Application Programming Practical File

Semester II - Freshman Year

BACHELOR OF TECHNOLOGY
IN
INFORMATION TECHNOLOGY

Submitted by

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Under the guidance of
PROF. Md. ARQUAM
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15th June, 2020

Harsh Soni
11912082
IT

System Information

Hardware :

- System type   : Laptop (Provided in College Laboratory)
- Manufacturer   : Dell
- RAM   : 8 GB
- ROM   : 256 GB
- Processor   : Core i7

Software :

- Operating System : Windows 10
- Browser used   : Google Chrome (Version 83.0.4103.97)
- Web Server   : Tomcat9
- Text Editor   : VS Code

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**NOTE : Source code of all the experiments can be found at
https://github.com/harshSoni082/ap_practicals

Experiment 1 :

Create an HTML web page form.

Solution : Created a SignUp form using HTML and CSS.

             HTML : index.html

             CSS   : style/style.css

index.html

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Form</title>
    <link href="style/style.css" rel="stylesheet" type="text/css">
    <link href="https://fonts.googleapis.com/css2?family=Maven+Pro" rel="stylesheet">
    <script src="script/script.js"></script>
  </head>

  <body>
    <div class="model" id="cred-model">
      <div class="cred-container">
        <div class="login-slider">
          <h3 class="signup-link">Sign Up</h3>
        </div>
        <div class="register-container">
          <div class="signup-container">
            <h3 id="signup-header">Create your account</h3>
            <div class="signup-form-conainer">
              <form class="signup-form" action="backend/php/register.php" method="POST" target="_blank">
                <input class="fname" type="text" name="fname" placeholder="First Name" required/>
                <input class="lname" type="text" name="lname" placeholder="Last Name" required/>
                <input class="email" type="email" name="email" placeholder="Email Address" required/>
                <input class="pass" type="password" name="pass" placeholder="Password" required/>
                <input class="repass" type="password" name="repass" placeholder="Confirm Password" required/>
                <input type="submit" class="signup-btn" value="Sign Up">
                <input type="reset" class="reset-btn" value="Reset">
              </form>
            </div>
          </div>
        </div>
      </div>
    </div>
  </body>
</html>
```

style.css

```css
:root
{
    --border-color: rgb(210, 210, 210);
    --shadow-color: rgba(143, 143, 143, 0.5);
    --cool-blue: rgb(79, 177, 222);
    --cool-bluish-green: rgb(87, 193, 199);
    --cool-green: rgb(88, 191, 178);
    --placeholder: rgb(174, 174, 174);
    --input-color: rgb(84, 94, 103);
    --register-shadow: rgb(237, 240, 243);
    --reg-input-border: rgb(152, 160, 169);
    --less-cool-green: rgb(26,179,148);
    --less-cool-red: rgb(237,85,101);
}

html
{
    scroll-behavior: smooth;
}

body
{
    margin: 0;
    background-image: linear-gradient(145deg, rgb(79, 179, 222), rgb(88, 191, 178));
}

a, a:active, a:visited, a:hover
{
    text-decoration: none;
}

select
{
    -webkit-appearance: none;
    -moz-appearance: none;
    appearance: none;
}

.model
{
    transition: 0.25s ease;
```

```css
   position: fixed;
   height: 100%;
   width: 100%;
   top: 0;
   left: 0;
   background-color: rgba(0, 0, 0, 0.8);
}

#cred-model
{
   background-color: rgba(255, 255, 255, 0.3);
}

.cred-container
{
   box-sizing: border-box;
   display: block;
   margin: auto;
   margin-top: 6%;
   height: 80%;
   width: 50%;
   max-height: 100%;
   max-width: 80%;
   padding: 0%;
   background-color: white;
   border: 1px solid var(--register-shadow);
   box-shadow: 1px 1px 5px var(--register-shadow);
}

.login-slider
{
   display: flex;
   flex-wrap: wrap;
   box-sizing: border-box;
   width: 100%;
   justify-content: center;
   text-align: center;
}

.signup-link
{
   box-sizing: border-box;
   transition: 0.25s ease;
```

```css
  font-size: 1vw;
  margin: auto;
  font-family: 'Maven Pro';
  padding: 3% 0 3% 0;
  width: 100%;
  color: rgb(150, 168, 185);
  border-bottom: 1px solid rgb(237, 240, 243);
  background-color: rgb(250, 251, 252);
}

.login-link
{
  border-right: 1px solid rgb(237, 240, 243);
  border-bottom: 0;
  background-color: white;
}

.register-container
{
  box-sizing: border-box;
  display: flex;
  flex-wrap: wrap;
  /* border: 2px solid black; */
  margin: auto;
  height: 90%;
  width: 100%;
  text-align: center;
}

.register-container input
{
  box-sizing: border-box;
  padding: 3% 4% 3% 2%;
  width: 80%;
  border: 1px solid var(--reg-input-border);
  font-size: 1vw;
  margin-bottom: 4%;
  font-family: Roboto;
  color: #666666;
  border-top-left-radius: 5px 5px;
  border-top-right-radius: 5px 5px;
  border-bottom-left-radius: 5px 5px;
  border-bottom-right-radius: 5px 5px;
```

```css
    box-shadow: 1px 1px 5px var(--register-shadow);
}

.register-container input:focus
{
    outline: none;
}

.register-container input[type="submit"], .register-container input[type="reset"]
{
    box-sizing: border-box;
    width: 40%;
    border: 0;
    padding: 3% 2% 3% 2%;
    font-size: 1vw;
    font-family: Roboto;
    color: white;
    border-top-left-radius: 5px 5px;
    border-top-right-radius: 5px 5px;
    border-bottom-left-radius: 5px 5px;
    border-bottom-right-radius: 5px 5px;
    box-shadow: 1px 1px 12px var(--shadow-color);
}

#signup-header
{
    font-size: 2.4vw;
    margin-bottom: 6%;
    font-family: 'Poiret One';
    color: #666666;
}

.signup-container
{
    transition: 0.25s ease;
    margin: auto;
    margin-top: 5%;
    width: 80%;
}

.signup-container input
{
    width: 39%;
```

```css
}

.signup-container input:nth-child(3)
{
  width: 80%;
}

.signup-container input:nth-child(1), .signup-container input:nth-child(4)
{
  margin-right: 1%;
}


.signup-btn
{
  transition: 0.25s ease;
  background-color: rgb(44,208,123);
  color: white;
}

.signup-btn:hover
{
  cursor: pointer;
  transition: 0.25s ease;
  background-color: rgb(45, 182, 111);
}

.reset-btn
{
  transition: 0.25s ease;
  background-color: var(--less-cool-red);
  color: white;
}

.reset-btn:hover
{
  cursor: pointer;
  transition: 0.25s ease;
  background-color: rgb(213,76,90);
}
```
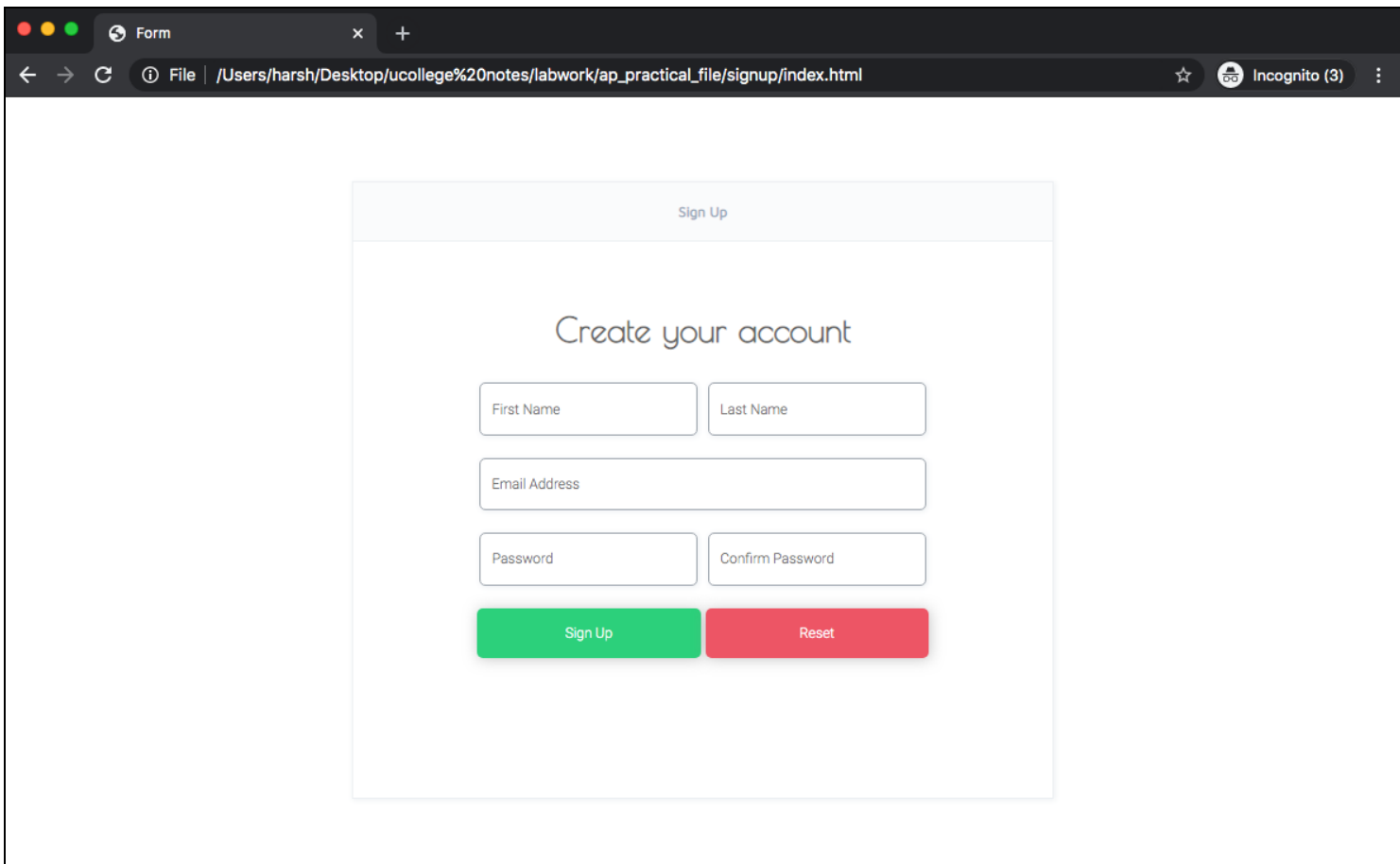
Outputs

Experiment 2 :

Create a home page using HTML.

Solution : Created a home page for booking hotels using HTML and CSS.
             HTML : index.html
             CSS   : style/style.css

index.html

```html
<!DOCTYPE html>
<html>
  <head>
    <title>
      Hotels
    </title>
    <link href="style/style.css" rel="stylesheet" type="text/css">
    <link
href="https://fonts.googleapis.com/css2?family=Maven+Pro&family=Comfortaa:wght@500"
rel="stylesheet">
    <script src="script/script.js"></script>
  </head>

  <body>
    <header>
      <div class="upper-nav-bar">
        <a class="upper-nav-header" href="#">hotels</a>
        <nav class="nav-bar">
          <a class="nav-link" href="#">Home</a>
          <a class="nav-link" href="#gallery">Gallery</a>
          <a class="nav-link" href="#">Cart</a>
          <a class="nav-signup" href="#">Sign In</a>
        </nav>
      </div>
    </header>

    <div class="search-form-container">
      <h1 class="title">Book a hotel.</h1>
      <div class="search-container">
        <form class="search-form">
          <div class="row">
            <div class="col">
              <input class="inbox" type="date" placeholder="CHECK IN">
            </div>
            <div class="col">
              <input class="inbox" type="date" placeholder="CHECK OUT">
            </div>
            <div class="col">
              <input class="inbox" type="number" placeholder="GUESTS">
            </div>
            <div class="col">
```

```html
                    <button class="search-btn">Search</button>
                </div>
            </div>
        </form>
    </div>
</div>

</body>
</html>
```

style.css

```css
:root
{
  --border-color: rgb(210, 210, 210);
  --shadow-color: rgba(143, 143, 143, 0.5);
  --cool-blue: rgb(79, 177, 222);
  --cool-bluish-green: rgb(87, 193, 199);
  --cool-green: rgb(88, 191, 178);
  --placeholder: rgb(174, 174, 174);
  --input-color: rgb(84, 94, 103);
  --register-shadow: rgb(237, 240, 243);
  --reg-input-border: rgb(152, 160, 169);
  --less-cool-green: rgb(26,179,148);
  --less-cool-red: rgb(237,85,101);
}

html
{
  scroll-behavior: smooth;
}

body
{
  margin: 0;
  background-color: rgb(239, 250, 252);
}

a, a:active, a:visited, a:hover
{
```

```css
    text-decoration: none;
    border: none;
}

select
{
    -webkit-appearance: none;
    -moz-appearance: none;
    appearance: none;
}

header
{
    background-color: transparent;
}

.upper-nav-bar
{
    padding: 1% 2% 0.9% 4%;
    background-color: black;
    border: none;
}

.upper-nav-header
{
    color: white;
    background-color: transparent;
    font-size: 3vw;
    font-family: 'Comfortaa';
    border: none;
}

.upper-nav-header:hover
{
    cursor: pointer;
}

.nav-bar
{
    display: flex;
    position: absolute;
    flex-wrap: wrap;
    padding: 0% 2% 0 4%;
```

```css
    font-family: 'Maven Pro';
    font-size: 1.5vw;
    color: var(--shadow-color);
    background-color: black;
    border: none;
    top: 0%;
    width: 80%;
    right: 0;
}

.nav-link
{
    transition: 0.25s ease;
    color: white;
    border-bottom: 3px solid transparent;
    padding: 2%;
    background-color: transparent;
}

.nav-link:nth-child(1)
{
    margin-left: 50%;
}

.nav-link:hover
{
    transition: 0.25s ease;
    cursor: pointer;
    border-bottom: 3px solid #E83C92;
}

.nav-signup
{
    transition: 0.25s ease;
    padding: 2%;
    margin-left: 8%;
    color: white;
    border: none;
}

.nav-signup:hover
{
    transition: 0.25s ease;
```

```css
    cursor: pointer;
}

.search-form-container
{
    display: flex;
    width: 100%;
    height: 608px;
    justify-content: center;
    background-image: url("../resources/background2.jpg");
    background-repeat: no-repeat;
    background-attachment: fixed;
    background-position: center;
    background-size: cover;
    border: none;
}

.title
{
    color: white;
    font-family: Roboto;
    font-size: 8vw;
    position: absolute;
    width: 80%;
    font-weight: bold;
    top: 45%;
}

.search-container
{
    transition: 0.25s ease;
    width: 80%;
    box-sizing: border-box;
    border-top-left-radius: 10px 10px;
    border-top-right-radius: 10px 10px;
    border-bottom-left-radius: 10px 10px;
    border-bottom-right-radius: 10px 10px;
    padding: 0px;
    border: none;
}

.search-form
{
```

```css
    display: flex;
    flex-wrap: wrap;
    margin-top: 24%;
    border: none;
}


.search-box
{
    box-sizing: border-box;
    transition: 0.25s ease;
    width: 100%;
    border: none;
    border-top-left-radius: 10px 10px;
    border-bottom-left-radius: 10px 10px;
    font-size: 1.2vw;
    font-family: 'Maven Pro';
    margin: 0px;
    border: none;
    color: var(--input-color);
}


.search-box:focus
{
    transition: 0.25s ease;
    outline: none;
}


.search-btn
{
    transition: 0.25s ease;
    box-sizing: border-box;
    width: 100%;
    border: none;
    font-family: 'Maven Pro';
    border-top-right-radius: 10px 10px;
    border-bottom-right-radius: 10px 10px;
    font-size: 1.2vw;
    padding: 1.6%;
    height: 100%;
    background-color: rgb(200, 1, 96);
    color: white;
}
```

```css
.search-btn:hover
{
  transition: 0.25s ease;
  background-color: rgb(180, 1, 79);
  cursor: pointer;
}

.row
{
  transition: 0.25s ease;
  display: flex;
  flex-direction: row;
  flex-wrap: wrap;
  width: 100%;
  background-color: white;
  border-top-left-radius: 10px 10px;
  border-top-right-radius: 10px 10px;
  border-bottom-left-radius: 10px 10px;
  border-bottom-right-radius: 10px 10px;
}


.row:hover
{
  transition: 0.25s ease;
  color: var(--cool-blue);
}

.col
{
  box-sizing: border-box;
  flex: 25%;
  text-align: center;
  border-right: 1px solid var(--border-color);
}

.col:hover
{
  transition: 0.25s ease;
  cursor: pointer;
}

.inbox
```
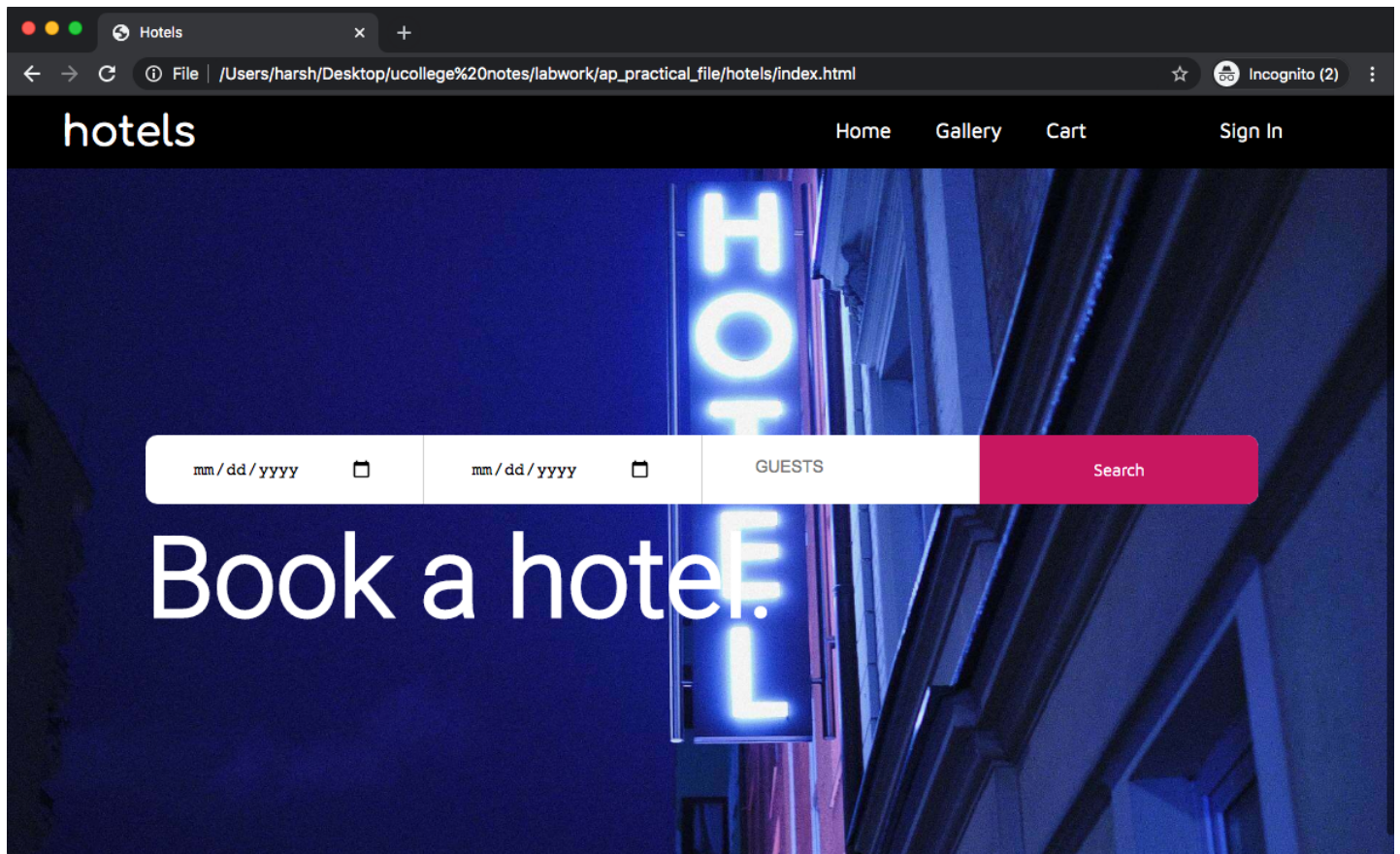
```css
{
  padding: 8%;
  border: none;
  font-size: 1.2vw;
}

.inbox:focus
{
  outline: none;
}

.search-form .row .col:nth-child(4)
{
  border: none;
}

.gallery .row .col
{
  width: 50%;
}
```

Outputs

Experiment 3 :

Creating a web page using XHTML and CSS to understand its use.

Solution : Created a web page for XHTML and CSS.
                XHTML : index.html
                CSS   : style/style.css

index.html

```html
<!DOCTYPE html
PUBLIC "-//W3C//DTD XHTML 1.0 Frameset//EN"
"DTD/xhtml1-frameset.dtd">
<html>
  <head>
    <title>IIIT Sonepat</title>
    <link href="https://fonts.googleapis.com/css?family=Maven+Pro&display=swap"
rel="stylesheet">
    <link href="style/style.css" rel="stylesheet" type="text/css">
  </head>

  <body>
    <div id='name_cointain'><h1 id='name_header'>Indian Institute of Information
Technology, Sonepat</h1></div>

    <div class="nav">
      <div id="home_nav" class="nav_prop"><p>Home</p></div>
      <div id="acad_nav" class="nav_prop"><p>Academics</p></div>
      <div id="add_nav" class="nav_prop"><p>Admission</p></div>
      <div id="exam_nav" class="nav_prop"><p>Examination</p></div>
      <div id="notes_nav" class="nav_prop">
        <a href="http://iiitsonepat.ac.in/online-notes">
          <p>COVID-19 : Online Notes</p>
        </a>
      </div>
    </div>

    <div class="info">
      <h2 id="info_head">Notices</h2>
      <hr>
      <ul>
        <li>Due to the pandemic the summer vacation is hereby extended up to
30.6.2020.</li>
        <li>In view of extension of summer vacation, the winter vacation & semester break
may depends upon
          the future possibilities.</li>
        <li>The Examination notification contains the procedure for evaluation of the
students for the current
          semester is being issued separately.</li>
      </ul>
    </div>
```

```html
<div class='reg_container'>
    <div class="form_contain">
      <h2 id='reg_header'>Registration</h2>
       <form name="credentials" action="#">
          <input class='nme' type="text" placeholder="First Name"/>
          <input class='nme' type="text" placeholder="Last Name"/>
          <input class='nme' type="text" placeholder="Phone No."/><br/>
          <button id='btn_submit'>
           Submit
          </button>
       </form>
    </div>
  </div>

  <div class="logo">
     <a href="http://iiitsonepat.ac.in" target="_blank">
        <img id="col_logo" src="contents/iiit_s_logo.png" alt="IIIT Sonepat Logo" />
     </a>
  </div>

  <footer>
     <div class="footer">
        <p id='footer_contact'>All Copyright &copy; reserved by Indian Institute of
Technology Sonepat</p>
     </div>
  </footer>
 </body>
</html>
```

style.css

```css
* {
  box-sizing: border-box;
}
 body {
    margin: 0;
}

 a, a:visited, a:hover, a:active
 {
    text-decoration: none;
    color: white;
}
 #name_cointain {
   height: 100%;
   width: 100%;
   display: flex;
   align-items: center;
   justify-content: center;
   border-bottom: 4px solid;
   border-top: 0;
   border-left: 0;
   border-right: 0;
   border-image-source: linear-gradient(45deg, #0575E6, #00F260);
   border-image-slice: 1;
   text-align: center;
}
 #name_header {
    color: #0575E6;
    font-family: 'Maven Pro';
}

.nav {
  display: table;
  text-align: center;
  width: 60%;
}

.nav_prop {
display: flex;
margin: auto;
text-align: center;
```

```css
 border-bottom: 2px solid transparent;
 font-family: 'Maven Pro';
 font-size: 0.9em;
 justify-content: center;
}

.nav_prop:hover {
  cursor: pointer;
 border-bottom: 2px solid #ed5565;
}

#home_nav {
 display: table-cell;
 border-bottom: 2px solid #ed5565;
}

#acad_nav {
  display: table-cell;
}

#add_nav {
  display: table-cell;
}

#exam_nav {
  display: table-cell;
}

#notes_nav {
  display: table-cell;
  background-color: rgb(44, 207, 123);
  color: white !important;
}

::placeholder {
  font-family: 'Maven Pro';
 }
 .reg_container {
  float: right;
  box-sizing: border-box;
  height: auto;
  width: 30%;
  margin-top: 2%;
```

```css
    padding: 1% 2% 1% 2%;
    border-left: 1px solid rgb(230, 230, 230);
}
 .nme {
  box-sizing: border-box;
  width: 100%;
  padding: 4%;
  margin-top: 3%;
  margin-bottom: 3%;
  font-family: 'Maven Pro';
  font-size: 0.8em;
  background-color: rgba(255, 255, 255, 0.2);
  box-shadow: .1em .05em .25em rgba(151, 159, 156, 0.5);
  border-bottom: 0;
  border-right: 0;
  border-left: 2px solid  #74ebd5;
  border-top: 0;
 }
 .nme:focus {
  outline: none;
 }
 #btn_submit {
  background-color: #1ab394;
  border: 0px;
  font-family: 'Maven Pro';
  font-size: 1em;
  color: white;
  width: 100%;
  padding: 4%;
  margin-top: 3%;
  margin-bottom: 3%;
  box-shadow: .1em .05em .25em rgba(151, 159, 156, 0.5);
 }
 #btn_submit:hover {
  background-color: #17a185;
  box-shadow: .1em .1em .5em rgba(151, 159, 156, 0.5);
 }
 #btn_submit:focus {
  outline: none;
 }
 #reg_header {
  color: #1ab394;
  font-family: 'Maven Pro';
```

```css
    }
    #btn {
      position: absolute;
      bottom: 10%;
      box-sizing: border-box;
      width: 84%;
    }
    #btn_reg {
      background-color: #f8ac59;
      border: 0px;
      font-family: 'Maven Pro';
      font-size: 1em;
      color: white;
      width: 40%;
      padding: 2%;
      margin-top: 3%;
      margin-bottom: 3%;
      box-shadow: .3em .2em .5em rgba(151, 159, 156, 0.5);
    }
    #btn_reg:hover {
      background-color: #df9a50;
      box-shadow: .1em .1em .5em rgba(151, 159, 156, 0.5);
    }
    #btn_reg:focus {
      outline: none;
    }

.logo {
/* border: 1px solid black; */
  object-fit: contain;
  text-align: center;
  padding: 5% 18% 0 18%;
}


#col_logo {
  max-width: 100%;
  max-height: 100%;
  margin: auto;
}

#img_contain {
  position: relative;
```

```css
}

.info {
  float: left;
  box-sizing: border-box;
  height: auto;
  width: 30%;
  margin-top: 2%;
  padding: 1% 2% 1% 2%;
  font-family: 'Maven Pro';
  border-right: 1px solid rgb(230, 230, 230);
}
 #info_head {
  color: #1ab394;
}

.footer {
  position: fixed;
  bottom: 0;
  padding: 1%;
  width: 100%;
  background-color: rgb(235, 235, 235);
}
 #footer_contact {
  text-align: center;
  font-family: 'Maven Pro';
}
```

Outputs

Experiment 4 :

Setting up and configuring Tomcat server.

Solution : Download and install Tomcat9.

Configure Tomcat and PATH to successfully run it.

**Note: JDK is a prerequisite for Tomcat, make sure it is installed.

Download and install Tomcat9

1. Go to https://tomcat.apache.org/download-90.cgi then go to the Binary
   Distribution/Core/ and download the package.

2. Now unzip the downloaded file into a directory of our choice. Tomcat will be
   unzipped into the directory "YOUR-PATH\tomcat-9.x.x".

Check the extracted directory

Check the installed directory to ensure it contains the following sub-directories:
- bin folder
- logs folder
- webapps folder
- work folder
- temp folder
- conf folder
- lib folder

Create Environment Variable

Now, we need to create an Environment Variable JAVA_HOME.

We need to create an Environment Variable called "JAVA_HOME" and set it to our JDK
installed path.

1. To create the JAVA_HOME Environment Variable in Windows 10, go to Windows >
   Control Panel > System > Advanced System Settings. Then switch to the
   'Advanced' tab and select 'Environment Variables' / 'System Variables' then select
   'New'. In 'Variable Name', enter 'JAVA_HOME'. In 'Variable Value', enter the path
   where JDK is installed (e.g., "C:\Program Files\Java\jdk{x.x}").

2. For ensuring that it is set correctly, we need to start a command shell and issue:
   >> set JAVA_HOME
   JAVA_HOME=c:\Program Files\Java\jdk{x.x} <= Check that this is the directory
   where JDK is installed

3. Sometimes we need to set JRE_HOME also. So for creating JRE_HOME we need to
   use the same procedure. Go to Windows > Control Panel > System > Advanced
   System Settings. Then switch to the 'Advanced' tab and select 'Environment
   Variables' / 'System Variables' then select 'New'. In 'Variable Name', enter

‘JRE_HOME’. In ‘Variable Value’, enter your JRE installed directory (e.g.,
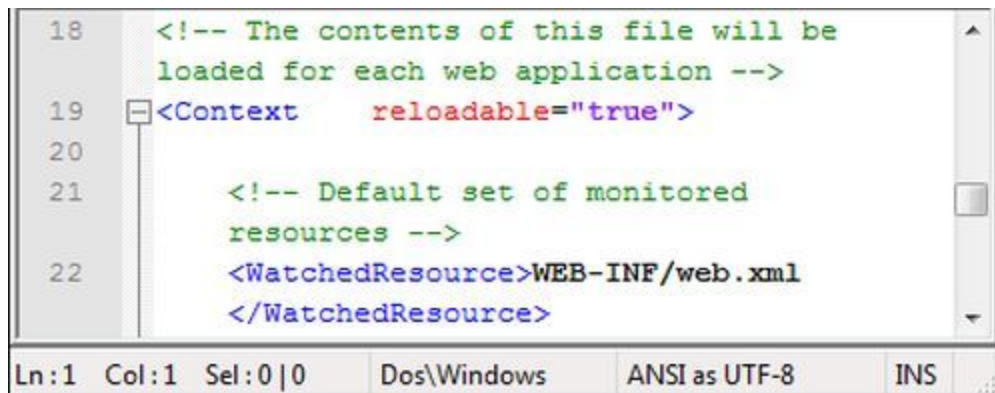"C:\Program Files\Java\jre{x}").

Configuring Tomcat Server

The configuration files of the Apache Tomcat Server are located in the ‘conf’ sub-directory of
our Tomcat installed directory, for example "YOUR-PATH\tomcat 9.x.x\conf". There are 4
configuration XML files:

1. context.xml
2. tomcat-users.xml
3. server.xml
4. web.xml

1. **conf\context.xml**
   Enabling Automatic Reload

   In conf\context.xml we set reloadable="true" to the <Context> element to enable
   automatic reload after code changes.

```
18      <!-- The contents of this file will be
        loaded for each web application -->
19    ⊟<Context    reloadable="true">
20
21        <!-- Default set of monitored
        resources -->
22        <WatchedResource>WEB-INF/web.xml
        </WatchedResource>
```
```
Ln:1  Col:1  Sel:0|0    Dos\Windows    ANSI as UTF-8    INS
```

2. **conf\server.xml**
   Set the TCP Port Number

   In conf\server.xml the default port number of Tomcat is 8080. Now we need to
   change the TCP port number for Tomcat, since the same port number can be used
   by other services such as SQL Server.

   Here we are setting the port to ‘9999’.

```
                    port 8080
69      |    -->
70           <Connector port="9999" protocol="HTTP/1.1"
71                       connectionTimeout="20000"
72                       redirectPort="8443" />
73           <!-- A "Connector" using the shared thread
             pool-->
74      |    <!--
75           <Connector executor="tomcatThreadPool"
```

Ln:1   Col:1   Sel:0|0   Dos\Windows   ANSI as UTF-8   INS

3. **conf\web.xml**
   Enabling a Directory Listing

   Open the configuration file 'web.xml'. We shall enable the directory listing by changing 'listings' from 'false' to 'true' for the 'default' servlet.

   Like this - <param-value>true</param-value>


```
96      <servlet>
97           <servlet-name>default</servlet-name>
98           <servlet-class>
             org.apache.catalina.servlets.DefaultServlet
             </servlet-class>
99           <init-param>
100              <param-name>debug</param-name>
101              <param-value>0</param-value>
102          </init-param>
103          <init-param>
104              <param-name>listings</param-name>
105              <param-value>true</param-value>
106          </init-param>
107          <load-on-startup>1</load-on-startup>
108      </servlet>
109
```

Start and access the server

Now run the server to check if everything is fine.

1. Go to the command shell and change the directory to where Tomcat resides.
2. Then cd to 'bin' and type 'startup'.
3. Open browser and type 'http://localhost:9999' and we will see a page as below
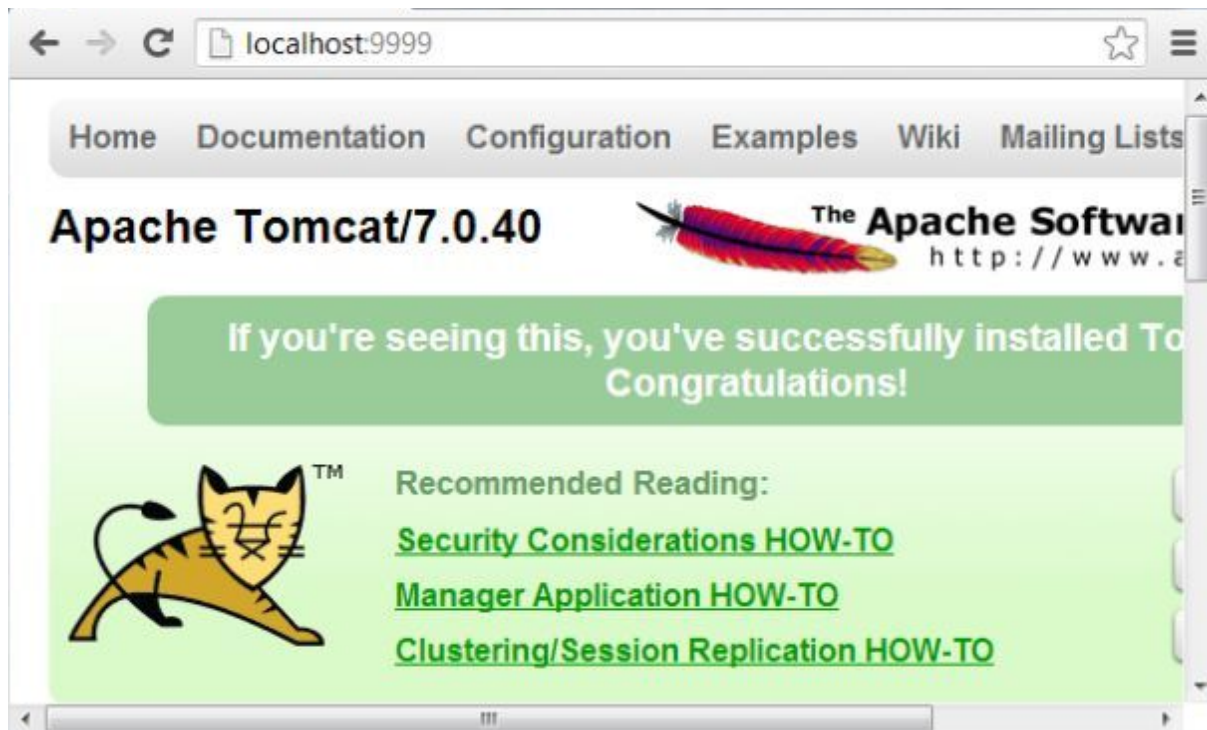
Experiment 5 :

Understanding modification of Web.XML.

Solution : Go through and study the Web.XML file.

Web.XML

The web.xml file is derived from the Servlet specification, and contains information used to deploy and configure our web applications.

When configuring Tomcat, this is where we can define servlet mappings for central components. Within Tomcat, this file functions in the same way as described in the Servlet specification.

Tomcat has two web.xml files one in the conf directory and the other in the web-inf. The only divergence in Tomcat's handling of this file is that a user has the option of utilizing TOMCAT-PATH/conf/web.xml to define default values for all contexts. If this method is utilized, Tomcat will use TOMCAT-PATH/conf/web.xml as a base configuration, which can be overwritten by application-specific WEB-INF/web.xml files. That is, web.xml in conf defines parameters for all web applications whereas the web.xml in web-inf is applicable to current web applications only.

web-app

The root element of this XML deployment descriptor is 'web-app'; its elements are shown in the table below. There are no required elements, but you should always have at least a 'display-name' element for identification. As of the Servlet specification version 2.4, the elements nested directly under the web-app element may be listed in any order. In cases where more than one of the same element is used and it is unclear which element takes precedence, the servlet container will use them in the order they are listed in the web.xml file.

The table below contains the elements and what they represent.

Element	Meaning
display-name	A name for the web-app in the GUI admin tools
description	A description for the web application
context-params	Context parameters whose values do not change very often
servlet	Servlet definitions for the servlets that make up out web application
session-config	Defines the default session timeout for our application

Experiment 6 :

Creating websites using php.

Solution : Create a registration form and connect it to php implemented backend

        HTML : index.html

        CSS   : style/style.css

        JS   : script/script.js

        PHP   : backend/php/register.php

index.html

```html
<!DOCTYPE html>
<html>
  <head>
    <title>
      Registration
    </title>
    <link href="style/style.css" rel="stylesheet" type="text/css">
    <link
href="https://fonts.googleapis.com/css2?family=Maven+Pro&family=Quicksand:wght@300&
family=Ubuntu:wght@300&display=swap&family=Comfortaa:wght@500&display=swap&fam
ily=Roboto:wght@300&display=swap&family=Bellota+Text:wght@300&display=swap&famil
y=Poiret+One&display=swap" rel="stylesheet">
    <script src="script/script.js"></script>
  </head>

  <body>
    <div class="center-container">
      <div class="register-container">
        <div class="signup-container">
          <h3 id="signup-header">Registration Form</h3>
          <div class="signup-form-conainer">
            <form class="signup-form" action="backend/php/registration.php"
method="POST" target="_blank">
              <input class="fname" type="text" name="fname" placeholder="First
Name" required/>
              <input class="lname" type="text" name="lname" placeholder="Last
Name" required/>
              <input class="fathername" type="text" name="fathernme"
placeholder="Fathers Name" required/>
              <input class="bday" type="date" name="bday" placeholder="Birthday"
required/>
              <input class="gender" id="male" type="radio" name="gender"
value="Male">
              <label for="male">Male</label>
              <input class="gender" id="female" type="radio" name="gender"
value="Female" >
              <label for="female">Female</label><br>
              <input class="email" type="email" name="email" placeholder="Email"
required/>
              <input class="tel" type="tel" name="tel" placeholder="Mobile No"
pattern="\d\d\d\d\d\d\d\d\d" required/>
```

```html
                    <input class="add" type="text" name="address" placeholder="Address"
required/>
                    <input class="pincode" type="text" name="pincode"
placeholder="Pincode (000000)" pattern="\d\d\d\d\d\d" required/>
                    <select class="state" name="state">
                    </select>
                    <input type="submit" class="signup-btn" value="Submit">
                </p>
            </form>
        </div>
      </div>
    </div>
  </div>
  </body>
</html>
```

style.css

```css
:root
{
  --border-color: rgb(210, 210, 210);
  --shadow-color: rgba(143, 143, 143, 0.5);
  --cool-blue: rgb(79, 177, 222);
  --cool-bluish-green: rgb(87, 193, 199);
  --cool-green: rgb(88, 191, 178);
  --placeholder: rgb(174, 174, 174);
  --input-color: rgb(84, 94, 103);
  --register-shadow: rgb(237, 240, 243);
  --reg-input-border: rgb(152, 160, 169);
  --less-cool-green: rgb(26,179,148);
  --less-cool-red: rgb(237,85,101);
}

html
{
  scroll-behavior: smooth;
  height: 100%;
}

body
{
```

```css
    box-sizing: border-box;
    margin: auto;
    vertical-align: middle;
    height: 100%;
    background: linear-gradient(145deg, #7F7FD5, #86A8E7, #91EAE4);
    background-position: center;
    background-repeat: no-repeat;
    background-size: cover;
    background-attachment: fixed;
    -webkit-background-size: cover;
    -moz-background-size: cover;
    -o-background-size: cover;

}

a, a:active, a:visited, a:hover
{
    text-decoration: none;
}

select
{
    -webkit-appearance: none;
    -moz-appearance: none;
    appearance: none;
}

.center-container
{
    box-sizing: border-box;
    display: flex;
    justify-content: center;
    height: 100%;
    width: 100%;
}

.register-container
{
    box-sizing: border-box;
    display: flex;
    flex-wrap: wrap;
    background-color: white;
    margin: auto;
```

```css
    width: 50%;
    border-top-left-radius: 10px 10px;
    border-top-right-radius: 10px 10px;
    border-bottom-left-radius: 10px 10px;
    border-bottom-right-radius: 10px 10px;
}

.register-container input, select, textarea
{
    transition: 0.25s ease;
    box-sizing: border-box;
    padding: 2% 4% 2% 2%;
    border: none;
    border: 3px solid transparent;
    font-size: 1vw;
    margin-bottom: 4%;
    font-family: Roboto;
    color: #666666;
    border-top-left-radius: 5px 5px;
    border-top-right-radius: 5px 5px;
    border-bottom-left-radius: 5px 5px;
    border-bottom-right-radius: 5px 5px;
    background-color: var(--register-shadow);
}

.register-container label
{
    color: #666666;
    font-family: Roboto;
    font-size: 1.2vw;
}

.register-container input:focus, select:focus, textarea:focus
{
    box-sizing: border-box;
    transition: 0.25s ease;
    outline: none;
    border: 3px solid #86A8E7;
}

.register-container input::placeholder, textarea::placeholder
{
    color: rgb(170, 170, 170);
```

```css
}

.register-container input[type="submit"], .register-container input[type="reset"]
{
  box-sizing: border-box;
  width: 40%;
  border: 0;
  padding: 3% 2% 3% 2%;
  font-size: 1vw;
  font-family: Roboto;
  color: white;
  border-top-left-radius: 5px 5px;
  border-top-right-radius: 5px 5px;
  border-bottom-left-radius: 5px 5px;
  border-bottom-right-radius: 5px 5px;
}

.signup-container
{
  transition: 0.25s ease;
  margin: auto;
  width: 80%;
}

.signup-container input, select
{
  width: 48%;
  margin-right: 1%;
}

.signup-container textarea
{
  width: 98%;
}

.signup-container input:nth-child(3), input:nth-child(12)
{
  width: 98%;
}

.signup-container input[type="radio"]
{
  margin-bottom: 4%;
```

```css
  font-family: Roboto;
  padding: 0;
  margin-right: 2%;
  margin-left: 4%;
  width: auto;
}

.signup-container input[type="radio"]:nth-child(2)
{
  margin-left: 10%;
}

.signup-btn
{
  transition: 0.25s ease;
  background-color: rgb(75, 171, 108)!important;
  color: white;
  padding: 2% !important;
  width: 98% !important;
}

.signup-btn:hover
{
  cursor: pointer;
  transition: 0.25s ease;
  background-color: rgb(60,136,86) !important;
}

#signup-header
{
  font-size: 2.4vw;
  margin-bottom: 6%;
  font-family: Quicksand;
  color: #666666;
}
```

script.js

```javascript
function formValidate()
{
  var form = document.getElementsByTagName('form')[0];
  var inputs = form.getElementsByTagName('input');
  var nme_match = new RegExp('name', "i");
  var nme_re = new RegExp('[^a-z]+', "i");
  var tel_re = new RegExp('{\d, 10}');
  for(var i=0; i<inputs.length-1; i++)
  {
    var nme = inputs[i].getAttribute('name');
    if(inputs[i].value == "")
    {
      inputs[i].focus();
      break;
    }
    if(nme_match.test(nme))
    {
      if(nme_re.test(inputs[i].value))
      {
        inputs[i].style.borderStyle = "solid";
        inputs[i].style.borderColor = "rgb(237,85,101)";
        inputs[i].focus();
        event.preventDefault();
      }
      else
      {
        inputs[i].style.borderColor = "transparent";
      }
    }
    if(nme == 'pincode')
    {
      if(inputs[i].value.length != 6)
      {
        // inputs[i].style.borderWidth = "2px";
        inputs[i].style.borderStyle = "solid";
        inputs[i].style.borderColor = "rgb(237,85,101)";
        inputs[i].style.
        inputs[i].focus();
        event.preventDefault();
      }
      else
```

```javascript
                {
                    inputs[i].style.borderColor = "transparent";
                }
            }
        }
    }

function addStates()
{
    var states_arr = new Array("Andaman & Nicobar", "Andhra Pradesh", "Arunachal
Pradesh",
                    "Assam", "Bihar", "Chandigarh", "Chhattisgarh",
                    "Dadra & Nagar Haveli", "Daman & Diu", "Delhi", "Goa",
                    "Gujarat", "Haryana", "Himachal Pradesh", "Jammu & Kashmir",
                    "Jharkhand", "Karnataka", "Kerala", "Lakshadweep", "Madhya Pradesh",
                    "Maharashtra", "Manipur", "Meghalaya", "Mizoram", "Nagaland", "Orissa",
                    "Pondicherry", "Punjab", "Rajasthan", "Sikkim", "Tamil Nadu", "Tripura",
                    "Uttar Pradesh", "Uttaranchal", "West Bengal");
    var country = document.getElementsByClassName("state")[0];
    country.options[0] = new Option('Select State', '', true);
    for(var i=0; i<states_arr.length; i++)
    {
        country.options[i+1] = new Option(states_arr[i], states_arr[i]);
    }
}

function start()
{
    addStates();
    var submit = document.getElementsByClassName('signup-btn')[0];
    submit.addEventListener('click', formValidate, false);
}

window.addEventListener('load', start, false);
```

registeration.php

```php
<html>

<?php

function process_data($data)
{
  $data = trim($data);
  $data = stripslashes($data);
  $data = htmlspecialchars($data);
  return $data;
}

$fname = $lname = $fathernme = $dob = $gender = $email = $mob = $add = $pin = $state
= $extra = "";
if($_SERVER["REQUEST_METHOD"] == "POST")
{
  $server_add = process_data($_SERVER["SERVER_ADDR"]);
  $server_name = process_data($_SERVER["SERVER_NAME"]);
  $host = process_data($_SERVER["HTTP_HOST"]);
  $fname =  process_data($_POST["fname"]);
  $lname = process_data($_POST["lname"]);
  $fathernme =  process_data($_POST["fathernme"]);
  $dob = process_data($_POST["bday"]);
  $gender =  process_data($_POST["gender"]);
  $email =  process_data($_POST["email"]);
  $mob = process_data($_POST["tel"]);
  $add =  process_data($_POST["address"]);
  $pin = process_data($_POST["pincode"]);
  $state =  process_data($_POST["state"]);
  $extra =  process_data($_POST["textarea"]);

  $server_json =  json_encode(array("server_address"=>$server_add,
                      "server_name"=>$server_name,
                      "host"=>$host),
                      JSON_PRETTY_PRINT);

  $data_json = json_encode(array("first_name"=>$fname,
                      "last_name"=>$lname,
                      "fathernme"=>$fathernme,
                      "dob"=>$dob,
                      "gender"=>$gender,
```
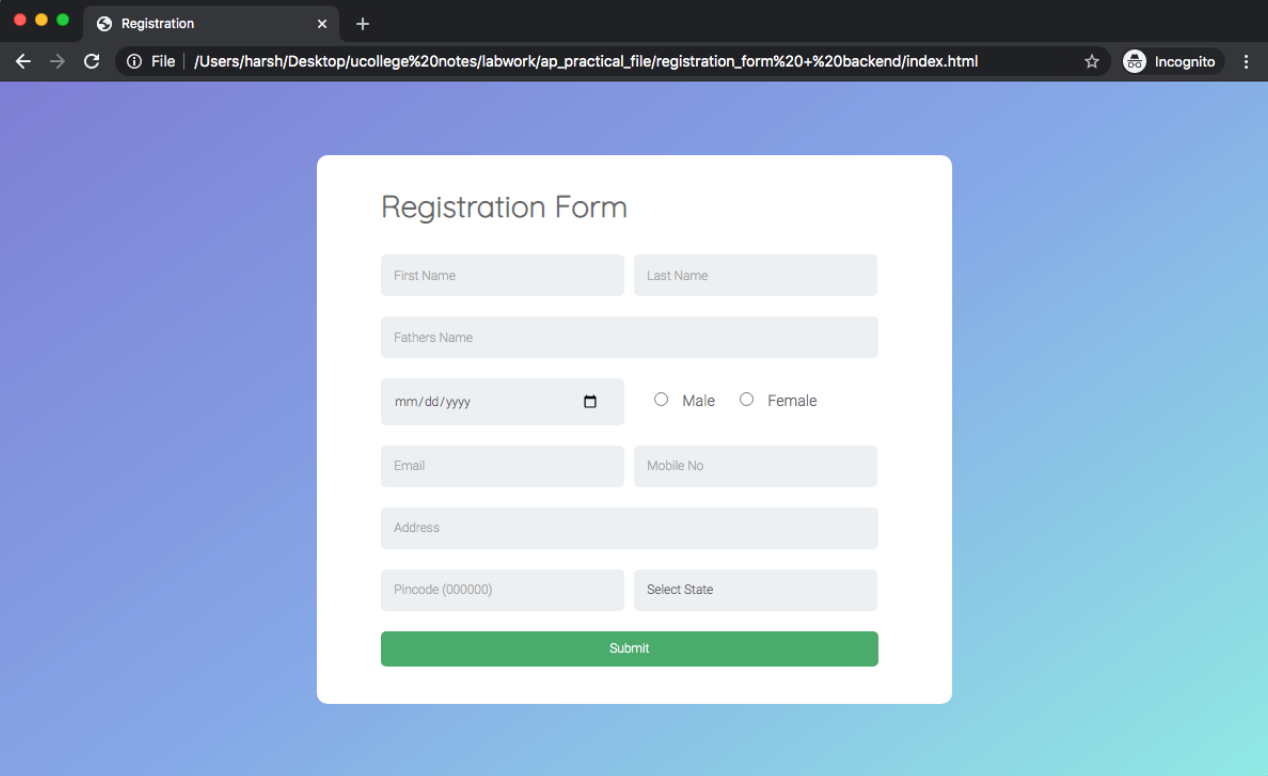
```php
            "email"=>$email,
            "tel"=>$mob,
            "address"=>$add,
            "pincode"=>$pin,
            "state"=>$state,
            "extra"=>$extra),
            JSON_PRETTY_PRINT);
    // save_as_json($data_json);
    print("<h2>Server Information JSON</h2>");
    print($server_json);

    print("<h2>Request JSON</h2>");
    print($data_json);
}
?>

</html>
```
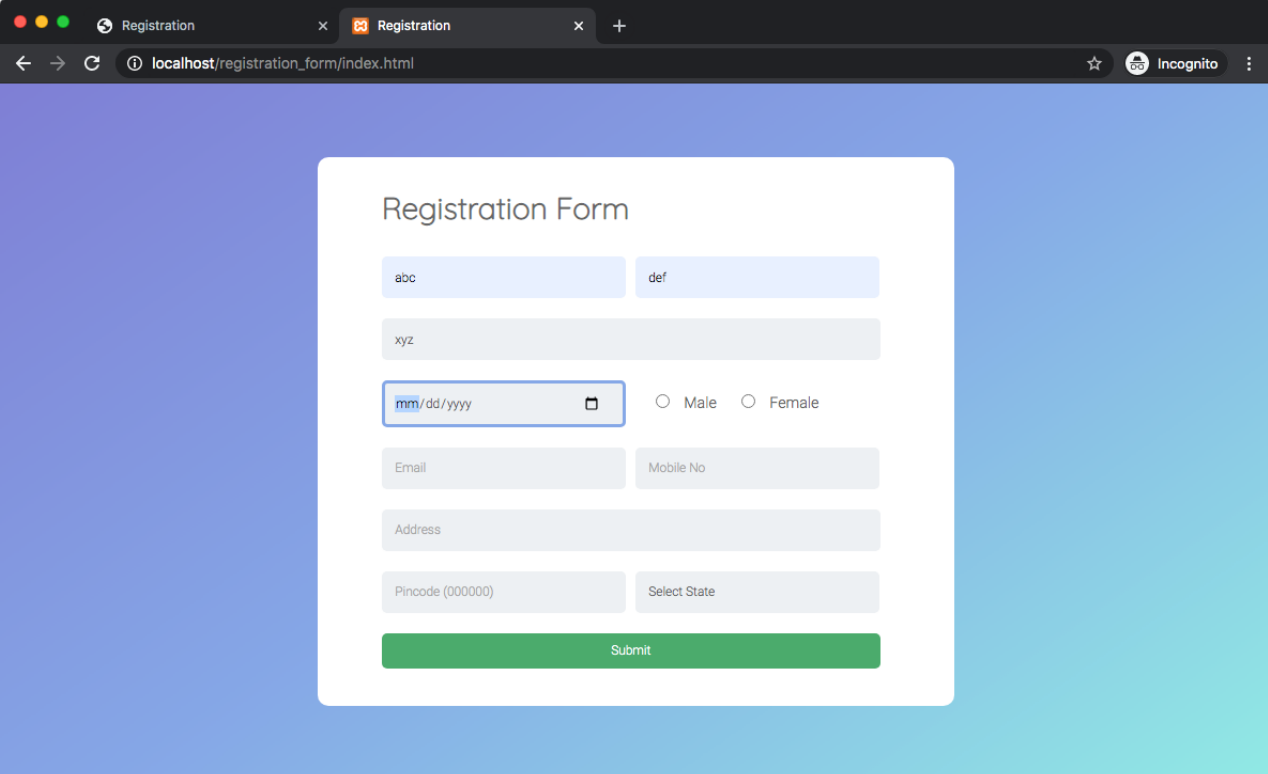
Outputs

Notice: Undefined index: textarea in /Applications/XAMPP/xampfiles/htdocs/registration_form/backend/php/registration.php on line 29

Server Information JSON

{ "server_address": "::1", "server_name": "localhost", "host": "localhost" }

Request JSON

{ "first_name": "abc", "last_name": "def", "fathernme": "xyz", "dob": "2020-06-15", "gender": "Male", "email": "abc.dr@abc.com", "tel": "1234567890", "address": "address, this is an address", "pincode": "123456", "state": "Andaman & Nicobar", "extra": "" }

Experiment 7 :

Understanding Javascript.

Solution: Create a calendar skeleton using HTML and add everything using JS

           HTML : index.html

           CSS   : style/style.css

           JS   : script/script.js

index.html

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Calendar</title>
    <link href="style/style.css" rel="stylesheet" type="text/css">
    <link
href="https://fonts.googleapis.com/css2?family=Maven+Pro&family=Quicksand:wght@300&
family=Ubuntu:wght@300&display=swap&family=Comfortaa:wght@500&display=swap&fam
ily=Roboto:wght@300&display=swap&family=Bellota+Text:wght@300&display=swap&famil
y=Poiret+One&display=swap" rel="stylesheet">
    <script src="script/script.js"></script>
  </head>

  <body>
    <div class="calendar">
      <div class="year-month-container">
        <div class="container">
          <div class="prev">&#10094;</div>
          <div class="next">&#10095;</div>
          <div class="year-month">
            <div class="month"></div>
            <span class="year"></span>
          </div>
        </div>
      </div>

      <div class="week-container">
        <div class="weekdays">
        </div>
      </div>

      <div class="day-container">
        <div class="days">
        </div>
      </div>
    </div>
  </body>
</html>
```

style.css

```css
body
{
    margin: 0;
}

.year-month-container
{
    box-sizing: border-box;
    width: 100%;
    text-align: center;
    background-color: rgb(45, 206, 118);
    color: white;
    padding: 2%;

}

.year-month-container .container
{
    width: 99%;
}

.year-month-container .year-month
{
    letter-spacing: 0.8vw;
    font-family: Roboto;
    font-size: 3vw;
    text-transform: uppercase;
}

.year-month-container .year-month .year
{
    letter-spacing: 0.5vw;
    font-size: 2vw;
}

.prev
{
    float: left;
    font-size: 3vw;
}
```

```css
.prev:hover
{
  cursor: pointer;
}

.next
{
  float: right;
  font-size: 3vw;
}

.next:hover
{
  cursor: pointer;
}

.week-container
{
  box-sizing: border-box;
  width: 100%;
  background-color: rgb(228, 228, 228);
  padding: 1%;
  margin: 0;
  color: rgb(120, 120, 120);
  font-family: Roboto;
}

.weekdays
{
  width: 100%;
  display: flex;
}

.weekdays div
{
  /* flex: 15%; */
  width: 12%;
  text-align: center;
  padding: 1%;
  font-size: 1.2vw;
}

.day-container
```

```
{
  box-sizing: border-box;
  width: 100%;
  background-color: rgb(230, 230, 230);
  /* padding: 1%; */
  margin: 0;
  color: rgb(120, 120, 120);
  font-family: Roboto;
}

.days
{
  box-sizing: border-box;
  width: 100%;
  display: flex;
  flex-wrap: wrap;
  margin: 0;
  padding: 0;
}

.days div
{
  /* flex: 1 0 12%; */
  width: 12%;
  text-align: center;
  padding: 3% 1% 3% 1%;
  border: 0.1px solid rgb(230, 230, 230);
  background-color: rgb(248, 248, 248);
  text-align: end;
}
```

script.js

```javascript
var months = ["January", "February", "March", "April", "May", "June", "July", "August",
"September", "October", "November", "December"];
var days = [31, 29, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31];
var weekdays = ["Mon", "Tue", "Wed", "Thu", "Fri", "Sat", "Sun"];

function loadYear(curr_year)
{
  document.getElementsByClassName("year")[0].innerHTML = "";
  document.getElementsByClassName("year")[0].innerHTML = curr_year;
}

function loadMonth(curr_month)
{
  document.getElementsByClassName("month")[0].innerHTML = "";
  document.getElementsByClassName("month")[0].innerHTML = months[curr_month];
}

function loadWeek()
{
  var week = document.getElementsByClassName("weekdays")[0];
  for(var i=0; i<weekdays.length; i++)
  {
    var div = document.createElement("div");
    div.innerHTML = weekdays[i];

    week.appendChild(div);
  }
}

function removeWeek()
{
  var week = document.getElementsByClassName("weekdays")[0];
  week.innerHTML = "";
}

function loadDays(curr_day, curr_month)
{
  var startDay = curr_day-1;
  var curr_month = curr_month;
  var leftDays = startDay;
  var day = document.getElementsByClassName("days")[0];
```

```
    if (startDay == -1)
    {
       leftDays = 6;
       startDay = 6;
    }
    for(var i=leftDays; i>0; i--)
    {
       var div = document.createElement("div");
       div.innerHTML = days[curr_month-1] - i + 1;
       div.style.backgroundColor = "rgb(240, 240, 240)";
       div.style.color = "rgb(180, 180, 180)";
       day.appendChild(div);
    }
    for(var i=1; i<=days[curr_month]; i++)
    {
       var div = document.createElement("div");
       div.innerHTML = i;

       day.appendChild(div);
    }

}

function removeDays()
{
  var day = document.getElementsByClassName("days")[0];
  day.innerHTML = "";
}

function setCalendar(day, month, year)
{
  loadYear(year);
  loadMonth(month);
  loadWeek();
  loadDays(day, month);
}

function setPrevCalendar()
{
  var month_nme = document.getElementsByClassName("month")[0].innerHTML;
  var month = months.indexOf(month_nme);
  month = parseInt(month);
  month -= 1;
```

```javascript
    if(month < 0)
    {
        month = 11;
    }

    var year = 2020;
    var date = new Date(year, month, 1);
    var day = date.getDay();

    removeWeek();
    removeDays();
    setCalendar(day, month, year);
}

function setNextCalendar()
{
    var month_nme = document.getElementsByClassName("month")[0].innerHTML;
    var month = months.indexOf(month_nme);
    month = parseInt(month);
    month = (month + 1) % 12;

    var year = 2020;
    var date = new Date(year, month, 1);
    var day = date.getDay();

    removeWeek();
    removeDays();
    setCalendar(day, month, year);
}

function start()
{
    var curr_date = new Date();
    day = 1;
    month = curr_date.getMonth();
    year = curr_date.getFullYear();

    if (parseInt(year) % 4 == 0)
    {
        days[1] = 29;
    }
    else
    {
```

```
      days[1] = 28;
   }

   setCalendar(day, month, year);

   var nxt = document.getElementsByClassName("next")[0];
   var prev = document.getElementsByClassName("prev")[0];
   nxt.addEventListener("click", setNextCalendar, false);
   prev.addEventListener("click", setPrevCalendar, false);
}

window.addEventListener("load", start, false);
```

Outputs

Experiment 8 :

Create a web page with backend in php and frontend in JS and host it on Apache Tomcat Server.

Solution : Create a To-Do task lister using HTML and CSS and its registration and signup using php.

            HTML : index.html
            CSS   : style/style.css
            JS   : script/script.js

index.html

```html
<!DOCTYPE html>
<html>
  <head>
    <title>
      To-Dos
    </title>
    <link href="style/style.css" rel="stylesheet" type="text/css">
    <link
href="https://fonts.googleapis.com/css2?family=Maven+Pro&family=Quicksand:wght@300&
family=Ubuntu:wght@300&display=swap&family=Comfortaa:wght@500&display=swap&fam
ily=Roboto:wght@300&display=swap&family=Bellota+Text:wght@300&display=swap&famil
y=Poiret+One&display=swap" rel="stylesheet">
    <script src="script/script.js"></script>
  </head>


  <body>
    <!----------------------------------Header--------------------------------->
    <header>
      <div class="upper-nav-bar">
        <a class="upper-nav-header" href="#">ToDos</a>
        <nav class="nav-bar">
          <a class="nav-link" href="#">Home</a>
          <a class="nav-link" href="#">Lists</a>
          <a class="nav-link" href="#">Cart</a>
          <a class="nav-signup" href="#">Sign In</a>
        </nav>
      </div>
    </header>
    <!------------------------------------------------------------------------->


    <!----------------------------------SignUp--------------------------------->
    <div class="model" id="cred-model">
      <span class="close" id="cred-close">&times;</span>
      <div class="cred-container">
        <div class="login-slider">
          <h3 class="login-link">Sign In</h3>
          <h3 class="signup-link">Sign Up</h3>
        </div>
        <div class="register-container">
          <div class="login-container">
              <div class="login-form-conainer">
```

```html
                        <h3 id="login-header">Sign in to your account</h3>
                        <form class="login-form" action="backend/php/signin.php" method="POST"
target="_blank">
                            <input class="email" type="email" name="email" placeholder="Email
Address" required/><br/>
                            <input class="pass" type="password" name="pass"
placeholder="Password" required/><br/>
                            <input type="submit" class="login-btn" value="Sign In">
                            <input type="reset" class="reset-btn" value="Reset">
                        </form>
                    </div>
                </div>
                <div class="signup-container">
                    <h3 id="signup-header">Create your account</h3>
                    <div class="signup-form-conainer">
                        <form class="signup-form" action="backend/php/register.php"
method="POST" target="_blank">
                            <input class="fname" type="text" name="fname" placeholder="First
Name" required/>
                            <input class="lname" type="text" name="lname" placeholder="Last
Name" required/>
                            <input class="email" type="email" name="email" placeholder="Email
Address" required/>
                            <input class="pass" type="password" name="pass"
placeholder="Password" required/>
                            <input class="repass" type="password" name="repass"
placeholder="Confirm Password" required/>
                            <input type="submit" class="signup-btn" value="Sign Up">
                            <input type="reset" class="reset-btn" value="Reset">
                        </form>
                    </div>
                </div>
            </div>
        </div>
    </div>
    <!----------------------------------------------------------------------->
    <div class="instructions">
        <h1 class="head">Create To-Do List</h1>
        <h3 class="steps">
            Type into the input box >
            Click Add button >
            To delete a list element, click at x beside<br>
        </h3>
```

```
        </div>
        <!---------------------------Create-------------------------->
        <div class="add-form-container">
          <div class="add-container">
            <form class="add-form">
              <input class="add-box" type="text" placeholder="New To-Do">
              <button class="add-btn">Add</button>
            </form>
          </div>
        </div>
        <!------------------------------------------------------------------------->
        <div class="to-dos">

        </div>

    </body>
</html>
```

style.css

```
:root
{
  --border-color: rgb(210, 210, 210);
  --shadow-color: rgba(143, 143, 143, 0.5);
  --cool-blue: rgb(79, 177, 222);
  --cool-bluish-green: rgb(87, 193, 199);
  --cool-green: rgb(88, 191, 178);
  --placeholder: rgb(174, 174, 174);
  --input-color: rgb(84, 94, 103);
  --register-shadow: rgb(237, 240, 243);
  --reg-input-border: rgb(152, 160, 169);
  --less-cool-green: rgb(26,179,148);
  --less-cool-red: rgb(237,85,101);
}

html
{
  scroll-behavior: smooth;
}
```

```css
body
{
  margin: 0;
  background-color: rgb(239, 250, 252);
}

a, a:active, a:visited, a:hover
{
  text-decoration: none;
}

select
{
  -webkit-appearance: none;
  -moz-appearance: none;
  appearance: none;
}

header
{
  background-color: transparent;
}

.upper-nav-bar
{
  padding: 1% 2% 1% 6%;
  background-color: #003366;
  color: white;
}

.upper-nav-header
{
  color: white;
  background-color: transparent;
  font-size: 3vw;
  font-family: 'Comfortaa';
}

.upper-nav-header:hover
{
  cursor: pointer;
}
```

```css
.nav-bar
{
  display: flex;
  position: absolute;
  flex-wrap: wrap;
  padding: 0% 2% 0 4%;
  font-family: 'Maven Pro';
  font-size: 1.5vw;
  color: var(--shadow-color);
  background-color: transparent;
  top: 0;
  width: 80%;
  right: 0;
}

.nav-link
{
  transition: 0.25s ease;
  color: white;
  display: block;
  border-bottom: 3px solid transparent;
  padding: 2%;
  background-color: transparent;
}

.nav-link:nth-child(1)
{
  margin-left: 50%;
}

.nav-link:hover
{
  transition: 0.25s ease;
  cursor: pointer;
  border-bottom: 3px solid #E83C92;
}

.nav-signup
{
  transition: 0.25s ease;
  margin-left: 8%;
  color: white;
  padding: 2%;
```

```css
}

.nav-signup:hover
{
  transition: 0.25s ease;
  cursor: pointer;
}

.instructions
{
  color: #003366;
  text-align: center;
  margin-top: 5%;
  font-family: Roboto;
}

.instructions .head
{
  font-size: 5vw;
}

.instructions .steps
{
  font-size: 1vw;
}

.model
{
  transition: 0.25s ease;
  /* display: none; */
  position: fixed;
  height: 100%;
  width: 100%;
  top: 0;
  left: 0;
  z-index: 10;
  background-color: rgba(0, 0, 0, 0.8);
}

#cred-model
{
  background-color: rgba(255, 255, 255, 0.9);
  display: none;
```

```css
}

.close
{
  position: absolute;
  left: 94%;
  top: 4%;
  font-size: 2vw;
}

#cred-close
{
  color: #666666;
}

.close:hover
{
  cursor: pointer;
}

.cred-container
{
  box-sizing: border-box;
  display: block;
  margin: auto;
  margin-top: 6%;
  height: 80%;
  width: 50%;
  max-height: 100%;
  max-width: 80%;
  padding: 0%;
  background-color: white;
  border: 1px solid var(--register-shadow);
  box-shadow: 1px 1px 5px var(--register-shadow);
}

.login-slider
{
  display: flex;
  flex-wrap: wrap;
  box-sizing: border-box;
  width: 100%;
  justify-content: center;
```

```css
  text-align: center;
}

.login-link, .signup-link
{
  box-sizing: border-box;
  transition: 0.25s ease;
  font-size: 1vw;
  margin: auto;
  font-family: 'Maven Pro';
  padding: 3% 0 3% 0;
  width: 50%;
  color: rgb(150, 168, 185);
  border-bottom: 1px solid rgb(237, 240, 243);
  background-color: rgb(250, 251, 252);
}

.login-link
{
  border-right: 1px solid rgb(237, 240, 243);
  border-bottom: 0;
  background-color: white;
}

.login-link:hover, .signup-link:hover
{
  transition: 0.25s ease;
  border-bottom: 1px solid rgb(237, 240, 243);
  box-shadow: 1px 1px 8px var(--shadow-color);
  cursor: pointer;
}

.register-container
{
  box-sizing: border-box;
  display: flex;
  flex-wrap: wrap;
  margin: auto;
  height: 90%;
  width: 100%;
  text-align: center;
}
```

```css
.register-container input
{
    box-sizing: border-box;
    padding: 3% 4% 3% 2%;
    width: 80%;
    border: 1px solid var(--reg-input-border);
    font-size: 1vw;
    margin-bottom: 4%;
    font-family: Roboto;
    color: #666666;
    border-top-left-radius: 5px 5px;
    border-top-right-radius: 5px 5px;
    border-bottom-left-radius: 5px 5px;
    border-bottom-right-radius: 5px 5px;
    box-shadow: 1px 1px 5px var(--register-shadow);
}

.register-container input:focus
{
    outline: none;
}

.register-container input[type="submit"], .register-container input[type="reset"]
{
    box-sizing: border-box;
    width: 40%;
    border: 0;
    padding: 3% 2% 3% 2%;
    font-size: 1vw;
    font-family: Roboto;
    color: white;
    border-top-left-radius: 5px 5px;
    border-top-right-radius: 5px 5px;
    border-bottom-left-radius: 5px 5px;
    border-bottom-right-radius: 5px 5px;
    box-shadow: 1px 1px 12px var(--shadow-color);
}

.register-container button:focus
{
    outline: none;
}
```

```css
.register-container button:hover
{
   box-shadow: 1px 1px 5px var(--shadow-color);
}

#login-header, #signup-header
{
   font-size: 2.4vw;
   margin-bottom: 6%;
   font-family: 'Poiret One';
   color: #666666;
}

.login-container
{
   /* display: none; */
   transition: 0.25s ease;
   margin: auto;
   margin-top: 10%;
   width: 80%;
}

.signup-container
{
   display: none;
   transition: 0.25s ease;
   margin: auto;
   margin-top: 5%;
   width: 80%;
}

.signup-container input
{
   width: 39%;
}

.signup-container input:nth-child(3)
{
   width: 80%;
}

.signup-container input:nth-child(1), .signup-container input:nth-child(4)
{
```

```css
    margin-right: 1%;
}

.login-btn, .signup-btn
{
    /* background-color: var(--less-cool-green); */
    transition: 0.25s ease;
    background-color: var(--cool-blue);
    color: white;
}

.login-btn:hover, .signup-btn:hover
{
    cursor: pointer;
    transition: 0.25s ease;
    background-color: rgb(71,159,199);
}

.reset-btn
{
    transition: 0.25s ease;
    background-color: var(--less-cool-red);
    color: white;
}

.reset-btn:hover
{
    cursor: pointer;
    transition: 0.25s ease;
    background-color: rgb(213,76,90);
}


.add-form-container
{
    display: flex;
    width: 100%;
    justify-content: center;
    margin-bottom: 5%;
}

.add-container
{
```

```css
    transition: 0.25s ease;
    width: 70%;
    box-shadow: 1px 1px 10px var(--shadow-color);
    border: 1px solid var(--border-color);
    border-top-left-radius: 10px 10px;
    border-top-right-radius: 10px 10px;
    border-bottom-left-radius: 10px 10px;
    border-bottom-right-radius: 10px 10px;
    margin-top: 6%;
    /* margin-bottom: 8%; */
    padding: 0px;
}

.add-form
{
    display: flex;
    flex-wrap: wrap;
}

.add-box
{
    box-sizing: border-box;
    transition: 0.25s ease;
    width: 85%;
    border: none;
    border-top-left-radius: 10px 10px;
    border-bottom-left-radius: 10px 10px;
    font-size: 1.2vw;
    padding: 1.6%;
    font-family: 'Maven Pro';
    margin: 0px;
    border: none;
    color: var(--input-color);
}

.add-box:focus
{
    transition: 0.25s ease;
    outline: none;
}

.add-btn
{
```

```css
    transition: 0.25s ease;
    box-sizing: border-box;
    width: 15%;
    border: none;
    font-family: 'Maven Pro';
    border-top-right-radius: 5px 5px;
    border-bottom-right-radius: 5px 5px;
    font-size: 1.2vw;
    padding: 1.6%;
    /* margin-left: -4px; */
    height: 100%;
    background-color: var(--cool-blue);
    color: white;
}

.add-btn:hover
{
    transition: 0.25s ease;
    background-color: #479fc7;
    cursor: pointer;
}

.to-dos
{
    margin: auto;
    width: 60%;
    text-align: center;
    color: #003366;
    text-align: left;
    font-family: Roboto;
}
```

script.js

```javascript
function clearForm(form)
{
  var inputs = form.getElementsByTagName("input")
  for(var i=0; i<inputs.length-2; i++)
  {
    inputs[i].value = "";
  }
}

function clearForms()
{
  var forms = document.getElementsByTagName("form");
  for(var i=0; i<forms.length; i++)
  {
    clearForm(forms[i]);
  }
}

function validateRetypePassword()
{
  var pass = document.getElementsByClassName("pass")[1];
  var repass = document.getElementsByClassName("repass")[0];
  var supBtn = document.getElementsByClassName("signup-btn")[0];
  if(pass.value != repass.value)
  {
    supBtn.active = false;
  }
  else
  {
    supBtn.active = true;
    supBtn.click()
  }
}

function switchTab(active, inactive)
{
  var which = active.innerHTML;
  var signinContainer = document.getElementsByClassName('login-container')[0];
  var signupContainer = document.getElementsByClassName('signup-container')[0];

  if(which == 'Sign In')
```

```
  {
     signinContainer.style.display = "none";
     signupContainer.style.display = "block";
  }
  else
  {
     signinContainer.style.display = "block";
     signupContainer.style.display = "none";
  }

  active.style.backgroundColor = "rgb(250, 251, 252)";
  active.style.borderBottom = "1px solid rgb(237, 240, 243)";
  inactive.style.backgroundColor = "white";
  inactive.style.borderBottom = "0";
}

function loginSignupTab()
{
  var tabs = document.getElementsByClassName("login-slider")[0];
  var signin = tabs.getElementsByClassName("login-link")[0];
  var signup = tabs.getElementsByClassName("signup-link")[0];

  signup.addEventListener('click', function() {switchTab(signin, signup);}, false);
  signin.addEventListener('click', function() {switchTab(signup, signin);}, false);

  var SignInSignUpModel = document.getElementById('cred-model');
  var closeTab = document.getElementsByClassName('close')[0];
  closeTab.addEventListener('click', function() {closeModel(SignInSignUpModel);}, false)
}

function signInScreen()
{
  var regModel = document.getElementById('cred-model');
  regModel.style.display = "block";
  loginSignupTab();
}

function closeModel(model)
{
  clearForms();
  model.style.display = "none";
}
```

```
var counter = 0;
function removeToDo(div)
{
  div.parentNode.removeChild(div);
  counter--;
}

function addNewToDo(e)
{
  var prnt = document.getElementsByClassName('to-dos')[0];
  var text = document.getElementsByClassName('add-box')[0];
  var div = document.createElement('div');
  var p = document.createElement('p');
  var x = document.createElement('p');
  div.style.width = "100%";
  div.style.marginTop = "2%";
  div.style.border = "1px solid #003366";
  div.style.backgroundColor = "#c6e2ff";
  div.style.display = "flex";
  div.id = "div" + counter;
  p.style.boxSizing = "border-box";
  p.style.width = "96%";
  p.innerHTML = text.value;
  p.style.paddingLeft = "2%";
  p.style.boxSizing = "border-box";
  x.innerHTML = "x";
  x.id = "x" + counter;

  text.value = "";
  div.appendChild(p);
  div.appendChild(x);
  prnt.appendChild(div);

  (function(div)
  {
    x.addEventListener('click', function(){removeToDo(div);}, false);
  })(div)
  counter++;
  e.preventDefault();
}

function start()
{
```

```
    loginSignupTab();
    document.getElementsByClassName('nav-signup')[0].addEventListener('click',
signInScreen, false);
    document.getElementsByClassName('signup-btn')[0].addEventListener('click',
validateRetypePassword, false);
    document.getElementsByClassName('add-btn')[0].addEventListener('click', addNewToDo,
false);

}

window.addEventListener("load", start, false);
```

signin.php

```php
<html>

<?php

function process_data($data)
{
  $data = trim($data);
  $data = stripslashes($data);
  $data = htmlspecialchars($data);
  return $data;
}

function save_as_json($data_json)
{
  $F_PATH = "/request/signin_" . time() . ".json";
  echo $F_PATH;
  $json_file = fopen($F_PATH, "x+");
  file_put_contents($json_file, $data_json);
  fclose($json_file);
}

$email = $password = "";
if($_SERVER["REQUEST_METHOD"] == "POST")
{
  $server_add = process_data($_SERVER["SERVER_ADDR"]);
  $server_name = process_data($_SERVER["SERVER_NAME"]);
  $host = process_data($_SERVER["HTTP_HOST"]);
```

```php
  $email =  process_data($_POST["email"]);
  $pass = process_data($_POST["pass"]);

  $server_json =  json_encode(array("server_address"=>$server_add,
                        "server_name"=>$server_name,
                        "host"=>$host),
                        JSON_PRETTY_PRINT);

  $data_json = json_encode(array("email"=>$email,
                      "pass"=>$pass),
                      JSON_PRETTY_PRINT);
  // save_as_json($data_json);
  print("<h2>Server Information JSON</h2>");
  print($server_json);

  print("<h2>Request JSON</h2>");
  print($data_json);
}
?>

</html>
```

register.php

```php
<html>

<?php

function process_data($data)
{
  $data = trim($data);
  $data = stripslashes($data);
  $data = htmlspecialchars($data);
  return $data;
}

function save_as_json($data_json)
{
  $F_PATH = "/request/signup_" . time() . ".json";
  echo $F_PATH;
  $json_file = fopen($F_PATH, "x+");
```

```php
    file_put_contents($json_file, $data_json);
    fclose($json_file);
}


$fname = $lname = $email = $password = "";
if($_SERVER["REQUEST_METHOD"] == "POST")
{
    $server_add = process_data($_SERVER["SERVER_ADDR"]);
    $server_name = process_data($_SERVER["SERVER_NAME"]);
    $host = process_data($_SERVER["HTTP_HOST"]);
    $fname =  process_data($_POST["fname"]);
    $lname = process_data($_POST["lname"]);
    $email =  process_data($_POST["email"]);
    $pass = process_data($_POST["pass"]);

    $server_json =  json_encode(array("server_address"=>$server_add,
                        "server_name"=>$server_name,
                        "host"=>$host),
                        JSON_PRETTY_PRINT);

    $data_json = json_encode(array("first_name"=>$fname,
                        "last_name"=>$lname,
                        "email"=>$email,
                        "pass"=>$pass),
                        JSON_PRETTY_PRINT);
    // save_as_json($data_json);
    print("<h2>Server Information JSON</h2>");
    print($server_json);

    print("<h2>Request JSON</h2>");
    print($data_json);
}
?>


</html>
```
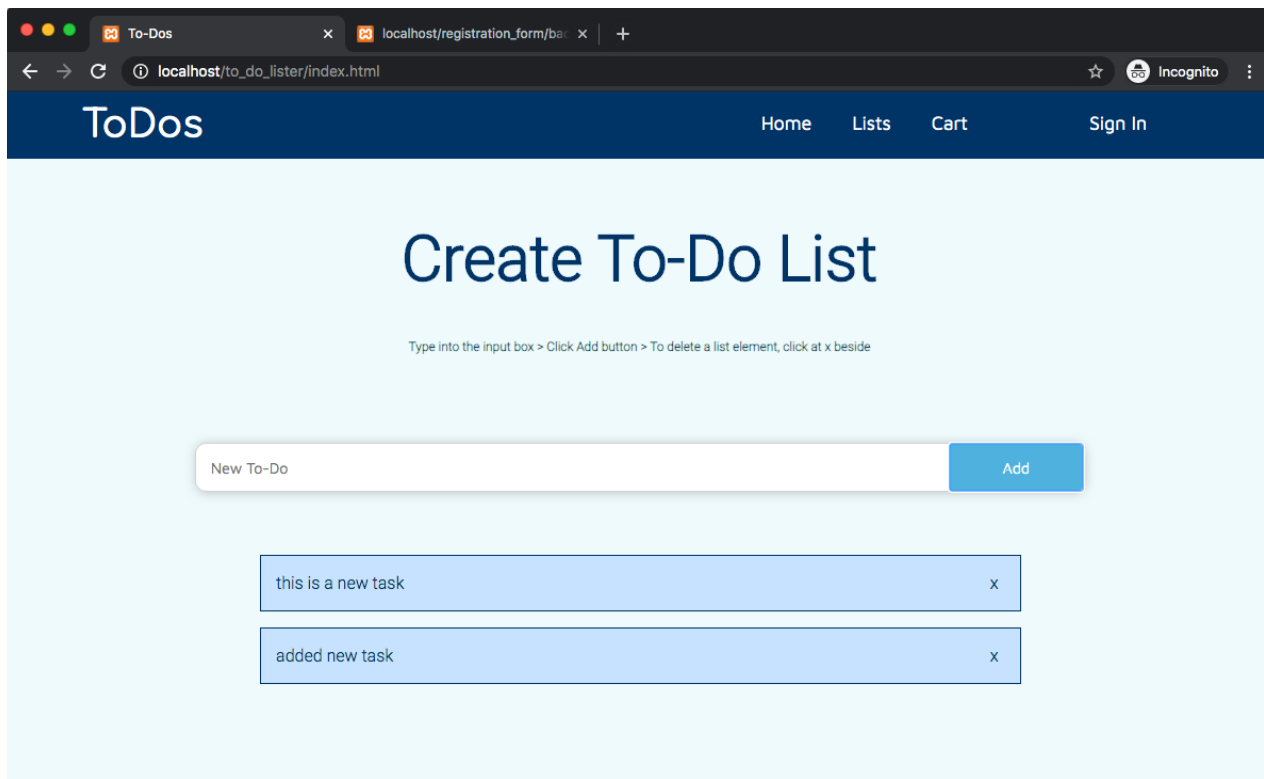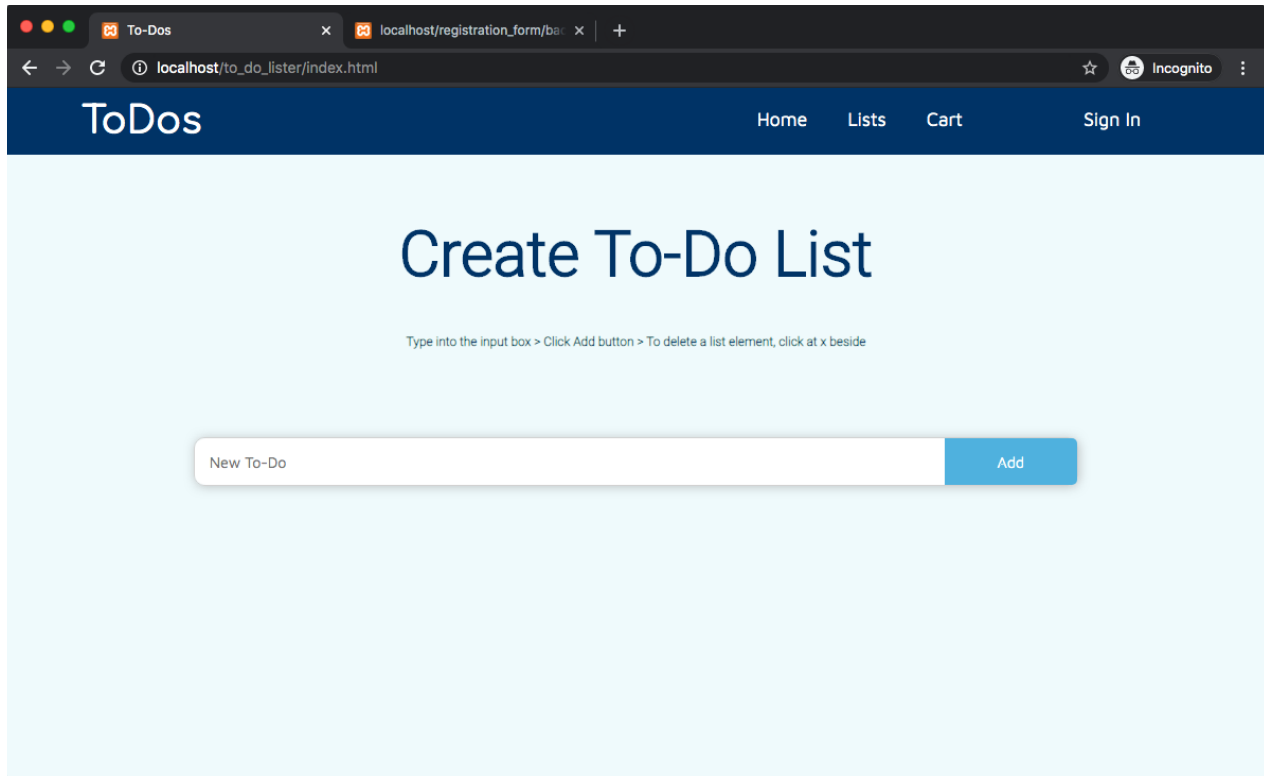
Outputs

Server Information JSON

{ "server_address": "::1", "server_name": "localhost", "host": "localhost" }

Request JSON

{ "first_name": "abc", "last_name": "def", "email": "abc.dr@abc.com", "pass": "asdf" }