeria">Algeria</option>
  <option value="American Samoa">American Samoa</option>
  <option value="Andorra">Andorra</option>
  <option value="Angola">Angola</option>
  <option value="Anguilla">Anguilla</option>
  <option value="Antigua & Barbuda">Antigua & Barbuda</option>
  <option value="Argentina">Argentina</option>
  <option value="Armenia">Armenia</option>
  <option value="Aruba">Aruba</option>
  <option value="Australia">Australia</option>
  <option value="Austria">Austria</option>
  <option value="Azerbaijan">Azerbaijan</option>
  <option value="Bahamas">Bahamas</option>
  <option value="Bahrain">Bahrain</option>
  <option value="Bangladesh">Bangladesh</option>
  <option value="Barbados">Barbados</option>
  <option value="Belarus">Belarus</option>
  <option value="Belgium">Belgium</option>
  <option value="Belize">Belize</option>
  <option value="Benin">Benin</option>
  <option value="Bermuda">Bermuda</option>
  <option value="Bhutan">Bhutan</option>
  <option value="Bolivia">Bolivia</option>
  <option value="Bonaire">Bonaire</option>
  <option value="Bosnia & Herzegovina">Bosnia & Herzegovina</option>
  <option value="Botswana">Botswana</option>
  <option value="Brazil">Brazil</option>
  <option value="British Indian Ocean Ter">British Indian Ocean Ter</option>
  <option value="Brunei">Brunei</option>
  <option value="Bulgaria">Bulgaria</option>
  <option value="Burkina Faso">Burkina Faso</option>
  <option value="Burundi">Burundi</option>
  <option value="Cambodia">Cambodia</option>
```

```html
<option value="Cameroon">Cameroon</option>
<option value="Canada">Canada</option>
<option value="Canary Islands">Canary Islands</option>
<option value="Cape Verde">Cape Verde</option>
<option value="Cayman Islands">Cayman Islands</option>
<option value="Central African Republic">Central African Republic</option>
<option value="Chad">Chad</option>
<option value="Channel Islands">Channel Islands</option>
<option value="Chile">Chile</option>
<option value="China">China</option>
<option value="Christmas Island">Christmas Island</option>
<option value="Cocos Island">Cocos Island</option>
<option value="Colombia">Colombia</option>
<option value="Comoros">Comoros</option>
<option value="Congo">Congo</option>
<option value="Cook Islands">Cook Islands</option>
<option value="Costa Rica">Costa Rica</option>
<option value="Cote D'Ivoire">Cote D'Ivoire</option>
<option value="Croatia">Croatia</option>
<option value="Cuba">Cuba</option>
<option value="Curacao">Curacao</option>
<option value="Cyprus">Cyprus</option>
<option value="Czech Republic">Czech Republic</option>
<option value="Denmark">Denmark</option>
<option value="Djibouti">Djibouti</option>
<option value="Dominica">Dominica</option>
<option value="Dominican Republic">Dominican Republic</option>
<option value="East Timor">East Timor</option>
<option value="Ecuador">Ecuador</option>
<option value="Egypt">Egypt</option>
<option value="El Salvador">El Salvador</option>
<option value="Equatorial Guinea">Equatorial Guinea</option>
<option value="Eritrea">Eritrea</option>
<option value="Estonia">Estonia</option>
<option value="Ethiopia">Ethiopia</option>
<option value="Falkland Islands">Falkland Islands</option>
<option value="Faroe Islands">Faroe Islands</option>
<option value="Fiji">Fiji</option>
<option value="Finland">Finland</option>
<option value="France">France</option>
<option value="French Guiana">French Guiana</option>
<option value="French Polynesia">French Polynesia</option>
<option value="French Southern Ter">French Southern Ter</option>
<option value="Gabon">Gabon</option>
<option value="Gambia">Gambia</option>
<option value="Georgia">Georgia</option>
<option value="Germany">Germany</option>
<option value="Ghana">Ghana</option>
```

```html
<option value="Gibraltar">Gibraltar</option>
<option value="Great Britain">Great Britain</option>
<option value="Greece">Greece</option>
<option value="Greenland">Greenland</option>
<option value="Grenada">Grenada</option>
<option value="Guadeloupe">Guadeloupe</option>
<option value="Guam">Guam</option>
<option value="Guatemala">Guatemala</option>
<option value="Guinea">Guinea</option>
<option value="Guyana">Guyana</option>
<option value="Haiti">Haiti</option>
<option value="Hawaii">Hawaii</option>
<option value="Honduras">Honduras</option>
<option value="Hong Kong">Hong Kong</option>
<option value="Hungary">Hungary</option>
<option value="Iceland">Iceland</option>
<option value="Indonesia">Indonesia</option>
<option value="India">India</option>
<option value="Iran">Iran</option>
<option value="Iraq">Iraq</option>
<option value="Ireland">Ireland</option>
<option value="Isle of Man">Isle of Man</option>
<option value="Israel">Israel</option>
<option value="Italy">Italy</option>
<option value="Jamaica">Jamaica</option>
<option value="Japan">Japan</option>
<option value="Jordan">Jordan</option>
<option value="Kazakhstan">Kazakhstan</option>
<option value="Kenya">Kenya</option>
<option value="Kiribati">Kiribati</option>
<option value="Korea North">Korea North</option>
<option value="Korea South">Korea South</option>
<option value="Kuwait">Kuwait</option>
<option value="Kyrgyzstan">Kyrgyzstan</option>
<option value="Laos">Laos</option>
<option value="Latvia">Latvia</option>
<option value="Lebanon">Lebanon</option>
<option value="Lesotho">Lesotho</option>
<option value="Liberia">Liberia</option>
<option value="Libya">Libya</option>
<option value="Liechtenstein">Liechtenstein</option>
<option value="Lithuania">Lithuania</option>
<option value="Luxembourg">Luxembourg</option>
<option value="Macau">Macau</option>
<option value="Macedonia">Macedonia</option>
<option value="Madagascar">Madagascar</option>
<option value="Malaysia">Malaysia</option>
<option value="Malawi">Malawi</option>
```

```html
<option value="Maldives">Maldives</option>
<option value="Mali">Mali</option>
<option value="Malta">Malta</option>
<option value="Marshall Islands">Marshall Islands</option>
<option value="Martinique">Martinique</option>
<option value="Mauritania">Mauritania</option>
<option value="Mauritius">Mauritius</option>
<option value="Mayotte">Mayotte</option>
<option value="Mexico">Mexico</option>
<option value="Midway Islands">Midway Islands</option>
<option value="Moldova">Moldova</option>
<option value="Monaco">Monaco</option>
<option value="Mongolia">Mongolia</option>
<option value="Montserrat">Montserrat</option>
<option value="Morocco">Morocco</option>
<option value="Mozambique">Mozambique</option>
<option value="Myanmar">Myanmar</option>
<option value="Namibia">Namibia</option>
<option value="Nauru">Nauru</option>
<option value="Nepal">Nepal</option>
<option value="Netherland Antilles">Netherland Antilles</option>
<option value="Netherlands">Netherlands (Holland, Europe)</option>
<option value="Nevis">Nevis</option>
<option value="New Caledonia">New Caledonia</option>
<option value="New Zealand">New Zealand</option>
<option value="Nicaragua">Nicaragua</option>
<option value="Niger">Niger</option>
<option value="Nigeria">Nigeria</option>
<option value="Niue">Niue</option>
<option value="Norfolk Island">Norfolk Island</option>
<option value="Norway">Norway</option>
<option value="Oman">Oman</option>
<option value="Pakistan">Pakistan</option>
<option value="Palau Island">Palau Island</option>
<option value="Palestine">Palestine</option>
<option value="Panama">Panama</option>
<option value="Papua New Guinea">Papua New Guinea</option>
<option value="Paraguay">Paraguay</option>
<option value="Peru">Peru</option>
<option value="Phillipines">Philippines</option>
<option value="Pitcairn Island">Pitcairn Island</option>
<option value="Poland">Poland</option>
<option value="Portugal">Portugal</option>
<option value="Puerto Rico">Puerto Rico</option>
<option value="Qatar">Qatar</option>
<option value="Republic of Montenegro">Republic of Montenegro</option>
<option value="Republic of Serbia">Republic of Serbia</option>
<option value="Reunion">Reunion</option>
```

```html
<option value="Romania">Romania</option>
<option value="Russia">Russia</option>
<option value="Rwanda">Rwanda</option>
<option value="St Barthelemy">St Barthelemy</option>
<option value="St Eustatius">St Eustatius</option>
<option value="St Helena">St Helena</option>
<option value="St Kitts-Nevis">St Kitts-Nevis</option>
<option value="St Lucia">St Lucia</option>
<option value="St Maarten">St Maarten</option>
<option value="St Pierre & Miquelon">St Pierre & Miquelon</option>
<option value="St Vincent & Grenadines">St Vincent & Grenadines</option>
<option value="Saipan">Saipan</option>
<option value="Samoa">Samoa</option>
<option value="Samoa American">Samoa American</option>
<option value="San Marino">San Marino</option>
<option value="Sao Tome & Principe">Sao Tome & Principe</option>
<option value="Saudi Arabia">Saudi Arabia</option>
<option value="Senegal">Senegal</option>
<option value="Seychelles">Seychelles</option>
<option value="Sierra Leone">Sierra Leone</option>
<option value="Singapore">Singapore</option>
<option value="Slovakia">Slovakia</option>
<option value="Slovenia">Slovenia</option>
<option value="Solomon Islands">Solomon Islands</option>
<option value="Somalia">Somalia</option>
<option value="South Africa">South Africa</option>
<option value="Spain">Spain</option>
<option value="Sri Lanka">Sri Lanka</option>
<option value="Sudan">Sudan</option>
<option value="Suriname">Suriname</option>
<option value="Swaziland">Swaziland</option>
<option value="Sweden">Sweden</option>
<option value="Switzerland">Switzerland</option>
<option value="Syria">Syria</option>
<option value="Tahiti">Tahiti</option>
<option value="Taiwan">Taiwan</option>
<option value="Tajikistan">Tajikistan</option>
<option value="Tanzania">Tanzania</option>
<option value="Thailand">Thailand</option>
<option value="Togo">Togo</option>
<option value="Tokelau">Tokelau</option>
<option value="Tonga">Tonga</option>
<option value="Trinidad & Tobago">Trinidad & Tobago</option>
<option value="Tunisia">Tunisia</option>
<option value="Turkey">Turkey</option>
<option value="Turkmenistan">Turkmenistan</option>
<option value="Turks & Caicos Is">Turks & Caicos Is</option>
<option value="Tuvalu">Tuvalu</option>
```

```html
      <option value="Uganda">Uganda</option>
      <option value="United Kingdom">United Kingdom</option>
      <option value="Ukraine">Ukraine</option>
      <option value="United Arab Emirates">United Arab Emirates</option>
      <option value="United States of America">United States of America</option>
      <option value="Uruguay">Uruguay</option>
      <option value="Uzbekistan">Uzbekistan</option>
      <option value="Vanuatu">Vanuatu</option>
      <option value="Vatican City State">Vatican City State</option>
      <option value="Venezuela">Venezuela</option>
      <option value="Vietnam">Vietnam</option>
      <option value="Virgin Islands (Brit)">Virgin Islands (Brit)</option>
      <option value="Virgin Islands (USA)">Virgin Islands (USA)</option>
      <option value="Wake Island">Wake Island</option>
      <option value="Wallis & Futuna Is">Wallis & Futana Is</option>
      <option value="Yemen">Yemen</option>
      <option value="Zaire">Zaire</option>
      <option value="Zambia">Zambia</option>
      <option value="Zimbabwe">Zimbabwe</option>
</select>
      </td>
      </tr>
      </div>

<div>
    <tr>
        <td colspan="2" align="center">
<input type="image" src="img\2.png" alt="Reset" value="Reset" width="50"
height="50">         &nbsp &nbsp &nbsp &nbsp &nbsp &nbsp &nbsp &nbsp
<input type="image" src="img\1.png" alt="Submit" width="50" height="50"></td>
      </tr>
</div>

</table>
 </form>

    <footer>
      <center><p style="color:#f70000">Amey Thakur B-50</p></center>
    </footer>

  </body>
</html>
```

- **Insert.php**

```
<style>
div{
  font-family: Cursive;
  font-size: 25px;
  color: RED;
}
</style>

<?php

    echo "<br />";
    echo "<br />";
    echo "<body style='background-color: Black'>";
    echo "<div align='center'>";
    echo "<br />";

$Name = $_POST['Name'];
$Password = $_POST['Password'];
$Gender = $_POST['Gender'];
$Email = $_POST['Email'];
$Contact = $_POST['Contact'];
$DOB = $_POST['DOB'];
$Country = $_POST['Country'];

if  (!empty($Name)  ||  !empty($Password)  ||  !empty($Gender)  ||  !empty($Email)  ||
!empty($Contact) || !empty($DOB) || !empty($Country))
{
    $host = "localhost";
    $dbUsername = "root";
    $dbPassword = "";
    $dbname = "filly";

    $conn = new mysqli($host, $dbUsername, $dbPassword, $dbname);

    if (mysqli_connect_error())
    {
        die('Connect Error('. mysqli_connect_errno().')'. mysqli_connect_error());
    }
    else
    {
        $SELECT = "SELECT email From form Where email = ? Limit 1";
        $INSERT = "INSERT Into form (Name, Password, Gender, Email, Contact,  DOB,
Country) values(?, ?, ?, ?, ?, ?, ?)";
```

```php
        $stmt = $conn->prepare($SELECT);
        $stmt->bind_param("s", $email);
        $stmt->execute();
        $stmt->bind_result($email);
        $stmt->store_result();
        $rnum = $stmt->num_rows;

        if ($rnum==0)
        {
            $stmt->close();
            $stmt = $conn->prepare($INSERT);
            $stmt->bind_param("ssssiis", $Name, $Password, $Gender, $Email,
$Contact, $DOB, $Country);
            $stmt->execute();
            echo "Data Recorded Successfully";
        }
        else
        {
            echo "Email Address is Already Registered";
        }

        $stmt->close();
        $conn->close();
    }
}
else
{
    echo "All field are required";
    die();
}

    echo "<br />";
    echo "<br />";
    echo"Amey B-50";
    echo"</div>";

?>
```

- **Style.css**

```css
table{
  color: #ffffff;
  border-radius: 20px;
}

body{
  font: 15px/1.5 cursive;
  padding:0;
  margin:0;
  background-color:aqua;
}

button{
  height:38px;
  background:#263dd4;
  border:0;
  padding-left: 20px;
  padding-right:20px;
  color:#000dff;
}
```

B.3 Conclusion:

- A Database connection is a facility in computer science that allows client software to talk to database server software, whether on the same machine or not. A connection is required to send commands and receive answers, usually in the form of a result set.
- Hence we learned to use php and linking php code to html using MySQL.

B.4 Question of Curiosity:

1. What is the procedural approach of MySQLi to establish a connection to MySQL database from a PHP script?

Ans:
➔ To access and add content to a MySQL database, you must first establish a connection between the database and a PHP script.
➔ In MySQLi procedural approach instead of creating an instance we can use the mysqli_connect() function available in PHP to establish a connection. This function takes the information as arguments such as host, username , password , database name etc. This function returns a MySQL link identifier on successful connection or FALSE when failed to establish a connection.

➔ MySQLi is an extension that only supports MySQL databases. It allows access to new functionalities found in MySQL systems (versions 4.1. and above), providing both an object-oriented and a procedural interface. It supports server-side prepared statements, but not client-side prepared statements.

2. How to connect to the database using data objects in PHP?

Ans:

```php
<?php
// database Connection variables
define('HOST', 'localhost'); // Database host name eg. localhost
define('USER', 'root'); // Database user. eg. root ( if your on local server)
define('PASSWORD', 'password'); // Database user password (if password is not
set for your root user then keep it empty )
define('DATABASE', 'databasename'); // Database name
define('CHARSET', 'utf8');
function DB()
{
   try {
     static $instance;
     if ($instance === null) {
       $opt = array(
         PDO::ATTR_ERRMODE => PDO::ERRMODE_EXCEPTION,
         PDO::ATTR_DEFAULT_FETCH_MODE => PDO::FETCH_ASSOC,
         PDO::ATTR_EMULATE_PREPARES => FALSE,
       );
       $dsn = 'mysql:host=' . HOST . ';dbname=' . DATABASE . ';charset=' . CHARSET;
       $instance = new PDO($dsn, USER, PASSWORD, $opt);
     }
     return $instance;
   } catch (PDOException $e) {
     return "Error!: " . $e->getMessage();
   }
}?>
```