

ST. JOSEPH'S UNIVERSITY

BANGALORE-560027



ESTD-1882

COMPUTER SCIENCE

PRACTICAL RECORD

**(ADVANCED WEB TECHNOLOGIES & ADVANCED
DATABASE MANAGEMENT)**

SUBMITTED BY:

Adelicia Sequeira

222CSC03

ST. JOSEPH'S UNIVERSITY

BANGALORE



LABORATORY CERTIFICATE

This is to certify that Smt. / Sri. Adelicia Sequeira has satisfactorily completed the course of laboratory assignments in Advanced Web Technologies/Advanced Database Systems prescribed by St. Joseph's University for the SECOND Semester Master's degree course in MSc. Computer Science for the year 2022-23.

Teacher In-Charge

PG Coordinator

Name: Adelicia Sequeira

Reg. No.: 222CSC03

Date of Exam: 19.04.2023

ADVANCED WEB TECHNOLOGIES

INDEX

S. No.	Program Names	Page No.
1.	Create a time table using HTML and CSS.	02
2.	Create a static website for an online business which includes a registration page.	09
3.	Create a static webpage for an online bookstore which contains a catalogue of available books.	24
4.	Write a Javascript program to convert numbers to Roman numerals.	39
5.	Write a Javascript program to validate a form.	40
6.	Write a Javascript program to demonstrate pop-up boxes.	50
7.	Create a portfolio website.	58
8.	Write a program to implement Typescript classes with inheritance.	65
9.	Write a program to demonstrate Angular modules.	66
10.	Write a program to demonstrate Angular controllers.	67
11.	Write a program to demonstrate Angular directives.	68
12.	Write a program to demonstrate Angular components.	69
13.	Write a program to demonstrate Angular forms.	70

1. Create a time table using HTML and CSS.

index.html

```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="styles.css">
  <title>Timetable</title>
</head>

<body>
  <header>
    <h1>Timetable</h1>
    <h2>1st Year, <a href=https://www.sjc.ac.in/computerdepartment.php
      target="_blank">M.Sc. Computer Science</a>, 2022-2024</h2>
  </header>

  <main>

    <table>

      <tr>
        <th>
          Day/Time
        </th>
        <td>
          9:15AM-10:05AM
        </td>
        <td>
          10:10AM-11:00AM
        </td>
        <td>
          11:05AM-11:55AM
        </td>
        <td>
          12PM-12:55PM
        </td>
        <td>
          12:55PM-1:50PM
        </td>
      </tr>
```

<td><td></td> <td>1:50PM-2:40PM</td>	<td>	1:50PM-2:40PM
</td>		
<td>	2:45PM-3:35PM	
</td>		
<td>	3:35PM-4:30PM	
</td>		

</tr>

<tr>
<th>
Monday
</th>
<td>
AWT/ADBMS Lab
</td>
<td>
AWT/ADBMS Lab
</td>
<td>
AWT/ADBMS Lab
</td>
<td>
AWT
</td>
<td>
L
</td>
<td>
ADBMS
</td>
<td>
SPM
</td>
<td>
ML
</td>
</tr>

<tr>
<th>
Tuesday
</th>

```

        <td>
            ML Lab
        </td>
        <td>
            ML Lab
        </td>
        <td>
            ML Lab
        </td>
        <td>
            CD
        </td>
        <td>
            U
        </td>
        <td>
            ML
        </td>
        <td>
            ADBMS
        </td>
        <td>
            Library
        </td>
    </tr>

    <tr>
        <th>
            Wednesday
        </th>
        <td>
            AWT/ADBMS Lab
        </td>
        <td>
            AWT/ADBMS Lab
        </td>
        <td>
            AWT/ADBMS Lab
        </td>
        <td>
            SPM
        </td>
        <td>
            N
        </td>
    </tr>

```

<td>	CD
</td>	
<td>	AWT
</td>	
<td>	ML
</td>	

```
<tr>
  <th>
    Thursday
  </th>
  <td>
    ML Lab
  </td>
  <td>
    ML Lab
  </td>
  <td>
    ML Lab
  </td>
  <td>
    CD
  </td>
  <td>
    C
  </td>
  <td>
    AWT
  </td>
  <td>
    SPM
  </td>
  <td>
    Library
  </td>
```

```
<tr>
  <th>
    Friday
  </th>
```

```

        <td>
            ADBMS
        </td>
        <td>
            ML
        </td>
        <td>
            AWT
        </td>
        <td>
            SPM
        </td>
        <td>
            H
        </td>
        <td>
            ADBMS
        </td>
        <td>
            CD
        </td>
        <td>
            Library
        </td>
    </tr>

</table>

</main>

</body>

</html>

```


styles.css

```
body {
    font-family: 'Lucida Sans', 'Lucida Sans Regular', 'Lucida Grande', 'Lucida Sans
Unicode', Geneva, Verdana, sans-serif;
    margin: auto;
}

header {
    padding: 5px;
    text-align: center;
    box-shadow: 10px 10px 8px #83dada;
}

table {
    width: 100%;
    max-width: 1500px;
    margin: 0 auto;
    box-shadow: 10px 10px 8px #5ca299;
}

table, th, td {
    border: 1px solid black;
    border-collapse: collapse;
    padding: 5px 3px;
    text-align: center;
}

a:default {
    color:rgb(14, 14, 85);
}

a:visited {
    color: #5ca299;
}

a:hover {
    color:rgb(189, 125, 169);
}
```

OUTPUT

Timetable

1st Year, M.Sc. Computer Science, 2022-2024

Day/Time	9:15AM-10:05AM	10:10AM-11:00AM	11:05AM-11:55AM	12PM-12:55PM	12:55PM-1:50PM	1:50PM-2:40PM	2:45PM-3:35PM	3:35PM-4:30PM
Monday	AWT/ADBMS Lab	AWT/ADBMS Lab	AWT/ADBMS Lab	AWT	L	ADBMS	SPM	ML
Tuesday	ML Lab	ML Lab	ML Lab	CD	U	ML	ADBMS	Library
Wednesday	AWT/ADBMS Lab	AWT/ADBMS Lab	AWT/ADBMS Lab	SPM	N	CD	AWT	ML
Thursday	ML Lab	ML Lab	ML Lab	CD	C	AWT	SPM	Library
Friday	ADBMS	ML	AWT	SPM	H	ADBMS	CD	Library

2. Create a static website for an online business which includes a registration page, which contains these:

(a) Home (At least 3 div elements)

(b) Login (A Form)

(c) Registration Page (A Form)

index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="preconnect" href="https://fonts.googleapis.com" />
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
    <link rel="stylesheet" href="styles.css" />
    <link
      href="https://fonts.googleapis.com/css2?family=Source+Serif+Pro&display=swap"
      rel="stylesheet"
    />
    <link
      href="https://fonts.googleapis.com/css2?family=Montserrat:wght@300&display=swap"
      rel="stylesheet">
    <link href="https://fonts.googleapis.com/css2?family=Philosopher&display=swap"
      rel="stylesheet">
    <title>Wholesome Bakes</title>
  </head>
  <body>
    <header>
      <div id="navbar">
        <h1 id="nav-logo">Wholesome Bakes</h1>
        <ul id="nav-list">
          <li><a href="#home">Home</a></li>
          <li><a href="#products">Products</a></li>
          <li><a href="#register">Register</a></li>
          <li><a href="#contact-us">Contact Us</a></li>
          <li><a href="login.html" target="_blank">Login</a></li>
        </ul>
      </div>
    </header>
  </body>
</html>
```

```

    </div>
</header>
<main>
  <section id="home">
    <div id="home-header">
      <h2>Fresh, Delicious, Homely.</h2>
      <h3>We are committed to quality services, everywhere, all the
time.</h3>
      <figure>
        
        <figcaption>Photo by <a
href="https://unsplash.com/fr/@blsnki?utm_source=unsplash&utm_med
ium=referral&utm_content=creditCopyText">Yeh Xintong</a> on <a
href="https://unsplash.com/photos/go3DT3PpIw4?utm_source=unsplash
&utm_medium=referral&utm_content=creditCopyText">Unsplash</a>
        </figcaption>
      </figure>
    </div>

  </section>
  <section id="about-us">
  </section>
  <section id="products">
  </section>

  <section id="register">
    <div>
      <h3>Register now!</h3>
      <form action="submitted.html" method="post" onsubmit="validate()">
        <section id="personal-details">
          <label for="name">
            >Enter your name:
            <br />
            <input type="text" name="name" id="name" placeholder="Enter
your name..." required />
          </label>
          <label for="email">
            >Enter your email:
            <br />
            <input type="email" name="email" id="email"

```

```

        placeholder="Enter your email..."required />
</label>
<label for="dob">
    >Enter your date of birth:
    <br />
    <input type="date" name="dob" id="dob" required />
</label>
</section>

<section id="gender-details">
    <label for="gender-choices">Select your gender:</label>
    <ul>
        <li>
            <input type="radio" name="gender" id="gender-f" value="f"
                />F
        </li>
        <li>
            <input type="radio" name="gender" id="gender-m" value="m"
                />M
        </li>
        <li>
            <input
                type="radio"
                name="gender"
                id="gender-o"
                value="other"
            />Other
        </li>
    </ul>
</section>

<section id="source-section">
    <label for="sources">Where did you hear about us?</label>
    <br />
    <select name="" id="">
        <option value="">(select one)</option>
        <option value="instagram">Instagram</option>
        <option value="twitter">Twitter</option>
        <option value="facebook">Facebook</option>
        <option value="website">Our Official Website</option>
    </select>
</section>

```

```

        </select>
    </section>

    <section id="comment-box">
        <label for="comments">Any suggestions/comments for us?</label>
        <br />
        <textarea
            name="comments-area"
            id="comments"
            cols="30"
            rows="5"
            placeholder="Enter your comments here..."
        ></textarea>
    </section>

    <section>
        <label for="password-box">Enter your password</label>
        <br />
        <input
            type="password"
            id="password-box"
            name="password-box"
            placeholder="Enter your password..."
            required
        />
    </section>
    <br />

    <section>
        <label for="confirm-pwd">Re-enter your password</label>
        <br />
        <input type="password" id="confirm-pwd" name="confirm-pwd"
            placeholder="Enter your password..." />
    </section>
    <br />

    <section id="submit-section">
        <input type="submit" name="" id="submit-btn" value="Submit" />
    </section>
</form>

```

```
        </div>

    </section>

</main>
<footer>
    <section id="contact-us">
        </section>
    </footer>
</body>
</html>
```

login.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="preconnect" href="https://fonts.googleapis.com" />
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
    <link rel="stylesheet" href="styles.css" />
    <link
      href="https://fonts.googleapis.com/css2?family=Source+Serif+Pro&display=swap"
      rel="stylesheet"
    />
    <link
      href="https://fonts.googleapis.com/css2?family=Montserrat:wght@300&display=swap"
      rel="stylesheet"
    />
    <link
      href="https://fonts.googleapis.com/css2?family=Philosopher&display=swap"
      rel="stylesheet"
    />
    <title>Login</title>
  </head>
  <body>
    <header id="login-header">
      <h1>Welcome to Wholesome Bakes!</h1>
    </header>
    <main>
      <section id="login-screen">
        <section id="login">
          <div>
            <h3>Log In</h3>
            <form action="submitted.html" method="post" onsubmit="validate()">
              <section id="personal-details">
                <label for="email">
                  >Enter your email:
                <br />
                <input
```



```

        type="email"
        name="email"
        id="email"
        placeholder="Enter your email..."
        required
    />
</label>
</section>
<br />
<section>
    <label for="password-box">Enter your password</label>
    <br />
    <input
        type="password"
        id="password-box"
        name="password-box"
        placeholder="Enter your password..."
        required
    />
</section>
<br />

    <section id="submit-section">
        <input type="submit" name="" id="submit-btn" value="Submit" />
    </section>
</form>
</div>
</section>
</section>
</main>
</body>
</html>

```

styles.css

```
* {  
  box-sizing: border-box;  
}  
  
html,  
::before,  
::after {  
  box-sizing: inherit;  
}  
  
body {  
  margin: 0;  
  font-family: "Philosopher", sans-serif;  
  background-color: #3a071b;  
}  
  
#navbar {  
  display: grid;  
  grid-template-columns: auto auto;  
  align-items: center;  
  background-color: #3a071b;  
  background-size: cover;  
  position: fixed;  
  height: 12vh;  
  width: 100vw;  
  max-width: 100%;  
}  
  
#navbar #nav-logo {  
  padding: 0 0.5rem 0 0.5rem;  
  text-transform: uppercase;  
  color: #ecd4f1;  
  font-size: clamp(0.5rem, 10rem, 2rem);  
}  
  
#navbar #nav-list {  
  display: flex;  
  flex-direction: row;
```

```
    justify-content: space-evenly;
    align-items: center;
}

#nav-list li {
    list-style-type: none;
    text-transform: uppercase;
    font-size: clamp(0.2rem, 5rem, 1.1rem);
    font-weight: bold;
}

#nav-list a {
    text-decoration: none;
    color: #ecd4f1;
}

#nav-list a:hover {
    text-shadow: 1px 0.1px 5px rgba(255, 255, 255, 0.541);
}

#home {
    height: 110vh;
    width: 100vw;
    max-width: 100%;
    padding-top: 4.5rem;
    background-color: #d1bcd6;
}

#home #home-header {
    display: flex;
    flex-direction: column;
    text-align: center;
    font-family: "Source Serif Pro", serif;
}

#home-header h2,
#home-header h3 {
    margin: 0;
}
```

```

#home-header h2 {
  padding-top: 1rem;
  text-shadow: 1px 0.1px 5px #ffffff;
}

#home-header h3 {
  padding-top: 0.4rem;
  padding-bottom: 0.2rem;
  text-shadow: 1px 0.1px 5px #ffffff;
}

#home figure figcaption {
  font-family: "Source Serif Pro", serif;
  font-family: "Philosopher", sans-serif;
  font-size: clamp(0.1rem, 1rem, 0.6rem);
  color: rgba(0, 0, 0, 0.432);
}

#home figure figcaption a {
  color: rgba(0, 0, 0, 0.432);
  text-decoration: none;
}

#register {
  height: 120vh;
  background: #a36e84;
}

#register div,
#login div {
  display: flex;
  flex-direction: column;
  align-items: center;
}

#register div h3,
#login div h3 {
  text-transform: uppercase;
  font-size: clamp(1rem, 6rem, 2rem);
  text-shadow: 1px 0.5px 3px #ecd4f1;
}

```

```

}

form {
  background-color: rgba(25, 0, 0, 0.5);
  color: rgb(255, 255, 255);
  border: 1px solid #3a071b8e;
  border-radius: 13px;
  display: block;
  margin: 0 auto;
  width: 500px;
  padding: 1rem 1rem;
  font-family: "Source Serif Pro", serif;
  font-family: "Philosopher", sans-serif;
}

input {
  font-family: "Montserrat", sans-serif;
}

#personal-details label {
  display: block;
  padding-bottom: 5px;
}

#personal-details input {
  width: 150px;
}

#gender-details {
  margin-top: 5px;
}

#gender-details label {
  display: block;
  margin-bottom: -10px;
}

#gender-details ul {
  padding-left: 0;
}

```

```
#gender-details li {
  list-style-type: none;
}

#class-details {
  margin-top: -7px;
}

#class-details label {
  display: block;
  margin-bottom: -10px;
}

#class-details ul {
  padding-left: 0;
}

#class-details li {
  list-style-type: none;
}

#source-section {
  display: block;
  margin-top: -5px;
  margin-bottom: 15px;
}

#source-section select {
  font-family: "Montserrat", sans-serif;
}

#source-section option {
  font-family: "Montserrat", sans-serif;
  color: black;
  font-weight: 600;
}

#comment-box {
  margin-top: -5px;
}
```

```

    margin-bottom: 5px;
}

#comment-box textarea {
    font-family: "Montserrat", sans-serif;
    color: black;
}

#submit-btn {
    background: #3a071b;
    background-size: cover;
    background-repeat: no-repeat;
    color: aliceblue;
    border: 1px solid #d1bcd6;
    border-radius: 10px;
    width: 7vw;
    height: 4vh;
    text-transform: uppercase;
}

#submit-btn:hover {
    background-size: cover;
    background-repeat: no-repeat;
    color: #3a071b;
    background-color: #d1bcd6;
    border: 1px solid #3a071b;
}

#login-header,
#login-screen {
    display: flex;
    flex-direction: column;
    /* background: #a36e84; */
    align-items: center;
}

#login-header {
    color: #ecd4f1;
}

```

```
#login-header h1 {  
  text-transform: uppercase;  
}  
  
#login-screen #yum {  
  color: #ecd4f1;  
}  
  
#login-screen #login-msg {  
  color: #3a071b;  
}  
  
#login {  
  height: 60vh;  
  width: 100vw;  
  background-color: #d1bcd6;  
}
```


OUTPUT

WHOLESOME BAKES

HOMEPRODUCTSREGISTERCONTACT USLOGIN

Fresh, Delicious, Homely.

We are committed to quality services, everywhere, all the time.




Photo by Yeh Xintong on Unsplash

REGISTER NOW!

Enter your name:

Enter your email:

Enter your date of birth:

Select your gender:

☐ F

☐ M

☐ Other

Where did you hear about us?

Select one

Any suggestions/comments for us?

Enter your comments here...

Enter your password

Re-enter your password

SUBMIT

WELCOME TO WHOLESOME BAKES!

LOG IN

Enter your email:

Enter your password

SUBMIT

23

3. Create a static webpage for an online bookstore which contains a catalogue of available books.

index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="preconnect" href="https://fonts.googleapis.com" />
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
    <link rel="stylesheet" href="styles.css" />
    <link
      href="https://fonts.googleapis.com/css2?family=Montserrat:wght@300&display=swap"
      rel="stylesheet"
    />
    <link
      href="https://fonts.googleapis.com/css2?family=IBM+Plex+Mono:wght@200&display=swap"
      rel="stylesheet"
    />
    <link
      href="https://fonts.googleapis.com/css2?family=Rokkitt:wght@100&display=swap"
      rel="stylesheet"
    />
    <link href="https://fonts.googleapis.com/css2?family=Roboto+Mono&display=swap"
      rel="stylesheet">
    <title>Bookworm</title>
  </head>
  <body>
    <header>
      <div id="navbar">
        <h1 id="nav-logo">Bookworm</h1>
        <ul id="nav-list">
          <li><a href="#home">Home</a></li>
          <li><a href="#books">Books</a></li>
          <li><a href="#register">Register</a></li>
          <li><a href="#contact-us">Contact Us</a></li>
          <li><a href="login.html" target="_blank">Login</a></li>
        </ul>
      </div>
    </header>
  </body>
</html>
```

```

        </ul>
    </div>
</header>
<main>
    <section id="home">
        <div id="home-header">
            <figure>
                
                <figcaption>
                    Photo by
                    <a
                        href="https://unsplash.com/@ninjason?utm_source=unsplash&utm_medium=r
                        eferred&utm_content=creditCopyText"
                    >Jason Leung</a>
                >
            </figcaption>
        </figure>
        <h2>Enter a world, of your choice...</h2>
    </div>
</section>
<section id="about-us"></section>
<section id="books">
    <div>
        <ul>
            <li>
                <figure>
                    
                    <figcaption>The Year of the Ladybird, Graham Joyce</figcaption>
                </figure>
            </li>
        </ul>
    </div>
</section>

```

```

</li>
<li>
  <figure>
    
    <figcaption>Inception (The Marked Saga Book 1), Bianca
      Scardoni</figcaption>
  </figure>
</li>
<li><figure>
  
  <figcaption>The Loser, Thomas Bernhard</figcaption>
</figure></li>
</ul>
</div>
<div>
  <ul>
    <li><figure>
      
      <figcaption>Atonement, Ian McEwan</figcaption>
    </figure></li>
    <li><figure>
      
      <figcaption>Gilead, Marilynne Robinson</figcaption>
    </figure></li>
  </ul>
</div>

```

```

<li><figure>
  
  <figcaption>The Fire Eternal, Chris d'Lacey</figcaption>
</figure></li>
</ul>
</div>
<div>
  <ul>
    <li><figure>
      
      <figcaption>Ringworld, Larry Niven</figcaption>
    </figure></li>
    <li><figure>
      
      <figcaption>History Is All You Left Me, Adam Silvera</figcaption>
    </figure></li>
    <li><figure>
      
      <figcaption>Trainspotting, Irvine Welsh</figcaption>
    </figure></li>
  </ul>
</div>
</section>
<section id="register">

```

```

<div>
  <h3>Register now!</h3>
  <form action="submitted.html" method="post" onsubmit="validate()">
    <section id="personal-details">
      <label for="name">
        >Enter your name:
      <br />
      <input
        type="text"
        name="name"
        id="name"
        placeholder="Enter your name..."
        required
      />
    </label>
    <label for="email">
      >Enter your email:
    <br />
    <input
      type="email"
      name="email"
      id="email"
      placeholder="Enter your email..."
      required
    />
    </label>
    <label for="dob">
      >Enter your date of birth:
    <br />
    <input type="date" name="dob" id="dob" required />
    </label>
  </section>

  <section id="gender-details">
    <label for="gender-choices">Select your gender:</label>
    <ul>
      <li>
        <input type="radio" name="gender" id="gender-f" value="f" />F
      </li>
      <li>

```

```

        <input type="radio" name="gender" id="gender-m" value="m" />M
    </li>
    <li>
        <input
            type="radio"
            name="gender"
            id="gender-o"
            value="other"
        />Other
    </li>
</ul>
</section>

<section id="source-section">
    <label for="sources">Where did you hear about us?</label>
    <br />
    <select name="" id="">
        <option value="">(select one)</option>
        <option value="instagram">Instagram</option>
        <option value="twitter">Twitter</option>
        <option value="facebook">Facebook</option>
        <option value="website">Our Official Website</option>
    </select>
</section>

<section id="comment-box">
    <label for="comments">Any suggestions/comments for us?</label>
    <br />
    <textarea
        name="comments-area"
        id="comments"
        cols="30"
        rows="5"
        placeholder="Enter your comments here..."
    ></textarea>
</section>

<section>
    <label for="password-box">Enter your password</label>
    <br />

```

```

        <input
            type="password"
            id="password-box"
            name="password-box"
            placeholder="Enter your password..."
            required
        />
    </section>
    <br />

    <section>
        <label for="confirm-pwd">Re-enter your password</label>
        <br />
        <input
            type="password"
            id="confirm-pwd"
            name="confirm-pwd"
            placeholder="Enter your password..."
        />
    </section>
    <br />

    <section id="submit-section">
        <input type="submit" name="" id="submit-btn" value="Submit" />
    </section>
</form>
</div>
</section>
</main>
<footer>
    <section id="contact-us"></section>
</footer>
</body>
</html>

```


styles.css

```
* {  
  box-sizing: border-box;  
}  
  
html,  
::before,  
::after {  
  box-sizing: inherit;  
}  
  
body {  
  margin: 0;  
  font-family: 'IBM Plex Mono', monospace;  
  background-color: #7591ec;  
}  
  
#navbar {  
  display: grid;  
  grid-template-columns: auto auto;  
  align-items: center;  
  background-color: #07153a;  
  background-size: cover;  
  position: fixed;  
  height: 13vh;  
  width: 100vw;  
  max-width: 100%;  
}  
  
#navbar #nav-logo {  
  padding: 0 0.5rem 0 0.5rem;  
  text-transform: uppercase;  
  color: #ffffff;  
  font-size: clamp(0.5rem, 10rem, 2rem);  
}  
  
#navbar #nav-list {  
  display: flex;  
  flex-direction: row;
```

```

    justify-content: space-evenly;
    align-items: center;
}

#nav-list li {
    list-style-type: none;
    text-transform: uppercase;
    font-size: clamp(0.2rem, 5rem, 1.1rem);
    font-weight: bold;
}

#nav-list a {
    text-decoration: none;
    color: #ffffff;
}

#nav-list a:hover {
    text-shadow: 1px 0.1px 5px rgba(255, 255, 255, 0.541);
}

#home {
    height: 105vh;
    width: 100vw;
    max-width: 100%;
    padding-top: 4.5rem;
    background-color: #bfccf7;
}

#home #home-header {
    display: flex;
    flex-direction: column;
    text-align: center;
    font-family: 'IBM Plex Mono', monospace;
    font-style: italic;
    letter-spacing: 0.2rem;
    /* font-family: 'Rokkitt', serif; */
}

#home-header h2,
#home-header h3 {

```

```

    margin: 0;
    font-weight: 600;
}

#home figure {
    margin-bottom: 0;
    padding-bottom: 1.4rem;
}

#home figure figcaption {
    font-family: 'Rokkitt', serif;
    font-size: clamp(0.1rem, 1rem, 0.7rem);
    font-weight: 600;
    color: #00000085;
}

#home figure figcaption a {
    color: rgba(0, 0, 0, 0.774);
    text-decoration: none;
}

#books {
    display: grid;
    grid-template-columns: auto auto auto;
    height: 150vh;
    padding-top: 1rem;
    background-color: #07153a;
}

#books li {
    list-style-type: none;
}

#books figure {
    display: flex;
    flex-direction: column;
    align-items: center;
}

```

```

#books figure figcaption{
  padding-top: 0.1rem;
  color:#b0c1f8;
  font-size: clamp(0.2rem, 1rem, 0.7rem);
  font-family: 'Roboto Mono', monospace;
  font-style: italic;
  letter-spacing: 0.5px;
}

#books img {
  height: 40vh;
  width:fit-content;
}

#register {
  height: 120vh;
  background-color: #7591ec;
}

#register div,
#login div {
  display: flex;
  flex-direction: column;
  align-items: center;
}

#register div h3,
#login div h3 {
  text-transform: uppercase;
  font-size: clamp(1rem, 6rem, 2rem);
  text-shadow: 1px 0.5px 3px #07153abd;
}

form {
  background-color: #07153abd;
  color: rgb(255, 255, 255);
  border: 1px solid #07153ac2;
  border-radius: 13px;
  display: block;
}

```

```

    margin: 0 auto;
    width: 500px;
    padding: 1rem 1rem;
    font-family: 'Rokkitt', serif;
    font-weight: 500;
    font-size: clamp(0.5rem,3rem,1.2rem);
}

input {
    font-family: "Montserrat", sans-serif;
}

#personal-details label {
    display: block;
    padding-bottom: 5px;
}

#personal-details input {
    width: 150px;
}

#gender-details {
    margin-top: 5px;
}

#gender-details label {
    display: block;
    margin-bottom: -10px;
}

#gender-details ul {
    padding-left: 0;
}

#gender-details li {
    list-style-type: none;
}

#class-details {
    margin-top: -7px;
}

```

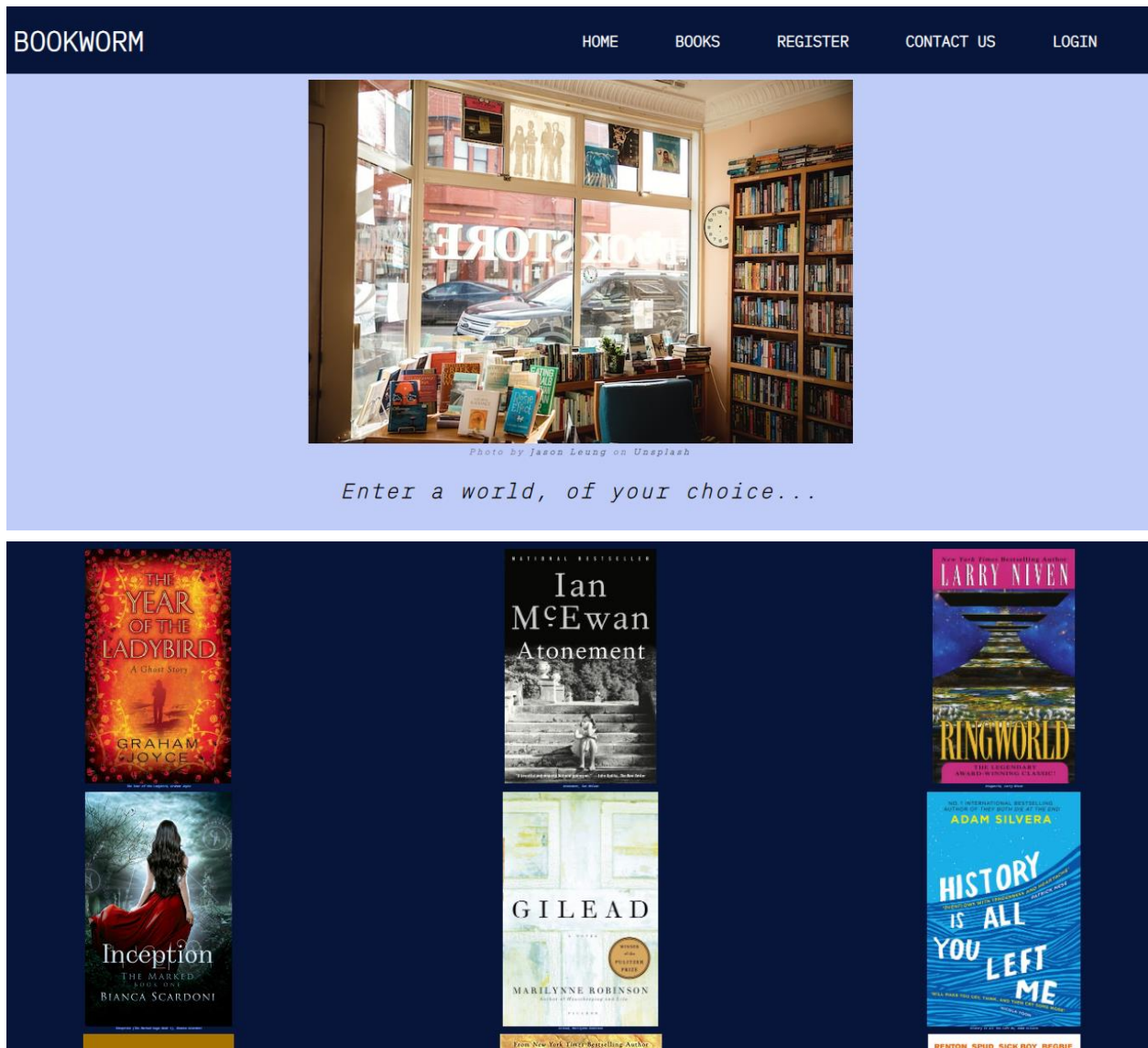
```
}  
#class-details label {  
    display: block;  
    margin-bottom: -10px;  
}  
  
#class-details ul {  
    padding-left: 0;  
}  
  
#class-details li {  
    list-style-type: none;  
}  
  
#source-section {  
    display: block;  
    margin-top: -5px;  
    margin-bottom: 15px;  
}  
  
#source-section select {  
    font-family: "Montserrat", sans-serif;  
}  
  
#source-section option {  
    font-family: "Montserrat", sans-serif;  
    color: black;  
    font-weight: 600;  
}  
  
#comment-box {  
    margin-top: -5px;  
    margin-bottom: 5px;  
}  
#comment-box textarea {  
    font-family: "Montserrat", sans-serif;  
    color: black;  
}  
#submit-btn {  
    background: #07153a;
```

```

    background-size: cover;
    background-repeat: no-repeat;
    color: aliceblue;
    border: 1px solid #7591ec;
    border-radius: 10px;
    width: 7vw;
    height: 4vh;
    text-transform: uppercase;
}
#submit-btn:hover {
    background-size: cover;
    background-repeat: no-repeat;
    color: #07153a;
    background-color: #7591ec;
    border: 1px solid #07153a;
}
#login-header,
#login-screen {
    display: flex;
    flex-direction: column;
    /* background: #a36e84; */
    align-items: center;
}
#login-header {
    color: #ecd4f1;
}
#login-header h1 {
    text-transform: uppercase;
}
#login-screen #yum {
    color: #ecd4f1;
}
#login-screen #login-msg {
    color: #3a071b;
}
#login {
    height: 60vh;
    width: 100vw;
    background-color: #d1bcd6;
}

```

OUTPUT



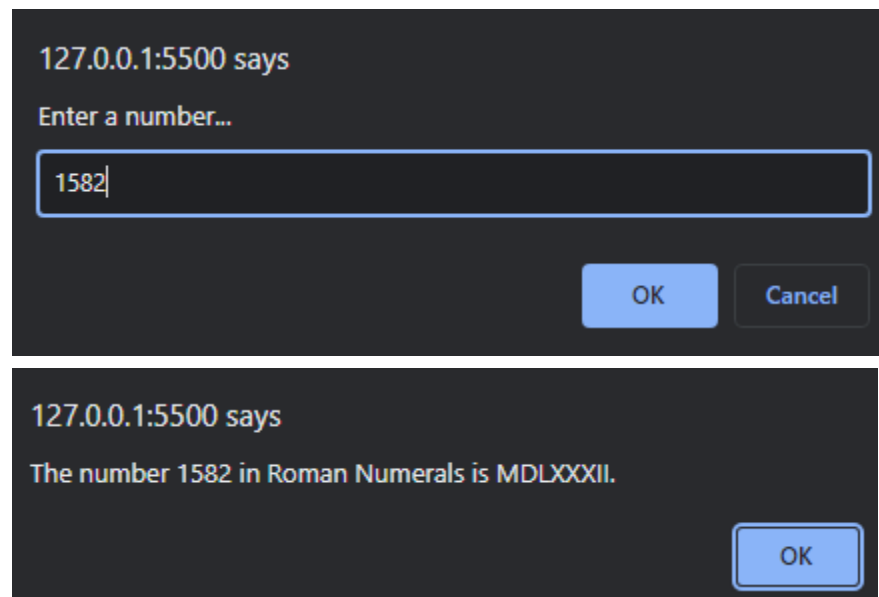
4. Write a Javascript program to convert numbers to Roman numerals.

convert.js

```
function convertToRoman(num) {  
    var l = [1000,900,500,400,100,90,50,40,10,9,5,4,1];  
    var sym = ['M','CM','D','CD','C','XC','L','XL','X','IX','V','IV','I'];  
    var str = "";  
    let i = 0;  
    while(num>0){  
        if(l[i]<=num){  
            str+=sym[i];  
            num-=l[i];  
        }  
        else{  
            i++;  
        }  
    }  
    return str;  
}
```

```
console.log(convertToRoman(36));
```

OUTPUT



5. Write a Javascript program to validate a form, which satisfies the conditions:

- (a) Name should only contain alphabets.**
- (b) Password should not be less than 6 characters length.**
- (c) E-mail id must follow the pattern name@domain.com.**
- (d) Phone number should contain 10 digits only.**
- (e) Last Name and Address should not be empty.**

index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="styles.css" />
    <link rel="preconnect" href="https://fonts.googleapis.com" />
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
    <link
      href="https://fonts.googleapis.com/css2?family=Nunito&display=swap"
      rel="stylesheet"
    />
    <link
      rel="shortcut icon"
      href="https://cdn-icons-png.flaticon.com/512/9318/9318633.png"
      type="image/x-icon"
    />
    <title>Webvy</title>
    <script>
      const validate = () =>{
        const phVal = document.getElementById('number').value;
        const pwdVal = document.getElementById('pwd').value;
        const fnameVal = document.getElementById('name').value;
        if (String(phVal).length != 10){
          alert("Phone no. should have 10 digits");
          return false;
        }
        if (fnameVal.length < 7){
          alert("First name has to be 6 charaters long!");
          return false;
        }
      }
    </script>
  </head>
  <body>
    <div>
      <div>
        <input type="text" value="Name" />
        <input type="password" value="Password" />
        <input type="text" value="Email" />
        <input type="text" value="Phone Number" />
        <input type="text" value="Last Name" />
        <input type="text" value="Address" />
      </div>
      <div>
        <input type="button" value="Validate" />
      </div>
    </div>
  </body>
</html>
```

```

    }
    if (!/^[a-zA-z]*$/g.test(fnameVal)){
        alert("First name has to be characters only!");
        return false;
    }
    if(pwdVal.length < 7){
        alert("Password should be greater than 6 characters!");
        return false;
    }
    return true;
}
</script>
</head>
<body>
    <main>
        <div id="form-heading">
            <h1 id="title">Webvy Registration</h1>
            <p id="description">For Students</p>
        </div>
        <form action="#index.html" id="survey-form" method="post" onsubmit="return validate()">
            <div id="form-body">
                <fieldset id="personal-details">
                    <h2>Personal Details</h2>
                    <hr>
                    <label id="name-label" for="name">
                        >First Name
                        <input
                            id="name"
                            type="text"
                            placeholder="Enter your first name"
                            required
                        />
                    </label>
                    <label id="lname-label" for="lname">
                        >Last Name
                        <input
                            id="lname"
                            type="text"
                            placeholder="Enter your last name"

```

```

        required
    />
</label>
<label id="email-label" for="email"
    >Email
    <input
        id="email"
        type="email"
        placeholder="Enter your email"
        required
    />
</label>
<label id="number-label" for="number"
    >Phone No.
    <input
        id="phone"
        type="phone"
        placeholder="Enter your number"
        required
    />
</label>
<label id="pwd-label" for="pwd"
    >Password
    <input
        id="pwd"
        type="password"
        placeholder="Enter your password"
        required
    />
</label>
</fieldset>

<fieldset id="learning-details">
    <h2>Learning Progress</h2>
    <hr>
    <label id="radio-buttons" class="learning-q">
        Are you currently learning web development?
        <label for="yes-web">
            <input type="radio" name="recs" id="yes-adopt" value="yes" />
            Yes

```

```

</label>
<label for="no-web">
  <input type="radio" name="recs" id="no-adopt" value="no" />
  No
</label>
</label>

<label id="checkbox-options" class="learning-q">
  What have you learnt so far?
  <label for="html-skill">
    <input
      type="checkbox"
      name="skill-set"
      id="html-skill"
      value="html-skill"
    />
    HTML
  </label>
  <label for="css-skill">
    <input
      type="checkbox"
      name="skill-set"
      id="css-skill"
      value="css-skill"
    />
    CSS
  </label>
  <label for="js-skill">
    <input
      type="checkbox"
      name="skill-set"
      id="js-skill"
      value="js-skill"
    />
    Javascript
  </label>
  <label for="frameworks">
    <input
      type="checkbox"
      name="skill-set"

```

```

        id="frameworks"
        value="frameworks"
    />
    Frameworks(Bootstrap, React, etc..)
</label>
</label>
<label for="dropdown" class="learning-q">
    What do you find most difficult to learn?
    <select id="dropdown" name="dropdown" >
        <option value="" name="options">(select one)</option>
        <option value="1" name="options">The Box Model</option>
        <option value="3" name="options">Grid and Flexbox</option>
        <option value="2" name="options">Javascript programming</option>
        <option value="2" name="options">None of the above</option>
    </select>
</label>
</fieldset>
<fieldset id="student-feedback">
    <h2>About Me</h2>
    <hr>
    <label for="feedback">
        Please tell us about yourself and how got into web development
        <textarea
            name="feedback"
            id="feedback"
            cols="45"
            rows="10"
            placeholder="Enter your feedback here..."
            required
        ></textarea>
    </label>
</fieldset>
<fieldset id="submit-button"><button id="submit" type="submit">
    Submit</button>
</fieldset>
</div>
</form>
</main>
</body>
</html>

```

styles.css

```
html {
  box-sizing: border-box;
}

*,
::before,
::after {
  box-sizing: inherit;
}

body {
  background-image: linear-gradient(
    90deg,
    #1c3c6b 0%,
    #7ebffc 35%,
    #7ebffc 50%,
    #7ebffc 70%,
    #1c3c6b 100%
  );
  background-color: white;
  background-size: cover;
  margin: 0;
  font-family: "Nunito", sans-serif;
  color: white;
}

#form-heading {
  text-align: center;
  margin: 0 auto;
}

#form-heading h1 {
  margin-top: -0.1rem;
  font-size: 2.3rem;
  color: white;
  text-shadow: 1px 0.1px 20px #ffffffe1;
}
```

```

#form-heading p {
  margin-top: -1.7rem;
  font-size: 1.3rem;
  font-weight: 600;
  color: #ffffffe1;
}

#form-body {
  margin-top: -1.5rem;
  background: #1c3c6b70;
  border-radius: 5px;
}

form {
  width: 50vw;
  max-width: 500px;
  min-width: 350px;
  margin: 0 auto;
  padding: 1% 0;
}

form h2 {
  margin-top: 1px;
  margin-bottom: 0;
}

form hr {
  width: 45%;
  margin: 0 0 5px 0;
  opacity: 45%;
}

fieldset {
  border: none;
  padding: 0.7rem 0.5rem;
  border-bottom: 1px solid rgba(226, 215, 175, 0.5);
}

label {
  display: block;

```



```

    margin: 0.5rem 0;
}

input,
select,
textarea {
    font-size: small;
    font-style: italic;
    margin: 10px 0 0 0;
    font-family: "Nunito", sans-serif;
    border-radius: 5px;
    border: 1px solid transparent;
}

#name,
#lname,
#email,
#phone,
#pwd {
    display: block;
    width: 55%;
    padding-bottom: 1%;
}

#learning-details .learning-q {
    padding-top: 15px;
}

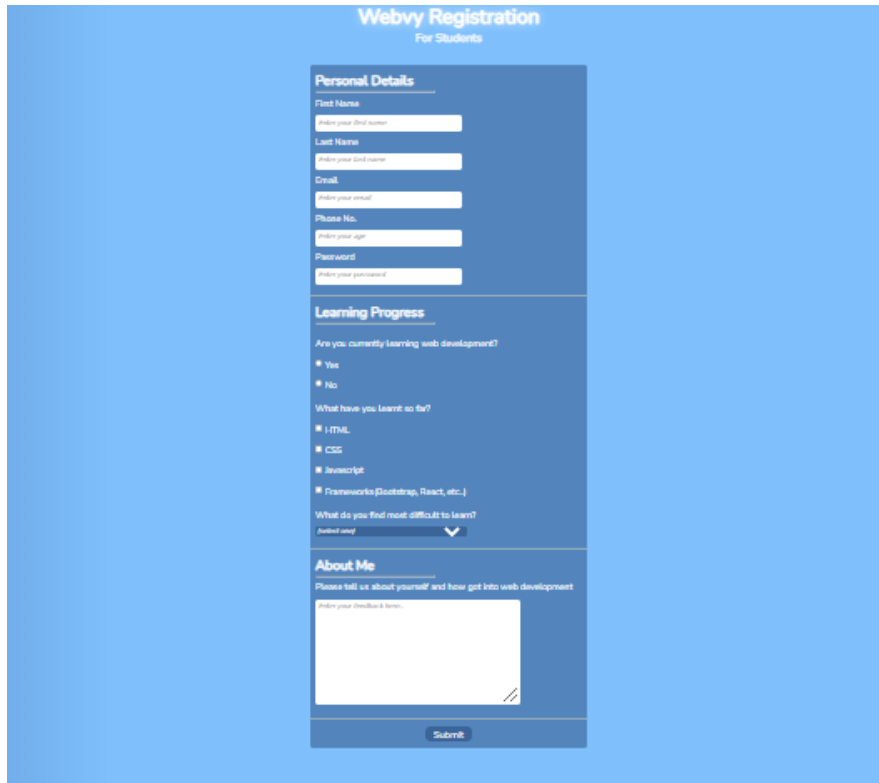
select#dropdown {
    display: block;
    background: #1c3c6b70;
    color: white;
    width: 57%;
    border: none;
    font-family: "Nunito", sans-serif;
}

#submit-button {
    border-bottom: none;
}

```

```
#submit {  
  border: none;  
  display: block;  
  height: 20%;  
  width: 85px;  
  text-align: center;  
  margin: 0 auto;  
  font-family: "Nunito", sans-serif;  
  background: #1c3c6b70;  
  color: white;  
  font-size: 17px;  
  border-radius: 10px;  
}  
  
button#submit:hover {  
  background: #7ebffc;  
}
```

OUTPUT



The registration form is titled "Webvy Registration For Students" and is set against a light blue background. It is divided into three main sections: "Personal Details", "Learning Progress", and "About Me".

- Personal Details:** Contains input fields for First Name, Last Name, Email, Phone No., and Password. Each field has a placeholder text indicating what to enter.
- Learning Progress:** Includes a question "Are you currently learning web development?" with radio buttons for "Yes" and "No". Below this is a question "What have you learnt so far?" with checkboxes for "HTML", "CSS", "JavaScript", and "Frameworks (Bootstrap, React, etc.)". There is also a dropdown menu for "What do you find most difficult to learn?".
- About Me:** A section titled "Please tell us about yourself and how get into web development" with a large text area for a bio and a "Submit" button at the bottom.

127.0.0.1:5500 says

First name has to be characters only!

OK

Email

no



Please include an '@' in the email address. 'no' is missing an '@'.

127.0.0.1:5500 says

Phone no. should have 10 digits

OK

6. Write a Javascript program to demonstrate pop-up boxes, for the following:

- (a) Display date**
- (b) Factorial of a number**
- (c) A multiplication table of numbers from 1 to 10**
- (d) Sum of n numbers**

popupboxes.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="styles.css" />
    <link rel="preconnect" href="https://fonts.googleapis.com" />
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
    <link
      href="https://fonts.googleapis.com/css2?family=Anonymous+Pro&display=swap"
      rel="stylesheet"
    />
    <title>Pop Up Box Demo</title>
  </head>

  <body>
    <header>
      <h1>Random Operations 4 Fun <sup>Javascript</sup></h1>
    </header>

    <main>
      <div>
        <button onclick="displayDate()">Today's Date</button>
        <button onclick="promtDemo()">Factorial of a number</button>
        <button onclick="alertDemo()" onmouseout="mouseOut()">
          Multiplication table
        </button>
        <button onclick="confirmDemo()" onmouseout="mouseOut()">
          Sum of 2 numbers
        </button>
      </div>
    </main>
```

```

<script>
  const displayDate = () => {
    date = new Date();
    day = date.getDate();
    month = date.getMonth() + 1;
    year = date.getFullYear();
    window.alert(`Today's date is ${day}/${month}/${year}.`);
  };

  const promptDemo = () => {
    let n = window.prompt("Enter a number...");
    console.log("your number is " + n);
    let fact = 1;
    for (let i = n; i > 1; i--) {
      fact *= i;
    }
    window.alert(" The factorial of " + n + " is " + fact + ".");
  };

  const alertDemo = () => {
    let n = window.prompt("Enter a number...");
    str = "";
    for (let i = 1; i <= 10; i++) {
      str += `${n} x ${i} = ${n * i} \n`;
    }
    window.alert("Multiplication table of " + parseInt(n) + "\n" + str);
  };

  const confirmDemo = () => {
    let num1 = window.prompt("Enter number 1");
    if (
      window.confirm(
        "Press OK if number 2 = 10\nPress Cancel if number 2 = 20"
      )
    ) {
      num2 = 10;
    } else {
      num2 = 20;
    }
  }

```

```
    let num3 = window.prompt("Enter number 3");
    num1 = parseInt(num1);
    num2 = parseInt(num2);
    num3 = parseInt(num3);
    window.alert(
        num1 + " + " + num2 + " + " + num3 + " = " + (num1 + num2 + num3)
    );
};
</script>
</body>
</html>
```

styles.css

```
* {  
  box-sizing: border-box;  
}  
  
html,  
::before,  
::after {  
  box-sizing: inherit;  
}  
  
body {  
  background: linear-gradient(  
    180deg,  
    #a4ff4fcc,  
    #f3c80686 70.71%  
  ),  
  linear-gradient(127deg, #00ff4ccc, #0099ff00 70.71%),  
  linear-gradient(  
    336deg,  
    #11ff45cc,  
    #ff00f200 70.71%  
  );  
  background-attachment: fixed;  
  margin: 0;  
  font-family: "Anonymous Pro", monospace;  
  padding: 1rem;  
}  
  
header {  
  display: flex;  
  flex-direction: row;  
  justify-content: center;  
}  
  
header h1 {  
  font-size: clamp(1rem, 4rem, 2rem);  
  color: #063d01;  
  text-shadow: 1px 0.5px 1px #90ff11cc, 1px 0.5px 1px #063d01;
```

```

}

header sup {
  vertical-align: top;
  font-size: clamp(0.2rem, 2rem, 1rem);
  position: relative;
  top: -0.7em;
  color: #063d01;
  text-shadow: 1px 0.5px 1px #90ff11cc;
  text-transform: uppercase;
  letter-spacing: 1.5px;
}

main div {
  padding: 1rem;
  display: grid;
  grid-template-columns: auto auto auto auto;
  gap: 2rem;
  justify-content: center;
}

main div button {
  width: 15vw;
  height: 10vh;
  background-color: #268f1da8;
  border: 1px solid #32bb2660;
  border-radius: 3px 8px;
  box-shadow: 1px 0.5px 8px #90ff11cc;
  font-family: "Anonymous Pro", monospace;
  font-weight: 600;
  color: #acffa6;
  text-transform: uppercase;
  font-size: clamp(0.5rem, 3rem, 1rem);
}

main div button:hover {
  background-color: #90ff11cc;
  border: 1px solid #5eff004f;
  color: #1f6e18;
  box-shadow: 1px 0.1px 10px #5eff00;
}

```

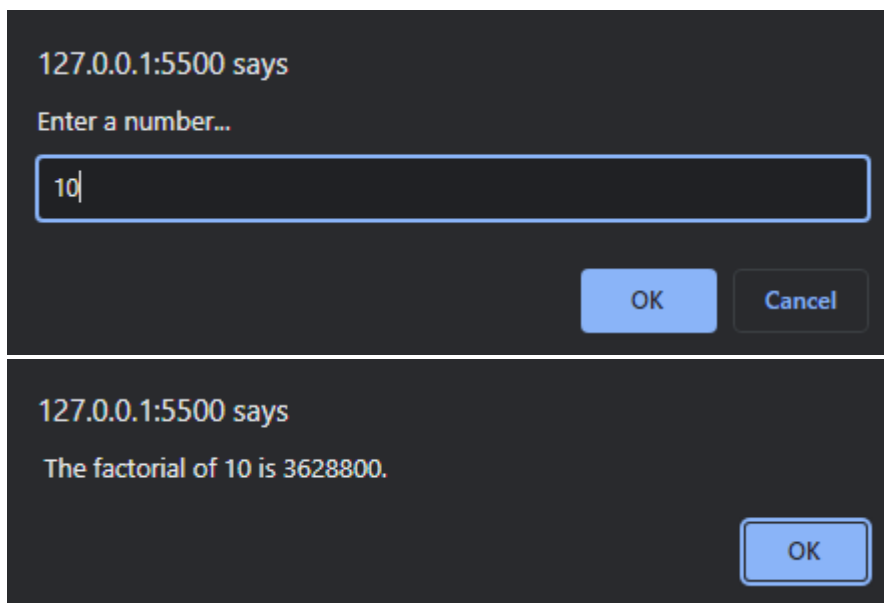

OUTPUT



Today's Date



Factorial of a number



Multiplication Table

127.0.0.1:5500 says

Enter a number...

OK Cancel

127.0.0.1:5500 says

Multiplication table of 121

121 x 1 =	121
121 x 2 =	242
121 x 3 =	363
121 x 4 =	484
121 x 5 =	605
121 x 6 =	726
121 x 7 =	847
121 x 8 =	968
121 x 9 =	1089

OK

Sum of numbers

127.0.0.1:5500 says

Enter number 1

127.0.0.1:5500 says

Press OK if number 2 = 10
Press Cancel if number 2 = 20

127.0.0.1:5500 says

Enter number 3

7. Create a portfolio website. Demonstrate use of inline, internal and external CSS stylesheets.

index.html

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta http-equiv="X-UA-Compatible" content="IE=edge" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="stylesheet" href="styles.css" />
    <link rel="preconnect" href="https://fonts.googleapis.com" />
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
    <link
      href="https://fonts.googleapis.com/css2?family=Montserrat&display=swap"
      rel="stylesheet"
    />
    <link
      href="https://fonts.googleapis.com/css2?family=Unbounded&display=swap"
      rel="stylesheet"
    />
    <title>Portfolio</title>
  </head>
  <body>
    <!-- HEADER -->
    <header>
      <nav id="navbar">
        <ul id="nav-list">
          <li><a href="#welcome-section" class="nav-link">About</a></li>
          <li><a href="#projects-section" class="nav-link">Projects</a></li>
          <li><a href="#contact-section" class="nav-link">Contact</a></li>
        </ul>
      </nav>
    </header>

    <!-- MAIN -->
    <main>
      <!-- ABOUT ME -->
      <section id="welcome-section">
        <h1>Hi! I'm Ady.</h1>
        <h2>An aspiring <span class="special-text">web developer</span>.</h2>
      </section>
      <!-- PROJECTS -->
      <section id="projects-section">
        <h2>These are some of my projects.</h2>
        <div id="project-grid">
          <a
            href="https://codepen.io/codeyady/full/YzjYXwm"
            target="_blank"
            class="project-tile"
          >
            
        <p>FCC Documentation Page</p>
    </a>
    <a
        href="https://codepen.io/codeyady/full/ZEjvwqj"
        target="_blank"
        class="project-tile"
    >
        <p>FCC Survey Form</p>
    </a>
    <a
        href="https://codepen.io/codeyady/full/VwBzmqM"
        target="_blank"
        class="project-tile"
    >
        <p>Silly Cat Page</p>
    </a>
</div>

<div id="codepen-box">
    <a href="https://codepen.io/codeyady" id="codepen-link">Show all</a>
</div>
</section>
<!-- CONTACT ME -->

<section id="contact-section">
    <h2>Find me on...</h2>
    <div id="profile-list">
        <a
            href="https://github.com/adelicia-js"
            class="profile-link"
            target="_blank"
        > </a>
        >
        <a
            href="https://codepen.io/codeyady"
            class="profile-link"
            target="_blank"
        > </a>
        >
    </div>
</section>
</main>
</body>
</html>

```

styles.css

```
html {
  box-sizing: border-box;
}

*, ::before, ::after {
  box-sizing: inherit;
}

body {
  margin: 0;
  padding: 0;
  font-family: 'Montserrat', sans-serif;
  background: rgba(9, 183, 252, 0.1);
  width: 100%;
  height: auto;
  background-size: cover;
}

/* NAV BAR */
#navbar {
  display: flex;
  justify-content: center;
  position: fixed;
  top: 0;
  left: 0;
  width: 100%;
  background-color: #201136;
  z-index: 10;
  overflow: hidden;
}

#nav-list {
  display: flex;
  gap: 25rem;
}

#nav-list li {
  list-style-type: none;
  margin-right: 1rem;
  font-weight: 600;
  padding-left: 0;
}

.nav-link {
  font-size: 1.2rem;
  color: rgb(255, 255, 255);
  text-decoration: none;
  text-transform: uppercase;
  letter-spacing: 0.3rem;
}

.nav-link:hover {
```

```

        color: #9f80cf;
        text-shadow: 1px 0.1px 5px #201136, 0 0 2px #201136, 0 0 2px #ffffff;
    }

    /* MAIN */

    /* WELCOME */
    #welcome-section {
        display: flex;
        width: 100%;
        height: 100vh;
        flex-direction: column;
        justify-content: center;
        align-items: center;
        background-color: black;
        /* background-image: #9f80cf; */
        background-image: linear-gradient(62deg, #9f80cf 0%, #9f80cf 50%, #9f80cf 100%);
        padding: 5rem;
        margin: 0;
    }

    #welcome-section h1, #welcome-section h2 {
        font-family: 'Unbounded', sans-serif;
        text-align: center;
    }

    #welcome-section h1 {
        font-size: 3rem;
        color: white;
        margin-bottom: 0;
    }

    #welcome-section h2 {
        font-size: 2rem;
        font-style: oblique;
        color: #201136;
        margin-top: 0.1rem;
    }

    /* PROJECTS */
    #projects-section {
        /* width: 100%; */
        /* height: 70vh; */
        text-align: center;
        padding: 2rem 1rem;
        background-color: rgb(0, 0, 0);
        background-image: linear-gradient(62deg, #c2a9e9 0%, #dad3e7 50%, #9c7ad4 100%);
    }

    #projects-section h2 {
        color: white;
        /* text-shadow: 1px 0.1px 10px #ffae00; */
        text-shadow: 1px 0.1px 10px #201136;
        font-family: 'Unbounded', sans-serif;
        padding-bottom: 0.5rem;
    }

```

```

}

#project-grid {
  display: grid;
  width: 100%;
  max-width: 1500px;
  margin: 0;
  margin-bottom: 1rem;
  grid-template-columns: repeat(auto-fit, minmax(350px, 1fr));
  gap: 2rem;
  padding-bottom: 0.5rem;
}

.project-tile {
  background-color: #201136;
  border-radius: 5px;
  text-decoration: none;
}

.project-tile img {
  width: 100%;
  height: 87%;
  object-fit: cover;
  border-radius: 5px 5px 0 0;
  color: rgba(255, 255, 255, 0.801);
}

.project-tile p {
  color: white;
  text-decoration: none;
  margin: 0;
  font-weight: 600;
  font-family: 'Unbounded', sans-serif;
  /* font-style: ; */
  font-weight: normal;
}

.project-tile:hover {
  box-shadow: 1px 0.1px 40px #4d3177;
}

#codepen-box {
  padding-top: 1rem;
  padding-bottom: 2rem;
}

#codepen-link {
  background: #ffffff;
  padding: 0.5rem 1rem;
  border-radius: 5px;
  color: #201136;
  text-decoration: none;
}

#codepen-link:hover {
  background: #201136;
}

```



```

        color: #ffffff;
        box-shadow: 1px 0.1px 10px #4d3177;
    }

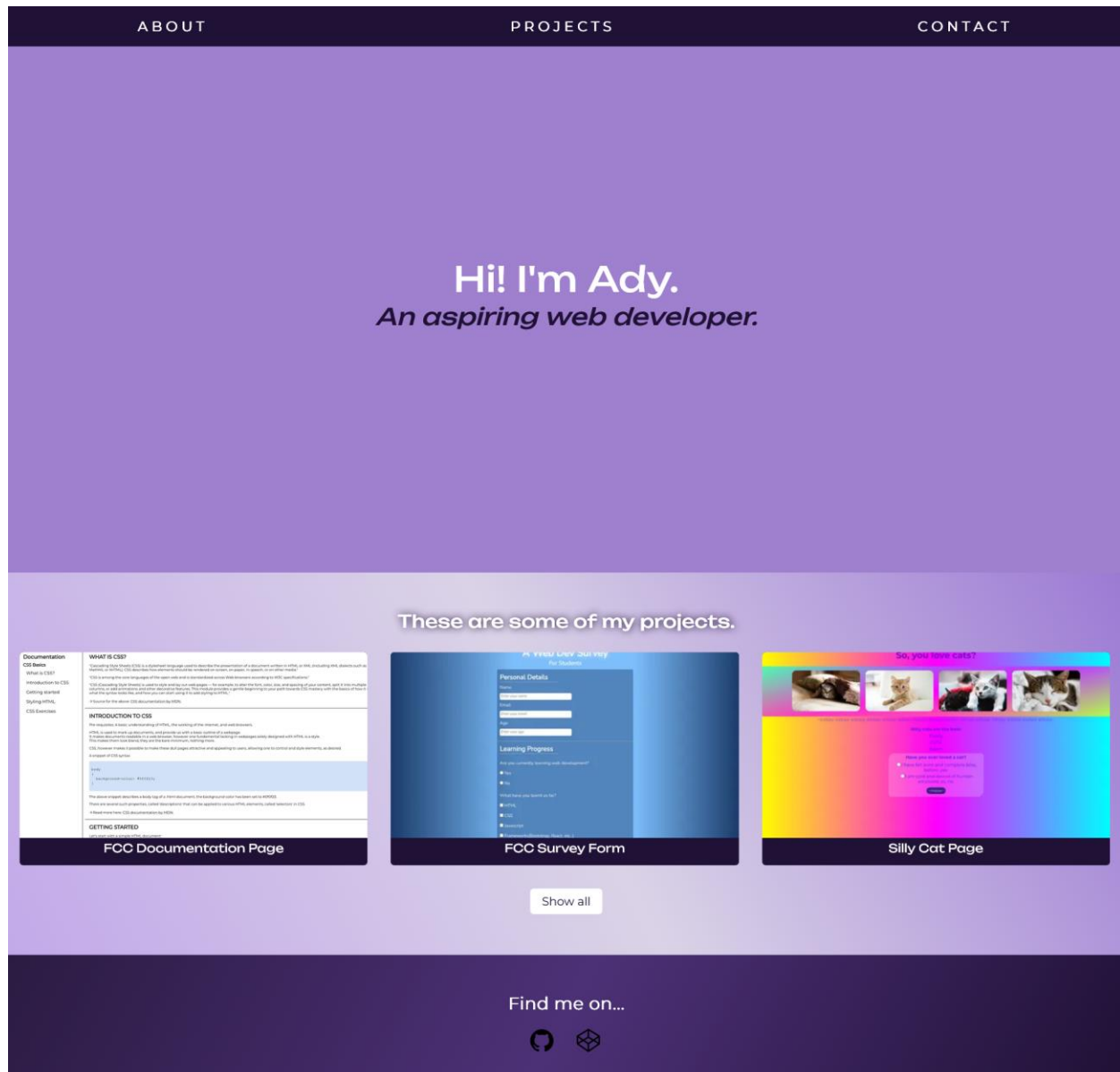
    /* CONTACT */
    #contact-section {
        width: 100%;
        text-align: center;
        padding: 2rem 1rem;
        background-color: rgb(0, 0, 0);
        background-image: linear-gradient(118deg, #2b1b42 0%, #4d3177 50%, #201136 100%);
        color: white;
    }

    #profile-list {
        display: flex;
        flex-direction: row;
        flex-wrap: wrap;
        justify-content: center;
        align-items: center;
        gap: 2rem;
        width: 100%;
        max-width: 1500px;
    }

    .profile-link img {
        width: 2rem;
        height: auto;
        max-width: 20vw;
        object-fit: cover;
    }

```

OUTPUT



8. Write a program to implement Typescript classes with inheritance.

BankAccount.ts

```
class BankAccount {
    balance: number;
    constructor() {
        this.balance = 0;
    }
    deposit(amount: number) {
        this.balance += amount;
    }
    withdraw(amount: number) {
        if (this.balance > amount)
            this.balance -= amount;
    }
    transfer(amount: number, toAccount: BankAccount) {
        this.balance -= amount;
        toAccount.balance += amount;
    }
}
```

```
const adyAccount = new BankAccount();
const celAccount = new BankAccount();
```

```
adyAccount.deposit(5500);
celAccount.deposit(2000);
```

```
celAccount.transfer(2500, adyAccount);
```

```
console.log(adyAccount.balance);
console.log(celAccount.balance);
```

Output

```
PS C:\Users\Adelicia\Documents\Projects\msc-sem-2\AWT-Lab\Bank-Operations> npx tsc BankAccount.ts
PS C:\Users\Adelicia\Documents\Projects\msc-sem-2\AWT-Lab\Bank-Operations> node BankAccount.js
● 8000
-500
```

9. Write a program to implement Angular Modules.

```
<!DOCTYPE html>
<html>
<script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
<body>

<div ng-app="myApp" ng-controller="myCtrl">
    {{ firstName + " " + lastName }}
</div>
<script>

    var app = angular.module("myApp", []);
    app.controller("myCtrl", function($scope) {
    $scope.firstName = "Adelicia";
    $scope.lastName = "Sequeira";
    });

    </script>

</body>
</html>
```

Output

Adelicia Sequeira

10. Write a program to implement Angular Controllers.

```
<!DOCTYPE html>
<html>
<script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
<body>

    <div ng-app="myApp" ng-controller="myCtrl">

        First Name: <input type="text" ng-model="firstName"><br>
        Last Name: <input type="text" ng-model="lastName"><br>
        <br>
        Full Name: {{firstName + " " + lastName}}

    </div>

    <script>
var app = angular.module('myApp', []);
app.controller('myCtrl', function($scope) {
    $scope.firstName = "John";
    $scope.lastName = "Doe";
});
</script>

</body>
</html>
```

Output

First Name:
Last Name:
Full Name: Adelicia Sequeira

11. Write a program to implement Angular Directives.

```
<!DOCTYPE html>
<html>
<script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
<body>

<div ng-app="" ng-init="firstName='John'">
  <p>Name: <input type="text" ng-model="firstName"></p>
  <p>You wrote: {{ firstName }}</p>
</div>

</body>
</html>
```

Output

Name:

You wrote: Adelicia

12. Write a program to implement Angular components.

```
<!DOCTYPE html>
<html>
<script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
<body>

<div ng-app="">
  <p>Name: <input type="text" ng-model="name"></p>
  <p ng-bind="name"></p>
</div>

</body>
</html>
```

Output

Name:

Adelicia

13. Write a program to implement Angular Forms.

```
<!DOCTYPE html>
<html lang="en">
<script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js"></script>
<body>

<div ng-app="myApp" ng-controller="formCtrl">
  <form novalidate>
    First Name:<br>
    <input type="text" ng-model="user.firstName"><br>
    Last Name:<br>
    <input type="text" ng-model="user.lastName">
    <br><br>
    <button ng-click="reset()">RESET</button>
  </form>
  <p>form = {{user}}</p>
  <p>master = {{master}}</p>
</div>
<script>
var app = angular.module('myApp', []);
app.controller('formCtrl', function($scope) {
  $scope.master = {firstName:"John", lastName:"Doe"};
  $scope.reset = function() {
    $scope.user = angular.copy($scope.master);
  };
  $scope.reset();
});
</script>
</body>
</html>
```

Output

First Name:

Last Name:

```
form = {"firstName":"Adelicia","lastName":"Sequeira"}
```

```
master = {"firstName":"John","lastName":"Doe"}
```


ADVANCED DATABASE MANAGEMENT SYSTEMS

INDEX

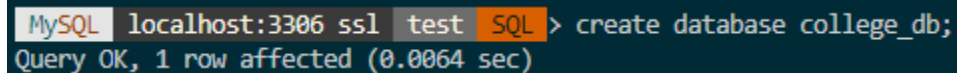
S. No.	Program Names	Page No.
1.	Creating Databases/Table Spaces/Constraints/Keys a) Create a database using DDL commands for any real-world entity (with all type of constraints – null, not null, primary key, foreign key, check) b) Implement DML commands for the above created database on all tables c) Implement DCL commands for the above database in all tables	72
2.	Creating Objects Implement view commands to create a view object for the above tables	82
3.	Moving Data a) Demonstrate how a database can be exported from MySQL b) Demonstrate how to import table from another application to MySQL	83
4.	Recovery Implement commands for backward recovery (Savepoint, Commit, Rollback)	85
5.	Locking a) Implement lock commands on 2 transactions b) Demonstrate acquiring locks and releasing locks by using a proper transaction flow	88
6.	Preparing Application for execution using a front end tool Design a form in HTML, Create a table in MySQL and use PHP to connect the form to a MySQL database	89

1. Creating Databases/Table Spaces/Constraints/Keys.

**(a) Create a database using DDL commands for any real-world entity
(with all type of constraints – null, not null, primary key, foreign key)**

CREATE

```
create database college_db;
```



```
MySQL localhost:3306 ssl test SQL > create database college_db;  
Query OK, 1 row affected (0.0064 sec)
```

```
use college_db;
```

```
create table Students (  
    Registration_Number varchar(6) primary key,  
    Student_Name varchar(100) not null,  
    Age integer not null,  
    Class char(10) not null,  
    Phone_Number bigint not null,  
    Email varchar(100) not null,  
    Date_Of_Birth date not null  
);
```

```
create table Internals (  
    Subject_Code varchar(100) not null,  
    Subject_Name varchar(100) not null,  
    Semester integer not null,  
    Test_1 integer not null,  
    Test_2 integer not null,  
    Activity integer not null,  
    Total integer not null,  
    foreign key (Registration_Number) references Students(Registration_Number)  
);
```

```
create table Finals (  
    Subject_Code varchar(100) not null,  
    Subject_Name varchar(100) not null,  
    Semester integer not null,  
    Theory integer not null,  
    Practicals integer not null,  
    Total integer not null,  
    Grade varchar(10) not null,  
    foreign key (Registration_Number) references Students(Registration_Number)  
);
```

```

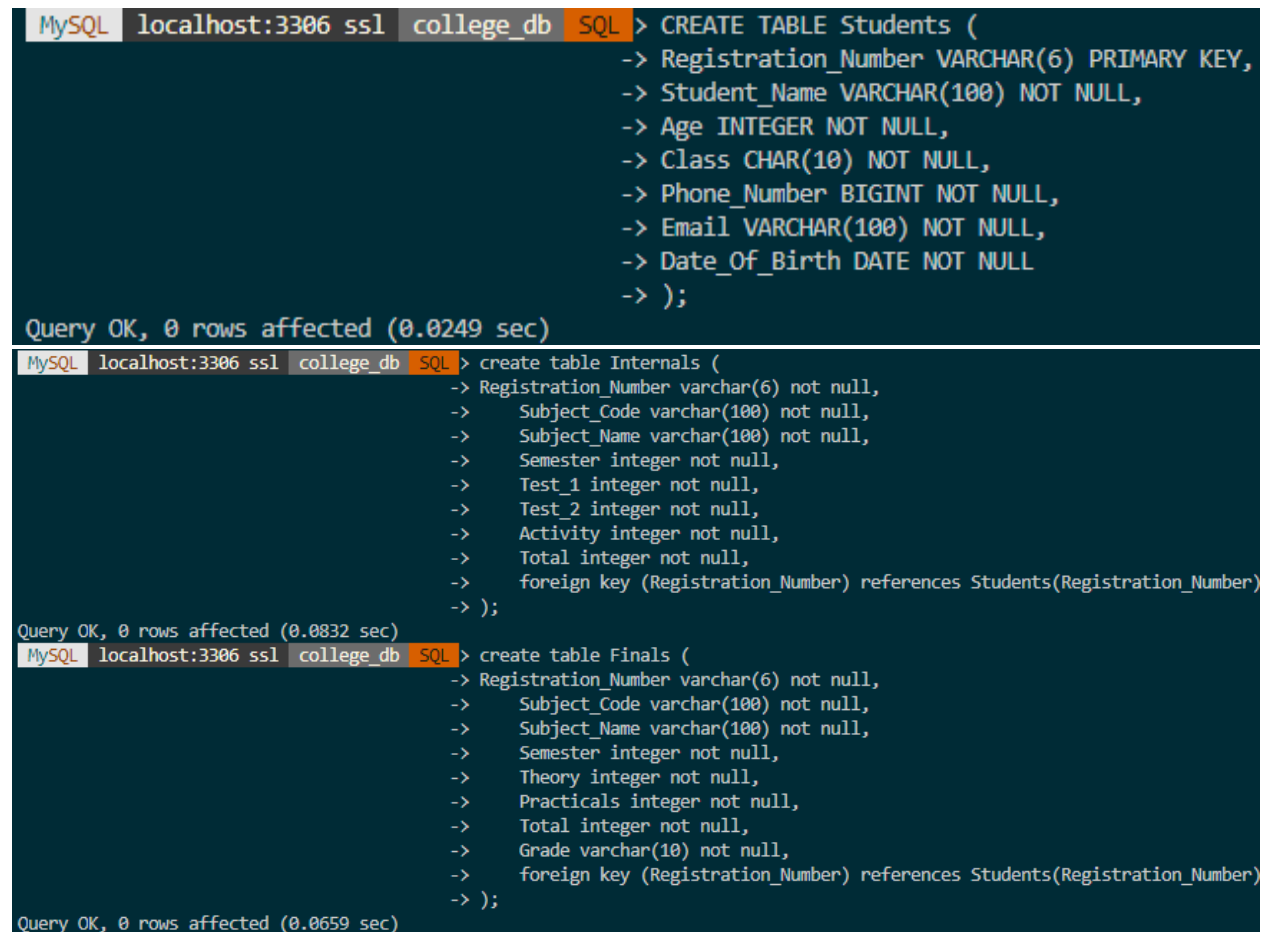
create table Department (
    Department_ID varchar(10) primary key,
    Department_Name varchar(20) not null,
    Staff_Strength integer not null,
    HOD_ID varchar(20) not null
);

```

```

create table Staff (
    Department_ID varchar(20) not null,
    Staff_ID varchar(20) primary key,
    Staff_Name varchar(100) not null,
    foreign key (Department_ID) references Department(Department_ID)
);

```



```

MySQL localhost:3306 ssl college_db SQL > CREATE TABLE Students (
    -> Registration_Number VARCHAR(6) PRIMARY KEY,
    -> Student_Name VARCHAR(100) NOT NULL,
    -> Age INTEGER NOT NULL,
    -> Class CHAR(10) NOT NULL,
    -> Phone_Number BIGINT NOT NULL,
    -> Email VARCHAR(100) NOT NULL,
    -> Date_Of_Birth DATE NOT NULL
    -> );

Query OK, 0 rows affected (0.0249 sec)

MySQL localhost:3306 ssl college_db SQL > create table Internals (
    -> Registration_Number varchar(6) not null,
    -> Subject_Code varchar(100) not null,
    -> Subject_Name varchar(100) not null,
    -> Semester integer not null,
    -> Test_1 integer not null,
    -> Test_2 integer not null,
    -> Activity integer not null,
    -> Total integer not null,
    -> foreign key (Registration_Number) references Students(Registration_Number)
    -> );

Query OK, 0 rows affected (0.0832 sec)

MySQL localhost:3306 ssl college_db SQL > create table Finals (
    -> Registration_Number varchar(6) not null,
    -> Subject_Code varchar(100) not null,
    -> Subject_Name varchar(100) not null,
    -> Semester integer not null,
    -> Theory integer not null,
    -> Practicals integer not null,
    -> Total integer not null,
    -> Grade varchar(10) not null,
    -> foreign key (Registration_Number) references Students(Registration_Number)
    -> );

Query OK, 0 rows affected (0.0659 sec)

```

DESCRIBE

describe Students;

```
MySQL localhost:3306 ssl college_db SQL > describe students;
```

Field	Type	Null	Key	Default	Extra
Registration_Number	varchar(6)	NO	PRI	NULL	
Student_Name	varchar(100)	NO		NULL	
Age	int	NO		NULL	
Class	char(10)	NO		NULL	
Phone_Number	bigint	NO		NULL	
Email	varchar(100)	NO		NULL	
Date_Of_Birth	date	NO		NULL	

7 rows in set (0.0030 sec)

describe Department;

```
MySQL localhost:3306 ssl college_db SQL > describe Department;
```

Field	Type	Null	Key	Default	Extra
Department_ID	varchar(10)	NO	PRI	NULL	
Department_Name	varchar(20)	NO		NULL	
Staff_Strength	int	NO		NULL	
HOD_ID	varchar(20)	NO		NULL	

4 rows in set (0.0022 sec)

ALTER

```
alter table Students  
add Gender char(6) not null;
```

```
describe Students;
```

```
MySQL localhost:3306 ssl college_db SQL > ALTER TABLE Students  
-> ADD Gender char(6) not null;  
Query OK, 0 rows affected (0.0263 sec)  
  
Records: 0 Duplicates: 0 Warnings: 0  
MySQL localhost:3306 ssl college_db SQL > describe Students;  
+-----+-----+-----+-----+-----+-----+  
| Field          | Type          | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| Registration_Number | varchar(6)    | NO   | PRI | NULL    |       |  
| Student_Name      | varchar(100)  | NO   |     | NULL    |       |  
| Age               | int           | NO   |     | NULL    |       |  
| Class             | char(10)      | NO   |     | NULL    |       |  
| Phone_Number      | bigint        | NO   |     | NULL    |       |  
| Email             | varchar(100)  | NO   |     | NULL    |       |  
| Date_Of_Birth     | date          | NO   |     | NULL    |       |  
| Gender            | char(6)       | NO   |     | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
8 rows in set (0.0029 sec)
```

```
alter table department  
modify HOD_ID integer not null;
```

```
describe Department;
```

```
MySQL localhost:3306 ssl college_db SQL > alter table department  
-> modify HOD_ID integer not null;  
Query OK, 0 rows affected (0.0145 sec)  
  
Records: 0 Duplicates: 0 Warnings: 0  
MySQL localhost:3306 ssl college_db SQL > describe Department;  
+-----+-----+-----+-----+-----+-----+  
| Field          | Type          | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| Department_ID  | varchar(10)   | NO   | PRI | NULL    |       |  
| Department_Name | varchar(20)   | NO   |     | NULL    |       |  
| Staff_Strength | int           | NO   |     | NULL    |       |  
| HOD_ID         | int           | NO   |     | NULL    |       |  
+-----+-----+-----+-----+-----+-----+  
4 rows in set (0.0028 sec)
```

DROP

```
drop table Department;
```

```
describe Department;
```

```
MySQL localhost:3306 ssl college_db SQL > drop table Department;
Query OK, 0 rows affected (0.0251 sec)
MySQL localhost:3306 ssl college_db SQL > describe Department;
ERROR: 1146 (42S02): Table 'college_db.department' doesn't exist
```

TRUNCATE

```
truncate table Students;
```

```
select * from Students;
```

```
MySQL localhost:3306 ssl college_db SQL > select * from Students;
+-----+-----+-----+-----+-----+-----+-----+-----+
| Registration_Number | Student_Name | Age | Class | Gender | Phone_Number | Email | Date_Of_Birth |
+-----+-----+-----+-----+-----+-----+-----+-----+
| CSC01 | Adelia | 21 | MSCS | F | 8247474661 | a.seq2804@gmail.com | 2001-04-28 |
| CSC02 | Celesta | 21 | MSCS | F | 9187462737 | cel4214@gmail.com | 2001-03-28 |
| CSC03 | Sudeep | 22 | MSCS | M | 8457856234 | sudeep20974@gmail.com | 2000-07-19 |
| CSC04 | Max | 22 | MSCS | M | 8787467527 | maximus1039@gmail.com | 2000-12-01 |
+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.0008 sec)
MySQL localhost:3306 ssl college_db SQL > truncate table Students;
Query OK, 0 rows affected (0.0374 sec)
MySQL localhost:3306 ssl college_db SQL > select * from Students;
Empty set (0.0030 sec)
```

(b) Implement DML commands for the above created database on all tables

INSERT

```
insert into Staff(Department_ID, Staff_ID, Staff_Name)
values('SJU01', 'SJU0101', 'Angelina'),
('SJU01', 'SJU0102', 'Mary'),
('SJU01', 'SJU0103', 'Karen'),
('SJU01', 'SJU0104', 'Joseph'),
('SJU02', 'SJU0201', 'Jonathan'),
('SJU02', 'SJU0202', 'Sanjana'),
('SJU02', 'SJU0203', 'David'),
('SJU03', 'SJU0301', 'Javier'),
('SJU03', 'SJU0302', 'Mridula'),
('SJU03', 'SJU0303', 'Sumanth'),
('SJU03', 'SJU0304', 'Josephine'),
('SJU03', 'SJU0305', 'Karim'),
('SJU04', 'SJU0401', 'Oindrila'),
('SJU04', 'SJU0402', 'Ila'),
('SJU04', 'SJU0403', 'Swapnil'),
('SJU04', 'SJU0404', 'Meryn'),
('SJU04', 'SJU0405', 'Sapna'),
('SJU04', 'SJU0406', 'Muthoot'),
('SJU04', 'SJU0407', 'Priya');
```

```
MySQL localhost:3306 ssl college_db SQL > select * from staff;
```

Department_ID	Staff_ID	Staff_Name
SJU01	SJU0101	Angelina
SJU01	SJU0102	Mary
SJU01	SJU0103	Karen
SJU01	SJU0104	Joseph
SJU02	SJU0201	Jonathan
SJU02	SJU0202	Sanjana
SJU02	SJU0203	David
SJU03	SJU0301	Javier
SJU03	SJU0302	Mridula
SJU03	SJU0303	Sumanth
SJU03	SJU0304	Josephine
SJU03	SJU0305	Karim
SJU04	SJU0401	Oindrila
SJU04	SJU0402	Ila
SJU04	SJU0403	Swapnil
SJU04	SJU0404	Meryn
SJU04	SJU0405	Sapna
SJU04	SJU0406	Muthoot
SJU04	SJU0407	Priya

19 rows in set (0.0009 sec)

UPDATE

```
update Internals
set Subject_Name = 'Theory Of Computation'
where Subject_Code = 'C01';
```

```
select * from Internals;
```

```
MySQL localhost:3306 ssl college_db SQL > select * from internals;
```

Registration_Number	Subject_Code	Subject_Name	Semester	Test_1	Test_2	Activity	Total
CSC01	C01	NULL	1	25	25	25	50
CSC02	C01	NULL	1	20	21	20	40
CSC03	C01	NULL	1	16	15	15	20
CSC04	C01	NULL	1	0	10	25	10

```
4 rows in set (0.0007 sec)
```

```
MySQL localhost:3306 ssl college_db SQL > update internals set Subject_Name = 'Theory Of Computation' where Subject_Code = 'C01';
Query OK, 4 rows affected (0.0035 sec)
```

```
Rows matched: 4  Changed: 4  Warnings: 0
```

```
MySQL localhost:3306 ssl college_db SQL > select * from internals;
```

Registration_Number	Subject_Code	Subject_Name	Semester	Test_1	Test_2	Activity	Total
CSC01	C01	Theory Of Computation	1	25	25	25	50
CSC02	C01	Theory Of Computation	1	20	21	20	40
CSC03	C01	Theory Of Computation	1	16	15	15	20
CSC04	C01	Theory Of Computation	1	0	10	25	10

```
4 rows in set (0.0007 sec)
```

DELETE

```
delete from Internals
where Test_1 = 0;
```

```
select * from Internals;
```

```
MySQL localhost:3306 ssl college_db SQL > delete from internals where Test_1 = 0;
Query OK, 1 row affected (0.0049 sec)
```

```
MySQL localhost:3306 ssl college_db SQL > select * from internals;
```

Registration_Number	Subject_Code	Subject_Name	Semester	Test_1	Test_2	Activity	Total
CSC01	C01	Theory Of Computation	1	25	25	25	50
CSC02	C01	Theory Of Computation	1	20	21	20	40
CSC03	C01	Theory Of Computation	1	16	15	15	20

```
3 rows in set (0.0008 sec)
```


(c) Implement DCL commands for the above database in all tables

CREATE USER

Create user ady@localhost identified by 'ady2838';

```
MySQL localhost:3306 ssl college_db SQL > create user ady@localhost identified by 'ady2838';
Query OK, 0 rows affected (0.0347 sec)
```

Connecting to new user...

```
>mysqlsh
>\sql
>\connect ady@localhost -p
```

```
MySQL SQL > \connect ady@localhost -p
Creating a session to 'ady@localhost'
Please provide the password for 'ady@localhost': *****
Save password for 'ady@localhost'? [Y]es/[N]o/[v]er (default No): Y
Fetching global names for auto-completion... Press ^C to stop.
Error during auto-completion cache update: Access denied; you need (at least one of) the PROCESS privilege(s) for this operation
Your MySQL connection id is 14 (X protocol)
Server version: 8.0.32 MySQL Community Server - GPL
No default schema selected; type \use <schema> to set one.
```

GRANT

```
grant all on college_db.* to ady@localhost;
```

```
show grants for ady@localhost;
```

```
MySQL localhost:3306 ssl college_db SQL > grant all on college_db.* to ady@localhost;
Query OK, 0 rows affected (0.0047 sec)
MySQL localhost:3306 ssl college_db SQL > show grants for ady@localhost;
+-----+
| Grants for ady@localhost |
+-----+
| GRANT USAGE ON *.* TO `ady`@`localhost` |
| GRANT ALL PRIVILEGES ON `college_db`.* TO `ady`@`localhost` |
+-----+
2 rows in set (0.0006 sec)
```

Connecting to other user...

```
insert into values ('SJU05', 'Big Data Analytics', 10, 'H05');
```

```
select * from Dsepartment;
```

```
MySQL localhost:33060+ ssl SQL > show databases;
+-----+
| Database |
+-----+
| college_db |
| information_schema |
| performance_schema |
+-----+
3 rows in set (0.0012 sec)
MySQL localhost:33060+ ssl SQL > use college_db;
Default schema set to `college_db`.
MySQL localhost:33060+ ssl college_db SQL > select * from department;
+-----+-----+-----+-----+
| Department_ID | Department_Name | Staff_Strength | HOD_ID |
+-----+-----+-----+-----+
| SJU01 | Computer Science | 20 | H01 |
| SJU02 | English | 12 | H02 |
| SJU03 | Physics | 18 | H03 |
| SJU04 | Mathematics | 31 | H04 |
+-----+-----+-----+-----+
4 rows in set (0.0022 sec)
MySQL localhost:33060+ ssl college_db SQL > insert into department
-> values ('SJU05','Big Data Analytics',10,'H05');
Query OK, 1 row affected (0.0024 sec)
MySQL localhost:33060+ ssl college_db SQL > select * from department;
+-----+-----+-----+-----+
| Department_ID | Department_Name | Staff_Strength | HOD_ID |
+-----+-----+-----+-----+
| SJU01 | Computer Science | 20 | H01 |
| SJU02 | English | 12 | H02 |
| SJU03 | Physics | 18 | H03 |
| SJU04 | Mathematics | 31 | H04 |
| SJU05 | Big Data Analytics | 10 | H05 |
+-----+-----+-----+-----+
5 rows in set (0.0009 sec)
```

REVOKE

revoke all on college_db.* from ady@localhost;

show grants for ady@localhost;

```
MySQL localhost:3306 ssl college_db SQL > revoke all on college_db.* from ady@localhost;
Query OK, 0 rows affected (0.0031 sec)
MySQL localhost:3306 ssl college_db SQL > show grants for ady@localhost;
+-----+
| Grants for ady@localhost |
+-----+
| GRANT USAGE ON *.* TO `ady`@`localhost` |
+-----+
1 row in set (0.0005 sec)
```

2. Create Objects.

Implement view commands to create a view object for the above tables

CREATE VIEW

```
create view StudentName as
select Registration_Number, Student_Name from Students;

select * from StudentName;
```

```
MySQL localhost:3306 ssl college_db SQL > create view StudentName as
      -> select Registration_Number, Student_Name from Students;
Query OK, 0 rows affected (0.0039 sec)
MySQL localhost:3306 ssl college_db SQL > select * from StudentName;
+-----+-----+
| Registration_Number | Student_Name |
+-----+-----+
| CSC01              | Adelia      |
| CSC02              | Celesta     |
| CSC03              | Sudeep      |
| CSC04              | Max         |
+-----+-----+
4 rows in set (0.0013 sec)
```

```
create view ady_details as
select * from Students
where Registration_Number = 'CSC01';

select * from ady_details;
```

```
MySQL localhost:3306 ssl college_db SQL > create view ady_details as
      -> select * from students
      -> where registration_number = 'CSC01';
Query OK, 0 rows affected (0.0048 sec)
MySQL localhost:3306 ssl college_db SQL > select * from ady_details;
+-----+-----+-----+-----+-----+-----+-----+-----+
| Registration_Number | Student_Name | Age | Class | Gender | Phone_Number | Email | Date_Of_Birth |
+-----+-----+-----+-----+-----+-----+-----+-----+
| CSC01              | Adelia      | 21 | MSCS  | F      | 8247474661  | a.seq2804@gmail.com | 2001-04-28 |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.0016 sec)
```

3. Moving Data.

a) Demonstrate exporting a database from MySQL

```
SELECT *
FROM (
  SELECT 'id', 'name', 'color', 'price'
  UNION ALL
  SELECT id, name, color, price
  FROM flowers
) AS data
INTO OUTFILE '/var/lib/mysql-files/flowersexport.csv'
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n';
```

```
mysql> SELECT *
-> FROM (
->   SELECT 'id', 'name', 'color', 'price'
->   UNION ALL
->   SELECT id, name, color, price
->   FROM flowers
-> ) AS data
-> INTO OUTFILE '/var/lib/mysql-files/flowersexport.csv'
-> FIELDS TERMINATED BY ','
-> ENCLOSED BY '"'
-> LINES TERMINATED BY '\n';
Query OK, 4 rows affected (0.00 sec)
```

Flowersexport.csv

	A	B	C	D	
1	id	name	color	price	
2	1	Red	12.99	0	
3	2	Yellow	8.5	0	
4	3	White	15	0	

b) Demonstrate importing a table from another application to MySQL

```
set GLOBAL local_infile = 1; --Can be set as root only
exit
```

```
> mysql -u 'username' --local-infile=1 --secure-file-priv='' -p 'password'
--start sql server with local inline enabled
```

```
CREATE TABLE flowers (
  id INT AUTO_INCREMENT PRIMARY KEY,
  name VARCHAR(255) NOT NULL,
  color VARCHAR(255) NOT NULL,
  price DECIMAL(10, 2) NOT NULL
);
```

```
LOAD DATA LOCAL INFILE './flowers.csv'
INTO TABLE flowers
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS;
```

```
mysql> use lab tables;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> LOAD DATA LOCAL INFILE './flowers.csv' INTO TABLE flowers FIELDS TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 3 rows affected, 6 warnings (0.01 sec)
Records: 3 Deleted: 0 Skipped: 0 Warnings: 6

mysql> select * from flowers;
+----+-----+-----+-----+
| id | name  | color | price |
+----+-----+-----+-----+
| 1  | Red   | 12.99 | 0.00  |
| 2  | Yellow| 8.50  | 0.00  |
| 3  | White | 15.00 | 0.00  |
+----+-----+-----+-----+
3 rows in set (0.00 sec)
```

4. Recovery.

Implement commands for backward recovery (Savepoint, Commit, Rollback)

SAVEPOINT

```
start transaction;
savepoint college_save;
```

```
MySQL localhost:3306 ssl college_db SQL > start transaction;
Query OK, 0 rows affected (0.0011 sec)
MySQL localhost:3306 ssl college_db ★ SQL > savepoint college_save;
```

COMMIT

```
start transaction;

select * from Finals;
delete from Finals
where Theory < 50;
select * from Finals;
savepoint college_save;

commit;
```

```
MySQL localhost:3306 ssl college_db SQL > start transaction;
Query OK, 0 rows affected (0.0003 sec)
MySQL localhost:3306 ssl college_db ★ SQL > select * from finals;
+-----+-----+-----+-----+-----+-----+-----+-----+
| Registration_Number | Subject_Code | Subject_Name      | Semester | Theory | Practicals | Total | Grade |
+-----+-----+-----+-----+-----+-----+-----+-----+
| CSC01              | C01          | Design Of Analysis | 1        | 70     | 35         | 100   | A++   |
| CSC02              | C01          | Design Of Analysis | 1        | 55     | 29         | 90    | A     |
| CSC03              | C01          | Design Of Analysis | 1        | 43     | 21         | 70    | B     |
| CSC04              | C01          | Design Of Analysis | 1        | 35     | 35         | 50    | D     |
+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.0007 sec)
MySQL localhost:3306 ssl college_db ★ SQL > delete from finals where Theory < 50;
Query OK, 2 rows affected (0.0046 sec)
MySQL localhost:3306 ssl college_db ★ SQL > select * from finals;
+-----+-----+-----+-----+-----+-----+-----+-----+
| Registration_Number | Subject_Code | Subject_Name      | Semester | Theory | Practicals | Total | Grade |
+-----+-----+-----+-----+-----+-----+-----+-----+
| CSC01              | C01          | Design Of Analysis | 1        | 70     | 35         | 100   | A++   |
| CSC02              | C01          | Design Of Analysis | 1        | 55     | 29         | 90    | A     |
+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.0007 sec)
MySQL localhost:3306 ssl college_db ★ SQL > savepoint college_save;
Query OK, 0 rows affected (0.0004 sec)
MySQL localhost:3306 ssl college_db ★ SQL > commit;
Query OK, 0 rows affected (0.0017 sec)
```

ROLLBACK

```
start transaction;
select * from Finals;
delete from Finals
where Theory > 50;
select * from Finals;
rollback;
```

```
MySQL localhost:3306 ssl college_db SQL > start transaction;
Query OK, 0 rows affected (0.0004 sec)
MySQL localhost:3306 ssl college_db SQL > select * from finals;
+-----+-----+-----+-----+-----+-----+-----+
| Registration_Number | Subject_Code | Subject_Name | Semester | Theory | Practicals | Total | Grade |
+-----+-----+-----+-----+-----+-----+-----+
| CSC01              | C01          | Design Of Analysis | 1        | 70     | 35         | 100   | A++   |
| CSC02              | C01          | Design Of Analysis | 1        | 55     | 29         | 90    | A     |
+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.0013 sec)
MySQL localhost:3306 ssl college_db SQL > delete from finals
-> where theory > 50;
Query OK, 2 rows affected (0.0007 sec)
MySQL localhost:3306 ssl college_db SQL > select * from finals;
Empty set (0.0008 sec)
MySQL localhost:3306 ssl college_db SQL > rollback;
Query OK, 0 rows affected (0.0018 sec)
MySQL localhost:3306 ssl college_db SQL > select * from finals;
+-----+-----+-----+-----+-----+-----+-----+
| Registration_Number | Subject_Code | Subject_Name | Semester | Theory | Practicals | Total | Grade |
+-----+-----+-----+-----+-----+-----+-----+
| CSC01              | C01          | Design Of Analysis | 1        | 70     | 35         | 100   | A++   |
| CSC02              | C01          | Design Of Analysis | 1        | 55     | 29         | 90    | A     |
+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.0007 sec)
```

```
start transaction;
select * from Finals;
savepoint college_save;
delete from Finals
where Subject_Code = 'C01';
rollback to savepoint college_save;
select * from Finals;
```



```

MySQL localhost:3306 ssl college_db SQL > start transaction;
Query OK, 0 rows affected (0.0003 sec)
MySQL localhost:3306 ssl college_db SQL > select * from finals;
+-----+-----+-----+-----+-----+-----+-----+-----+
| Registration_Number | Subject_Code | Subject_Name | Semester | Theory | Practicals | Total | Grade |
+-----+-----+-----+-----+-----+-----+-----+-----+
| CSC01 | C01 | Design Of Analysis | 1 | 70 | 35 | 100 | A++ |
| CSC02 | C01 | Design Of Analysis | 1 | 55 | 29 | 90 | A |
| CSC03 | C01 | Design Of Analysis | 1 | 40 | 19 | 68 | C |
| CSC04 | C01 | Design Of Analysis | 1 | 20 | 19 | 40 | D |
+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.0006 sec)
MySQL localhost:3306 ssl college_db SQL > savepoint college_save;
Query OK, 0 rows affected (0.0004 sec)
MySQL localhost:3306 ssl college_db SQL > delete from finals
--> where subject_code = 'C01';
Query OK, 4 rows affected (0.0012 sec)
MySQL localhost:3306 ssl college_db SQL > rollback to savepoint college_save;
Query OK, 0 rows affected (0.0006 sec)
MySQL localhost:3306 ssl college_db SQL > select * from finals;
+-----+-----+-----+-----+-----+-----+-----+-----+
| Registration_Number | Subject_Code | Subject_Name | Semester | Theory | Practicals | Total | Grade |
+-----+-----+-----+-----+-----+-----+-----+-----+
| CSC01 | C01 | Design Of Analysis | 1 | 70 | 35 | 100 | A++ |
| CSC02 | C01 | Design Of Analysis | 1 | 55 | 29 | 90 | A |
| CSC03 | C01 | Design Of Analysis | 1 | 40 | 19 | 68 | C |
| CSC04 | C01 | Design Of Analysis | 1 | 20 | 19 | 40 | D |
+-----+-----+-----+-----+-----+-----+-----+-----+
4 rows in set (0.0006 sec)

MySQL localhost:3306 ssl college_db SQL > select Students.Student_Name, Internals.Test_1
--> from Students
--> right join Internals on Internals.Registration_Number = Students.Registration_Number
--> order by Students.Age desc;
+-----+-----+
| Student_Name | Test_1 |
+-----+-----+
| Sudeep | 16 |
| Adelia | 25 |
| Celesta | 20 |
+-----+-----+
3 rows in set (0.0009 sec)

```

5. Locking

```
Start transaction;
Lock tables employee write, form_data read;
Select * from employee;
Select * from form_data;
Update form_data set name='shashank3' where email='shashank20022801@gmail.com';
Update employee set name='Kaif' where empID=1;
Select * from person_salary
```

```
mysql> start transaction;
Query OK, 0 rows affected (0.00 sec)

mysql> lock tables employee write, form_data read;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from employee;
+-----+-----+-----+-----+-----+
| empID | name  | age | gender | salary |
+-----+-----+-----+-----+
| 1     | kaif  | 21  | male   | 500000 |
| 2     | Anand | 22  | male   | 500001 |
| 4     | Ady   | 21  | female | 500000 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select * from form_data;
+-----+-----+
| name      | email                                     |
+-----+-----+
| shashank  | shashank200801@gmail.com               |
| shashank2 | shashank20022801@gmail.com             |
| shashank2 | shashank20022801@gmail.com             |
+-----+-----+
3 rows in set (0.00 sec)

mysql> update employee set name='shashank3' where email='shashank20022801@gmail.com';
ERROR 1054 (42S22): Unknown column 'email' in 'where clause'
mysql> update form_data set name='shashank3' where email='shashank20022801@gmail.com';
ERROR 1099 (HY000): Table 'form_data' was locked with a READ lock and can't be updated
mysql> update employee set name='Kaif' where empID=1;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from person_salary;
ERROR 1100 (HY000): Table 'person_salary' was not locked with LOCK TABLES
mysql> commit;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> select * from person_salary;
+-----+-----+-----+
| empID | name  | salary |
+-----+-----+-----+
| 1     | Kaif  | 500000 |
| 2     | Anand | 500001 |
| 4     | Ady   | 500000 |
+-----+-----+-----+
3 rows in set (0.00 sec)
```

6. Preparing Application for execution using a front end tool

- (i) Design a form in HTML**
- (ii) Create a table in MySQL**
- (iii) Use PHP to connect the content of the form to the MySQL database**

index.html

```
<!DOCTYPE html>
<html>
  <head>
    <title>Registration Page</title>
    <link rel="stylesheet" type="text/css" href="css/bootstrap.css" />
  </head>
  <body>
    <div class="container">
      <div class="row col-md-6 col-md-offset-3">
        <div class="panel panel-primary">
          <div class="panel-heading text-center">
            <h1>Registration Form</h1>
          </div>
          <div class="panel-body">
            <form action="connect.php" method="post">
              <div class="form-group">
                <label for="firstName">First Name</label>
                <input
                  type="text"
                  class="form-control"
                  id="firstName"
                  name="firstName"
                />
              </div>
              <div class="form-group">
                <label for="lastName">Last Name</label>
                <input
                  type="text"
                  class="form-control"
                  id="lastName"
                  name="lastName"
                />
              </div>
              <div class="form-group">
                <label for="gender">Gender</label>
                <div>
                  <label for="male" class="radio-inline">
                    <input
                      type="radio"
                      name="gender"
                      value="m"
                      id="male"
                    />Male</label>
                  >
                </div>
              </div>
            </form>
          </div>
        </div>
      </div>
    </div>
  </body>
</html>
```

```

        <label for="female" class="radio-inline"
        ><input
            type="radio"
            name="gender"
            value="f"
            id="female"
        />Female</label
    >
    <label for="others" class="radio-inline"
    ><input
        type="radio"
        name="gender"
        value="o"
        id="others"
    />Others</label
    >
</div>
</div>
<div class="form-group">
    <label for="email">Email</label>
    <input
        type="text"
        class="form-control"
        id="email"
        name="email"
    />
</div>
<div class="form-group">
    <label for="password">Password</label>
    <input
        type="password"
        class="form-control"
        id="password"
        name="password"
    />
</div>
<div class="form-group">
    <label for="number">Phone Number</label>
    <input
        type="number"
        class="form-control"
        id="number"
        name="number"
    />
</div>
    <input type="submit" class="btn btn-primary" />
</form>
</div>
<div class="panel-footer text-right">
    <small>&copy; Technical Babaji</small>
</div>
</div>
</div>
<div class="toast" role="alert" aria-live="assertive" aria-atomic="true">

```

```

<div class="toast-header">
  
  <strong class="mr-auto">Bootstrap</strong>
  <small>11 mins ago</small>
  <button type="button" class="ml-2 mb-1 close" data-dismiss="toast" aria-
label="Close">
    <span aria-hidden="true">&times;</span>
  </button>
</div>
<div class="toast-body">
  Hello, world! This is a toast message.
</div>
</div>
</body>
</html>

```

connect.php

```

<?php
    $firstName = $_POST['firstName'];
    $lastName = $_POST['lastName'];
    $gender = $_POST['gender'];
    $email = $_POST['email'];
    $password = $_POST['password'];
    $number = $_POST['number'];

    // Database connection
    $conn = new mysqli('localhost','root','','test');
    if($conn->connect_error){
        echo "$conn->connect_error";
        die("Connection Failed : ". $conn->connect_error);
    } else {
        $stmt = $conn->prepare("insert into registration(firstName,
lastName, gender, email, password, number) values(?, ?, ?, ?, ?,
?)");
        $stmt->bind_param("sssssi", $firstName, $lastName, $gender, $email,
$password, $number);
        $execval = $stmt->execute();
        echo $execval;
        echo "Registration successfully...";
        $stmt->close();
        $conn->close();
    }
?>

```

Output

Registration Form

First Name

Last Name

Gender

☐ Male ☒ Female ☐ Others

Email

Password

Phone Number

```
PS C:\Users\Adelicia\Documents\Academics\Projects\database_connection_php> mysqlsh
MySQL Shell 8.0.32
```

Copyright (c) 2016, 2023, Oracle and/or its affiliates.
Oracle is a registered trademark of Oracle Corporation and/or its affiliates.
Other names may be trademarks of their respective owners.

Type '\help' or '\?' for help; '\quit' to exit.

```
MySQL JS > \sql
```

Switching to SQL mode... Commands end with ;

```
MySQL SQL > \connect root@localhost:3306
```

Creating a session to 'root@localhost:3306'

Fetching global names for auto-completion... Press ^C to stop.

Your MySQL connection id is 20

Server version: 8.0.32 MySQL Community Server - GPL

No default schema selected; type \use <schema> to set one.

```
MySQL localhost:3306 ssl SQL > show databases;
```

Database
college
college_db
form_info
information_schema
mysql
performance_schema
sakila
sys
test
world

10 rows in set (0.0038 sec)

```
MySQL localhost:3306 ssl SQL > use form_info
```

Default schema set to 'form_info'.

Fetching global names, object names from 'form_info' for auto-completion... Press ^C to stop.

```
MySQL localhost:3306 ssl form_info SQL > select * from user_info
```

-> ;

firstName	lastName	gender	email	password	number
Adelicia	Sequeira	F	a.seq2804@gmail.com	adyishere	8247474661

1 row in set (0.0010 sec)