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Full Stack Developments - LAB 5

Interactive Registration Form with JavaScript Validation

Problem:

Design a registration form for a website and implement JavaScript event handling to ensure proper validation of user input. Your form should include the following fields: First Name, Last Name, Email, and Password.

Requirements:

- Implement event handling to validate the following conditions:
- All fields are required.
- Email field must contain a valid email address format.
- Password field must be at least 8 characters long.
- Display appropriate error messages next to each field if validation fails.
- Prevent the form from being submitted if there are validation errors.
- Provide visual feedback to the user indicating which fields have errors.
- Ensure that the form submission is successful only when all fields are properly filled out.

Write a JavaScript function that handles the form submission event and integrates it with the HTML form.

Test your form thoroughly by entering various inputs and verifying that the validation works as expected.

Note: Your implementation should be well-structured, readable, and demonstrate good programming practices. Additionally, consider enhancing the user experience by using CSS to style the form and error messages appropriately.

HTML Tags used:

1. **<html>:** Defines the root element of an HTML document.

```
<html>
  <!-- HTML content goes here -->
</html>
```

2. **<head>**: Contains meta-information about the HTML document, such as title, links to stylesheets, and scripts.

```
<head>
  <title>My Page Title</title>
  <!-- Other meta-information goes here -->
</head>
```

3. **<title>**: Sets the title of the HTML document displayed in the browser's title bar or tab.

```
<title>My Page Title</title>
```

4. **<style>**: Defines CSS styles that apply to elements within the document.

```
<style>
  body {
    font-family: Arial, sans-serif;
  }
</style>
```

5. **<body>**: Contains the content of the HTML document that is displayed in the browser window.

```
<body>
  <h1>Hello, World!</h1>
  <p>This is a paragraph.</p>
</body>
```

6. **<script>**: Defines client-side JavaScript code within the HTML document, allowing for dynamic behavior and interaction.

```
<script>
  .
  .
  .
</script>
```

7. **<form>**: Defines an HTML form for user input. It can contain input elements like text fields, checkboxes, radio buttons, submit buttons, and more.

```
<form id="validationForm">
  .
  .
  .
</form>
```

8. **<input type="button">** : Defines a clickable button that can trigger JavaScript functions

```
<input type="button" value="Activate Textboxes" onclick="activateTextboxes()" >
```

9. **<input type="submit">**: Defines a submit button for submitting form data to a server.

```
<input type="submit" value="Submit" onclick="submitForm(event)">
```

Code:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Lab 5</title>

  <link rel="stylesheet" type="text/css" href="style.css" >
</head>
<body>
  <form id="registrationForm" action="#" method="post">

    <h2>Registration Form</h2>

    <label for="firstName">First Name:</label><br>
    <input type="text" id="firstName" name="firstName">

    <span id="firstNameError" class="error">
    </span><br>

    <label for="lastName">Last Name:</label><br>
    <input type="text" id="lastName" name="lastName">

    <span id="lastNameError" class="error">
    </span><br>

    <label for="email">Email:</label><br>
    <input type="email" id="email" name="email">

    <span id="emailError" class="error">
    </span><br>

    <label for="password">Password:</label><br>
    <input type="password" id="password" name="password">

    <span id="passwordError" class="error">
```

```

        </span><br>

        <input type="submit" value="Register">

    </form>

    <script src="registration.js"></script>

</body>
</html>

```

CSS Code:

Simple CSS:

```

label{
    font-weight: bold;
}

span{
    color: red;
}

body {
    font-family: Arial, sans-serif;
    display: flex;
}

input[type="submit"] {
    margin-top: 10px;
    font-weight: bold;
}

```

Advanced CSS:

```

body{
    font-family: Arial, Helvetica, sans-serif;
    display: flex;
    justify-content: center;
    align-items: center;
    height: 100vh ;
    background-color: #f9f9f9;
}

form{
    max-width: 600px;
    width: 100%;
}

```

```

    background-color: #fff;
    padding: 10px;
    box-shadow: 0 0 10px 0 rgba(0,0,0,.5);
    border-radius: 8px;
}

label{
    display: block;
    margin-bottom: 2px;
    margin-top: 10px;
    font-weight: bold ;
}

input{
    width: 100%;
    padding: 8px;
    border-radius: 4px;
    margin-bottom: 15px;
    border: 1px solid #ccc;
    box-sizing: border-box;
}

input[type=submit]{
    background-color: #45a049;
    color: white;
}
input[type=submit]:hover{
    background-color: green;
    color: white;
}

```

Js Code (registration.js):

```

const form = document.getElementById('registrationForm');

const firstName = document.getElementById('firstName');
const firstNameError = document.getElementById('firstNameError');

const lastName = document.getElementById('lastName');
const lastNameError = document.getElementById('lastNameError');

const email = document.getElementById('email');
const emailError = document.getElementById('emailError');

const password = document.getElementById('password');
const passwordError = document.getElementById('passwordError');
// Get the form element

```

```

form.addEventListener('submit', function(event) {

    console.log(event);

    // Validate first name
    let hasError = false;
    if (firstName.value === '') {
        firstNameError.textContent = 'First name is required';
        hasError = true;
    } else {
        firstNameError.textContent = '';
    }
    if (hasError) {
        event.preventDefault(); // Prevent form submission if there are errors
    }

    // Validate Last name

    if (lastName.value === '') {
        lastNameError.textContent = 'Last name is required';
        hasError = true;
    } else {
        lastNameError.textContent = '';
    }

    // Email Validation
    if (email.value.trim() === '') {
        emailError.textContent = 'Email is required';
        hasError = true;
    } else if (!isValidEmail(email.value.trim())) {
        emailError.textContent = 'Invalid email format';
        hasError = true;
    } else {
        emailError.textContent = '';
    }

    // Password Validation
    if (password.value.trim() === '') {
        passwordError.textContent = 'Password is required';
        hasError = true;
    } else if (password.value.trim().length < 8) {
        passwordError.textContent = 'Password must be at least 8 characters long';
        hasError = true;
    } else if (!/[A-Z]/.test(password.value)) {
        passwordError.textContent = 'Password must contain at least one uppercase letter';
        hasError = true;
    }

```

```

    } else if (!/[!@#$$%^&*(),.?:{}|<>]/.test(password.value)) {
        passwordError.textContent = 'Password must contain at least one symbol
(!@#$$%^&*(),.?:{}|<>)';
        hasError = true;
    } else {
        passwordError.textContent = '';
    }

    if (hasError) {
        event.preventDefault(); // Prevent form submission if there are errors
    }

    // Display confirmation message
    alert("Thank you for registering!");

    // Optionally, you can reset the form after submission
    form.reset();

});

// Email Format Validation Function
function isValidEmail(email) {
    // Regular expression for validating email format
    const emailPattern = /^[^\\s@]+@[^\\s@]+\\.\\.[^\\s@]+$/;
    return emailPattern.test(email);
}

```

Explanation of Js Code:

1. **Element Retrieval:** The code fetches various HTML elements from the DOM using **document.getElementById()**. These elements are used to interact with form inputs and error messages.

```

const form = document.getElementById('registrationForm');
const firstName = document.getElementById('firstName');
const firstNameError = document.getElementById('firstNameError');
const lastName = document.getElementById('lastName');
const lastNameError = document.getElementById('lastNameError');
const email = document.getElementById('email');
const emailError = document.getElementById('emailError');
const password = document.getElementById('password');
const passwordError = document.getElementById('passwordError');

```

- 2. Form Submission Event Listener:** An event listener is added to the form's submit event. When the form is submitted, this function will be executed.

```
form.addEventListener('submit', function(event) {
    // Code to execute on form submission
});
```

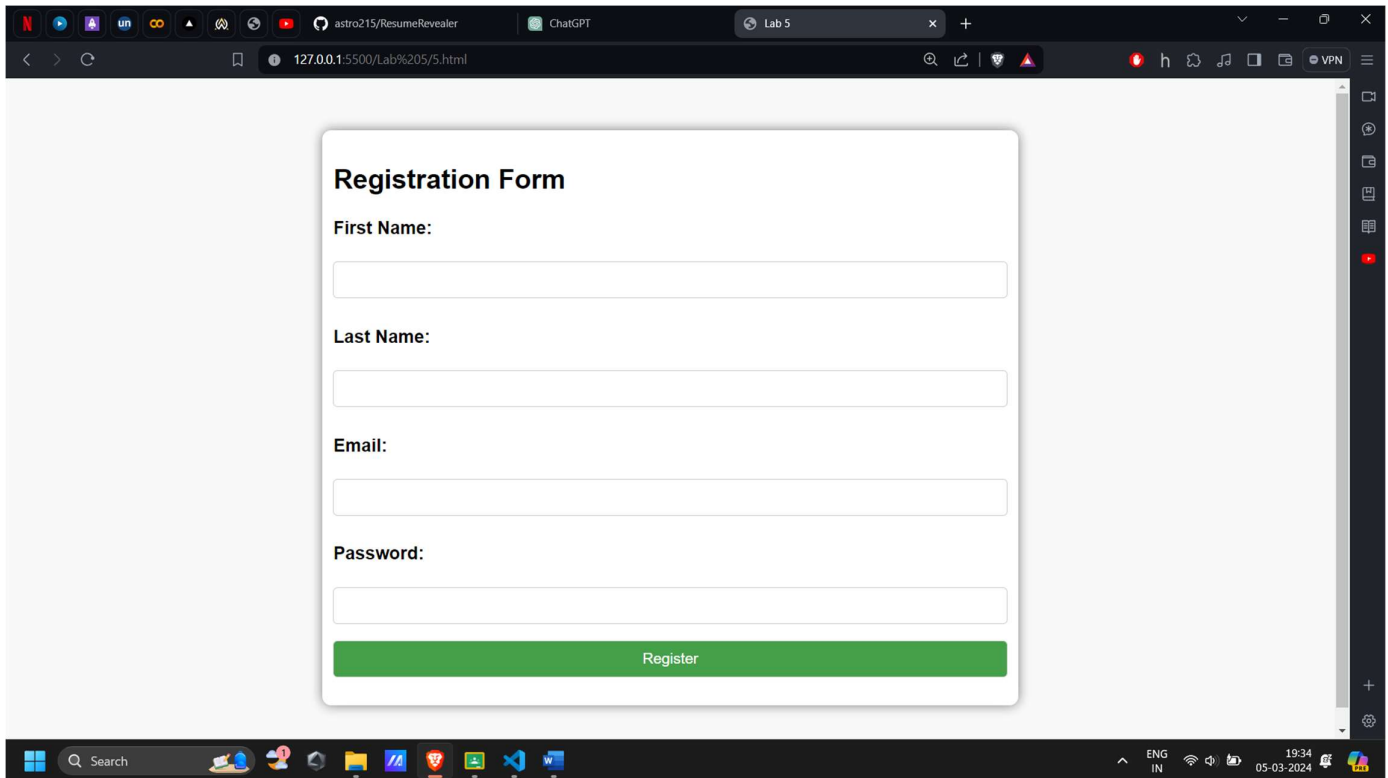
- 3. Form Validation:** Inside the submit event listener function, the code checks each form field for validation errors.
- First Name Validation:** Checks if the first name is empty. If it's empty, displays an error message.
 - Last Name Validation:** Checks if the last name is empty. If it's empty, displays an error message.
 - Email Validation:** Checks if the email field is empty or if it's not in a valid email format.
 - Password Validation:** Checks if the password field is empty, if it's less than 8 characters, if it contains at least one uppercase letter, and if it contains at least one special character.
- 4. Event Prevention:** If any validation error is found (**hasError** is set to **true**), it prevents the form from being submitted by calling **event.preventDefault()**.
- 5. Confirmation Message:** After all validations, it displays an alert with a thank you message.
- 6. Form Reset:** Optionally, after form submission, the form is reset using **form.reset()**.
- 7. Email Format Validation Function:** Defines a function **isValidEmail(email)** which uses a regular expression to validate the email format. It returns **true** if the email format is valid, otherwise **false**.

Output:

Simple CSS:

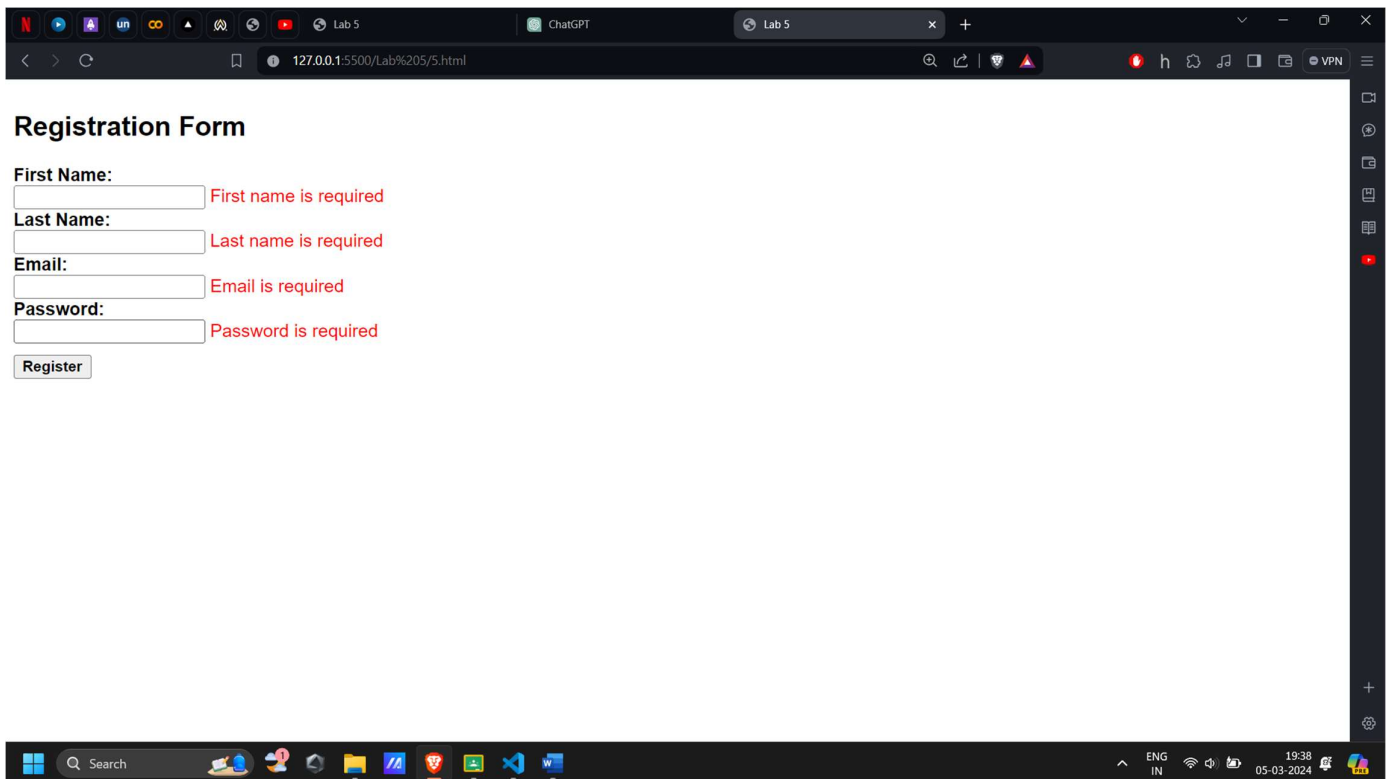
The screenshot shows a web browser window with a single tab titled 'Lab 5'. The address bar shows the URL '127.0.0.1:5500/Lab%205/5.html'. The page content is a registration form titled 'Registration Form'. The form contains four input fields: 'First Name:', 'Last Name:', 'Email:', and 'Password:'. Below these fields is a 'Register' button. The browser's taskbar at the bottom shows various icons and the system clock indicating 19:33 on 05-03-2024.

Advance CSS:



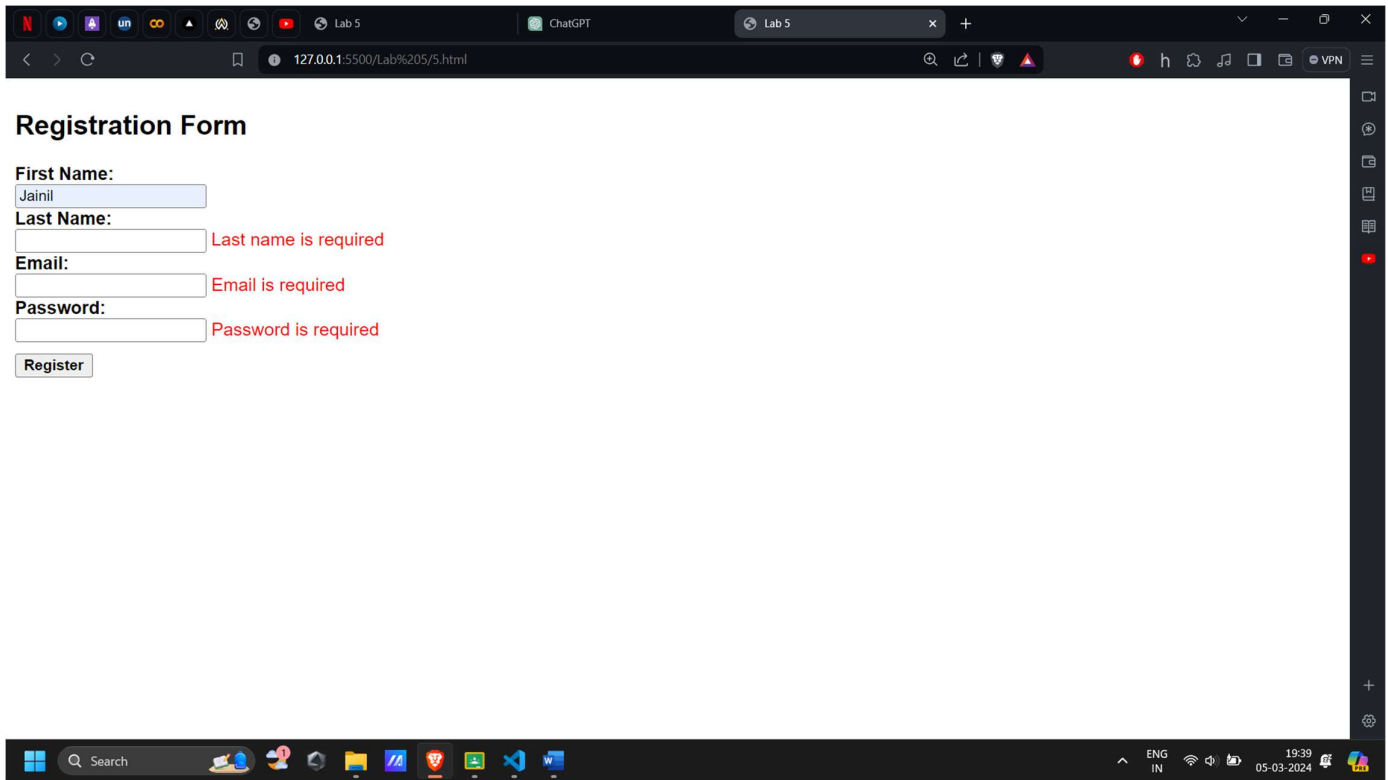
The screenshot shows a web browser window with a dark theme. The address bar displays the URL `127.0.0.1:5500/Lab%205/5.html`. The page content is a registration form titled "Registration Form" centered on a light gray background. The form has four input fields labeled "First Name:", "Last Name:", "Email:", and "Password:". Below these fields is a prominent green button labeled "Register". The browser's taskbar at the bottom shows various application icons and the system clock indicating 19:34 on 05-03-2024.

Empty Form:



The screenshot shows the same web browser window as before, but the registration form is now empty. Each input field has a red error message next to it: "First name is required", "Last name is required", "Email is required", and "Password is required". The "Register" button is now a plain gray button. The browser's taskbar and system clock remain the same, showing 19:38 on 05-03-2024.

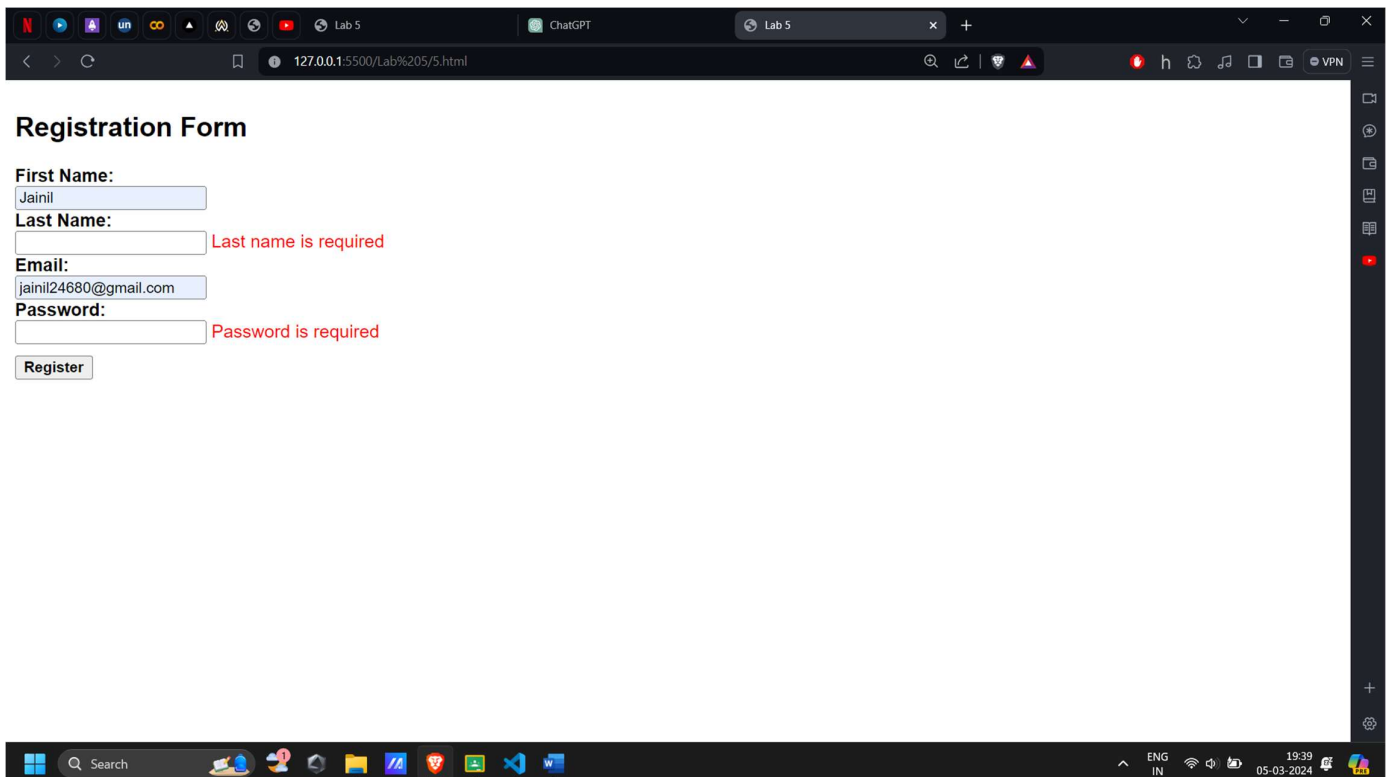
Partially Filled:



The screenshot shows a web browser window with the address bar displaying "127.0.0.1:5500/Lab%205/5.html". The page title is "Registration Form". The form contains the following fields and labels:

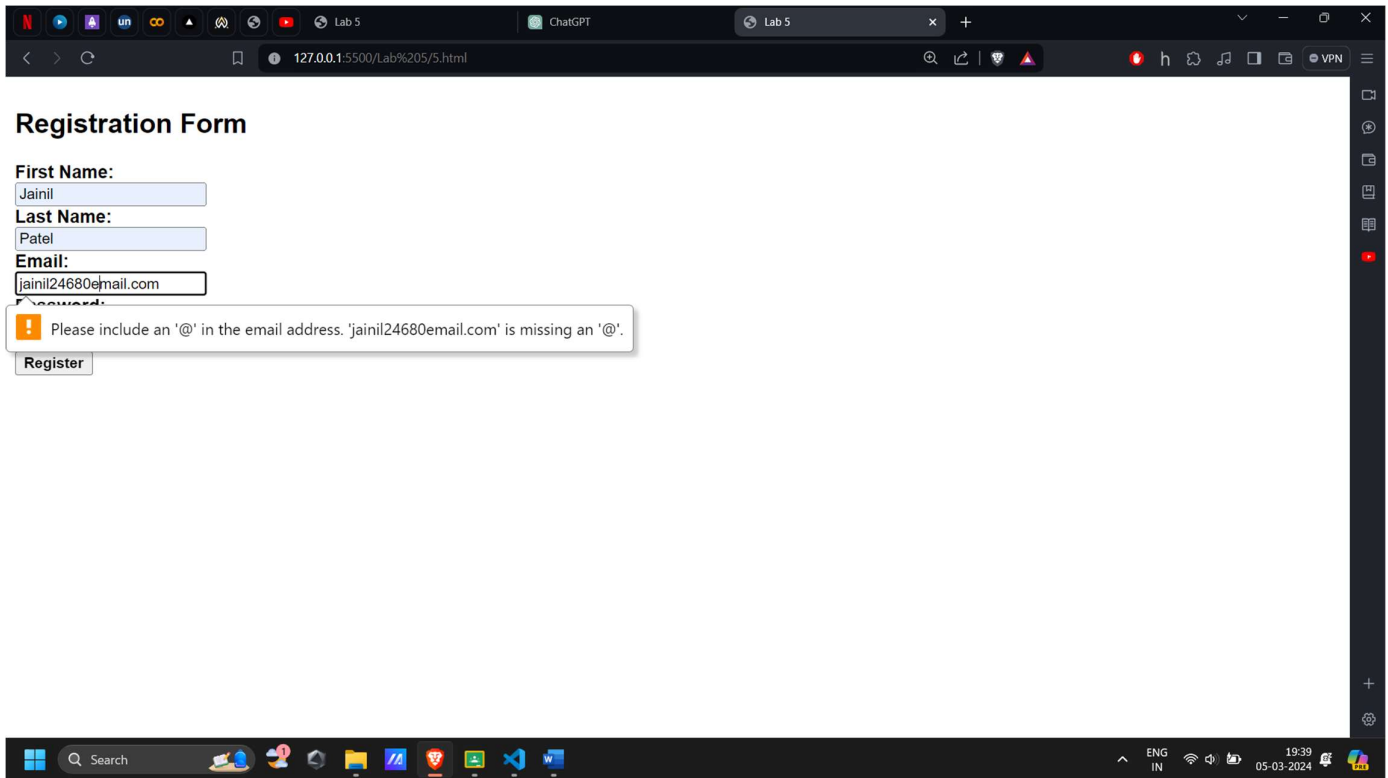
- First Name:**
- Last Name:** Last name is required
- Email:** Email is required
- Password:** Password is required

A "Register" button is located below the password field. The Windows taskbar at the bottom shows the time as 19:39 on 05-03-2024.



The screenshot shows the same web browser window as above, but with the "Email" field filled with "jainil24680@gmail.com". The "Last Name" field remains empty with the error message "Last name is required". The "Password" field remains empty with the error message "Password is required". The "Register" button is still present. The Windows taskbar at the bottom shows the time as 19:39 on 05-03-2024.

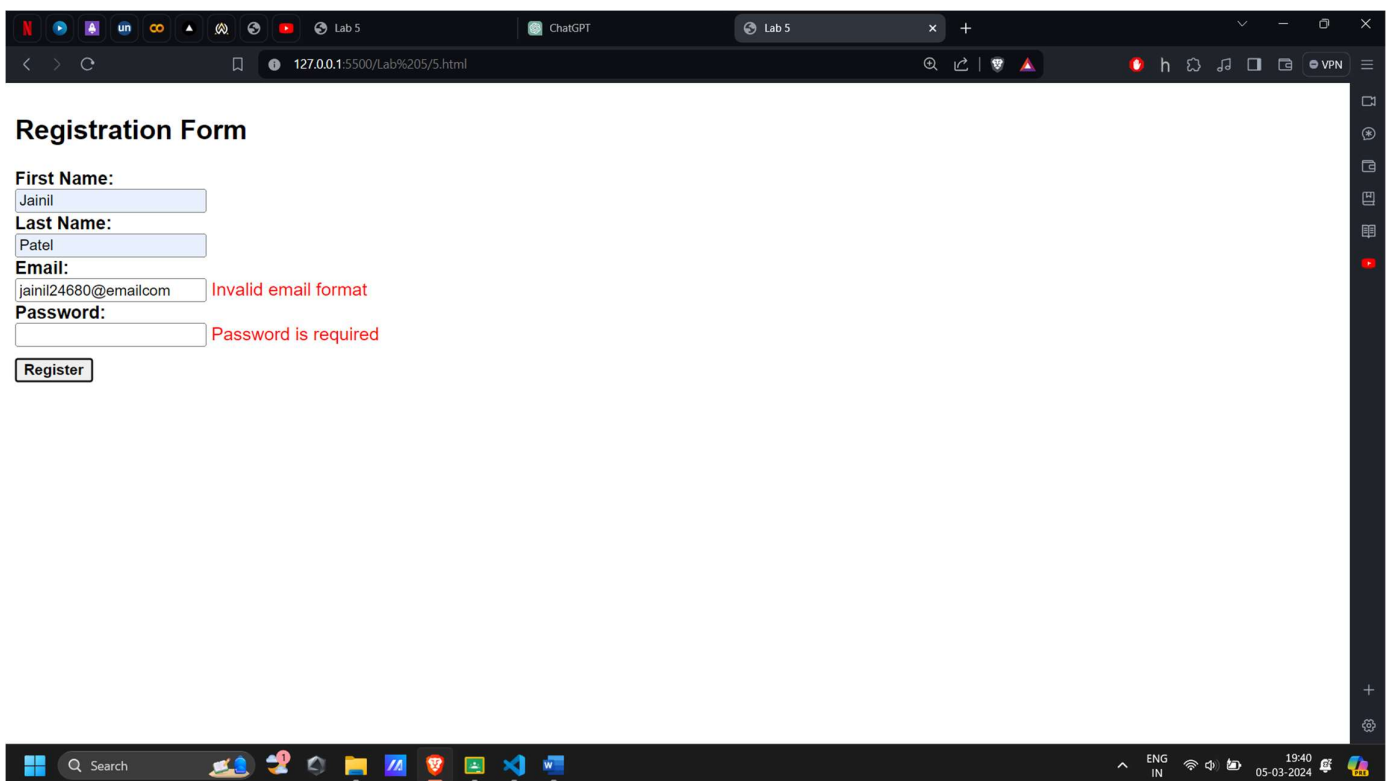
Email Errors:



The screenshot shows a web browser window with the address bar displaying "127.0.0.1:5500/Lab%205/5.html". The page title is "Registration Form". The form contains the following fields:

- First Name:** Jainil
- Last Name:** Patel
- Email:** jainil24680email.com
- Password:** (empty)

An error message is displayed below the email field: "Please include an '@' in the email address. 'jainil24680email.com' is missing an '@'." A "Register" button is located at the bottom of the form.

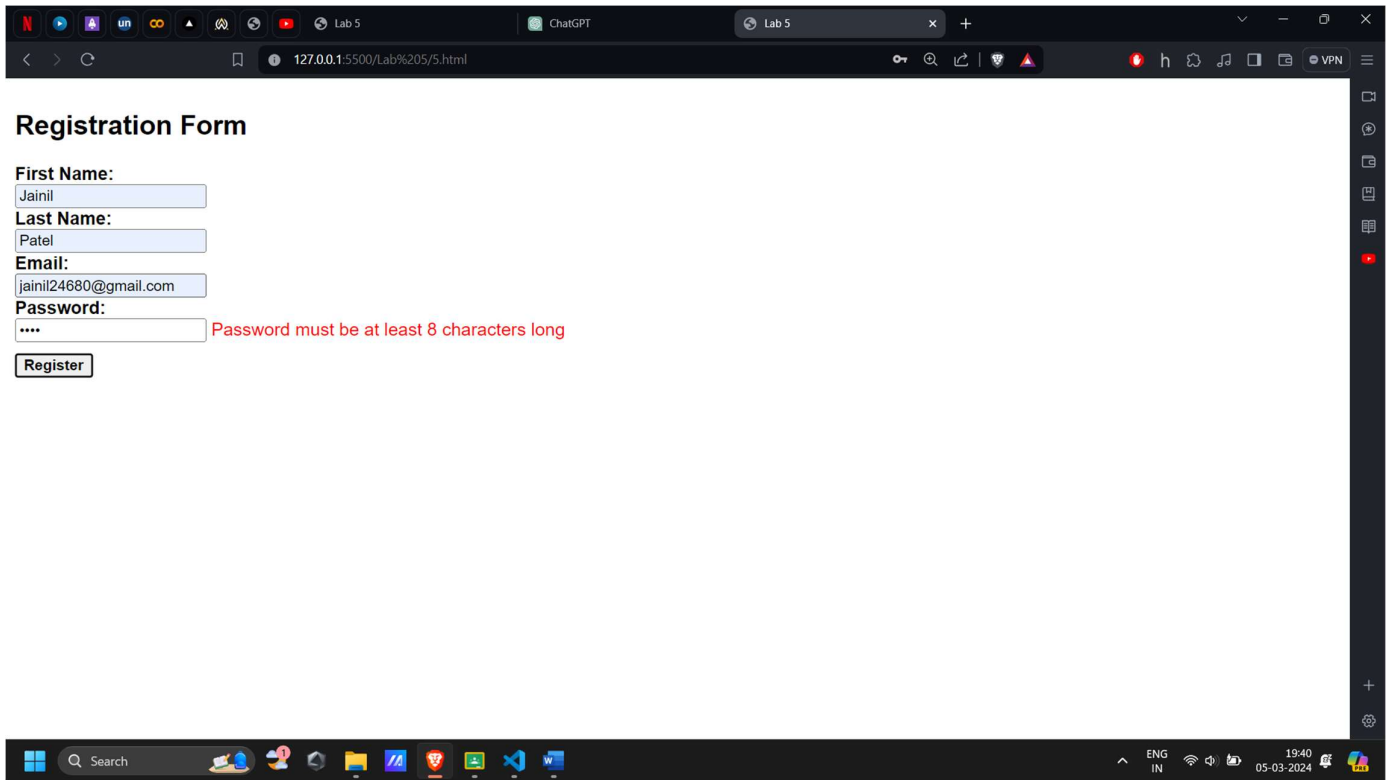


The screenshot shows the same web browser window as above, but with the email field updated to "jainil24680@email.com" and the password field now containing text. The error messages have been updated:

- Email:** jainil24680@email.com (Invalid email format)
- Password:** (Password is required)

The "Register" button remains at the bottom of the form.

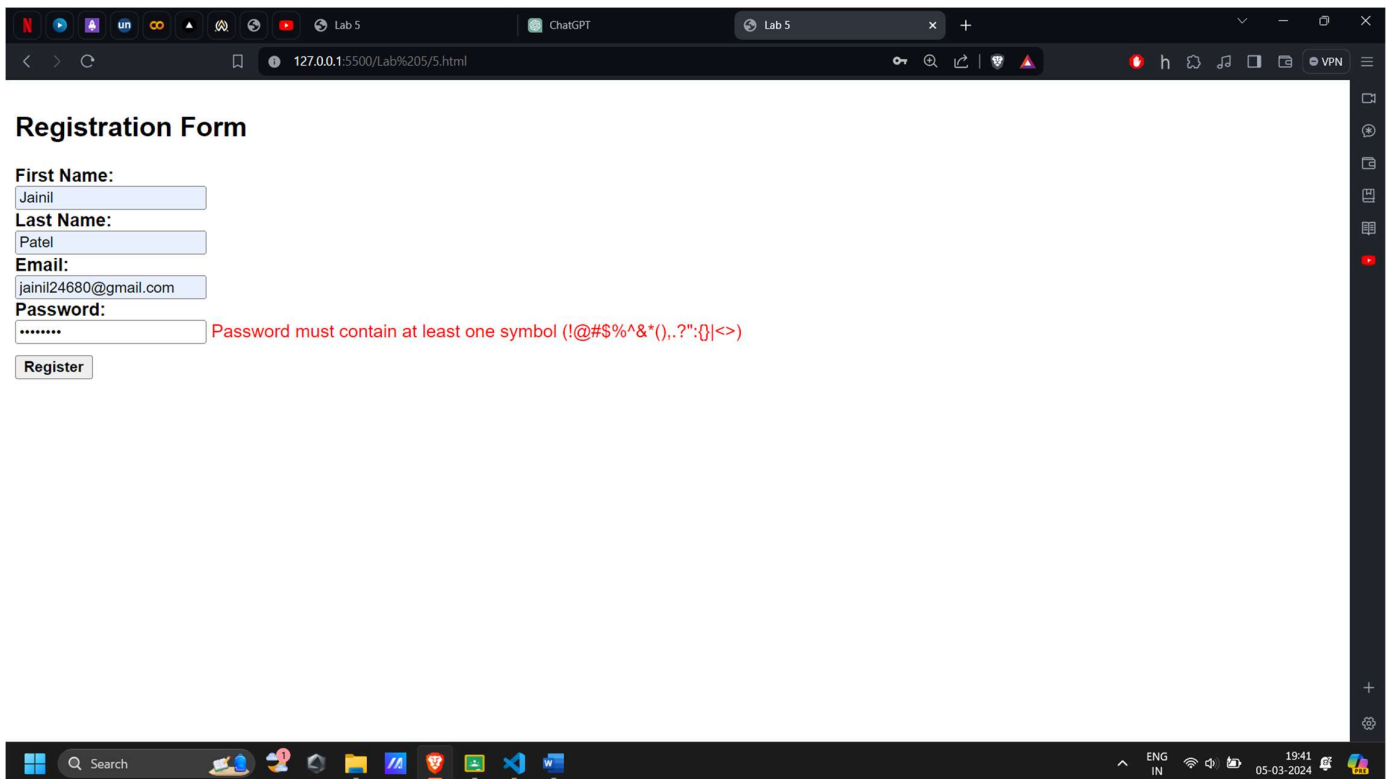
Password Errors:



The screenshot shows a web browser window with the address bar displaying "127.0.0.1:5500/Lab%205/5.html". The page title is "Registration Form". The form contains the following fields and values:

- First Name:** Jainil
- Last Name:** Patel
- Email:** jainil24680@gmail.com
- Password:**

A red error message is displayed next to the password field: "Password must be at least 8 characters long". A "Register" button is located below the password field.



The screenshot shows the same web browser window as above, but with a different password error message. The form fields and values are the same:

- First Name:** Jainil
- Last Name:** Patel
- Email:** jainil24680@gmail.com
- Password:**

The red error message next to the password field is: "Password must contain at least one symbol (!@#\$%^&*(),.?':{}|<>)". The "Register" button remains visible below the password field.

Correct From:

The screenshot shows a web browser window with a dark theme. The address bar displays the URL `127.0.0.1:5500/Lab%205/5.html`. The page content includes a registration form with the following fields: First Name (Jainil), Last Name (Patel), Email (jainil24680@gmail.com), and Password (masked with dots). A 'Register' button is located below the password field. A dark modal box is overlaid on the page, displaying the message '127.0.0.1:5500 says Thank you for registering!' with an 'OK' button. The Windows taskbar at the bottom shows the search bar, several application icons, and the system tray with the date and time (19:41, 05-03-2024).

Registration Form

First Name: Jainil

Last Name: Patel

Email: jainil24680@gmail.com

Password:

Register

127.0.0.1:5500 says
Thank you for registering!

OK