

11. Create a JavaScript-enabled web page that performs basic arithmetic operations using input from users.

```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <meta charset="UTF-8">
5 <title>Modern Arithmetic Calculator</title>
6 <style>
7 /* ----- BODY ----- */
8 body {
9   margin: 0;
10  padding: 0;
11  font-family: 'Poppins', sans-serif;
12  background: linear-gradient(135deg, #89f7fe, #66a6ff);
13  display: flex;
14  justify-content: center;
15  align-items: center;
16  height: 100vh;
17 }
18
19 /* ----- CARD ----- */
20 .calculator {
21   background: #cfcfcf;
22   padding: 30px 25px;
23   width: 360px;
24   border-radius: 15px;
25   box-shadow: 0 12px 30px #000000;
26   transition: 0.3s;
27 }
28
29 .calculator:hover {
30   transform: translateY(-3px);
31   box-shadow: 0 18px 40px #000000;
32 }
```

```
2 <html lang="en">
3 <head>
6 <style>
34 h2 {
35   text-align: center;
36   margin-bottom: 25px;
37   color: #333;
38   letter-spacing: 1px;
39 }
40
41 /* ----- INPUTS ----- */
42 input[type="number"] {
43   width: 100%;
44   padding: 12px;
45   margin: 10px 0;
46   border-radius: 8px;
47   border: 1px solid #ccc;
48   font-size: 15px;
49   transition: 0.3s;
50 }
51
52 input[type="number"]:focus {
53   border-color: #66a6ff;
54   box-shadow: 0 0 5px #66a6ff;
55   outline: none;
56 }
57
58 /* ----- BUTTONS ----- */
59 .btn {
60   width: 48%;
61   padding: 12px;
62   margin: 5px 1%;
```

```
File Edit Selection View Go Run ... B.Tech_G
photo.jpg
practical_1.html
practical_2.html
practical_3.html
practical_4.html
practical_5.html
# practical_6.css
practical_6.html
# practical_7.css
practical_7.html
# practical_8.css
practical_8.html
# practical_9.css
practical_9.html
# practical_10.css
practical_10.html
practical_11.html

Practical_11.html X
B.Tech_G > Kunal(RU-25-10725) > Practical_11.html > ...
2 <html lang="en">
3 <head>
6 <style>

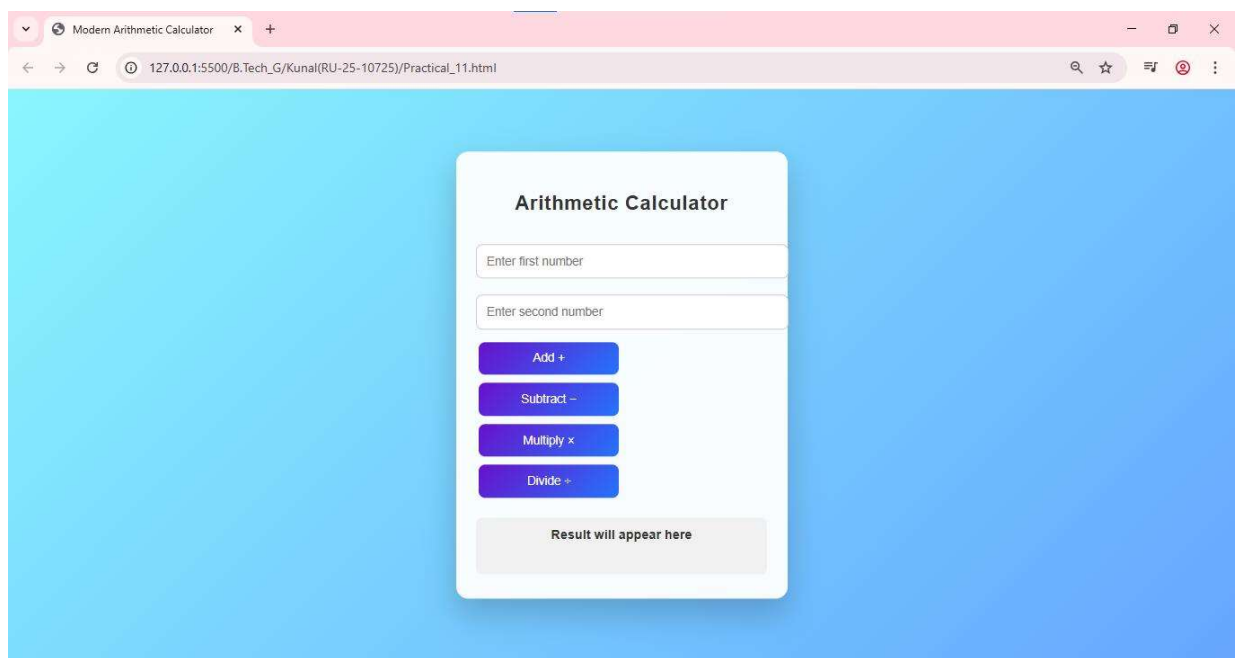
72 .btn:hover {
73   background: linear-gradient(135deg, #2575fc, #6a11cb);
74   transform: scale(1.05);
75 }
76
77 /* ----- OUTPUT ----- */
78 #output {
79   margin-top: 20px;
80   padding: 12px;
81   background: #f1f1f1;
82   border-radius: 8px;
83   font-size: 16px;
84   color: #333;
85   text-align: center;
86   min-height: 45px;
87   font-weight: bold;
88   transition: 0.3s;
89 }
90
91 #output.show {
92   animation: fadeIn 0.5s ease;
93 }
94
95 @keyframes fadeIn {
96   0% { opacity: 0; transform: translateY(-5px); }
97   100% { opacity: 1; transform: translateY(0); }
98 }
99 </style>
100 </head>
```

```
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practical_1.html
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practical_4.html
practical_5.html
# practical_6.css
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# practical_8.css
practical_8.html
# practical_9.css
practical_9.html
# practical_10.css
practical_10.html
practical_11.html

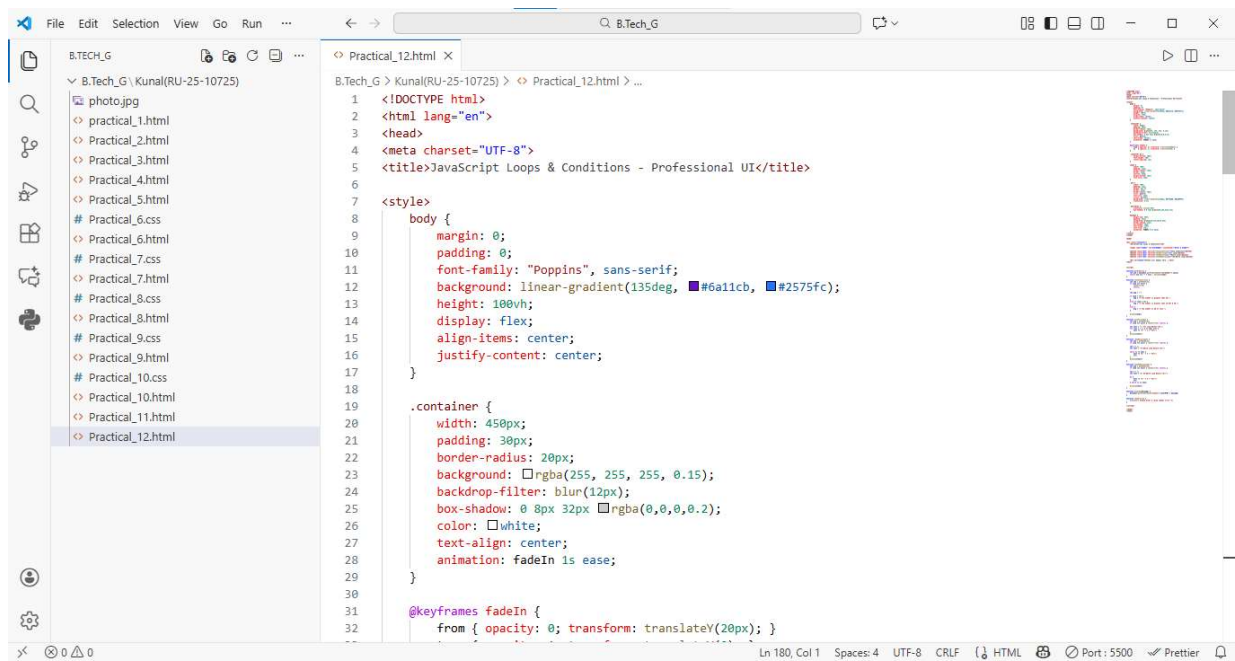
Practical_11.html X
B.Tech_G > Kunal(RU-25-10725) > Practical_11.html > ...
2 <html lang="en">
102 <body>
103
104 <div class="calculator">
105   <h2>Arithmetic Calculator</h2>
106   <input type="number" id="num1" placeholder="Enter first number">
107   <input type="number" id="num2" placeholder="Enter second number">
108
109   <div>
110     <button class="btn" onclick="calculate('add')>Add +</button>
111     <button class="btn" onclick="calculate('subtract')>Subtract -</button>
112   </div>
113   <div>
114     <button class="btn" onclick="calculate('multiply')>Multiply *</button>
115     <button class="btn" onclick="calculate('divide')>Divide /</button>
116   </div>
117
118   <div id="output">Result will appear here</div>
119 </div>
120
121 <script>
122   function calculate(operation) {
123     const num1 = parseFloat(document.getElementById('num1').value);
124     const num2 = parseFloat(document.getElementById('num2').value);
125     const output = document.getElementById('output');
126
127     if (isNaN(num1) || isNaN(num2)) {
128       alert("⚠ Please enter both numbers!");
129       return;
130     }
131
132     let result;
```

```
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B.Tech_G
  photo.jpg
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  # practical_8.css
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  # practical_9.css
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  # practical_10.css
  practical_10.html
  practical_11.html

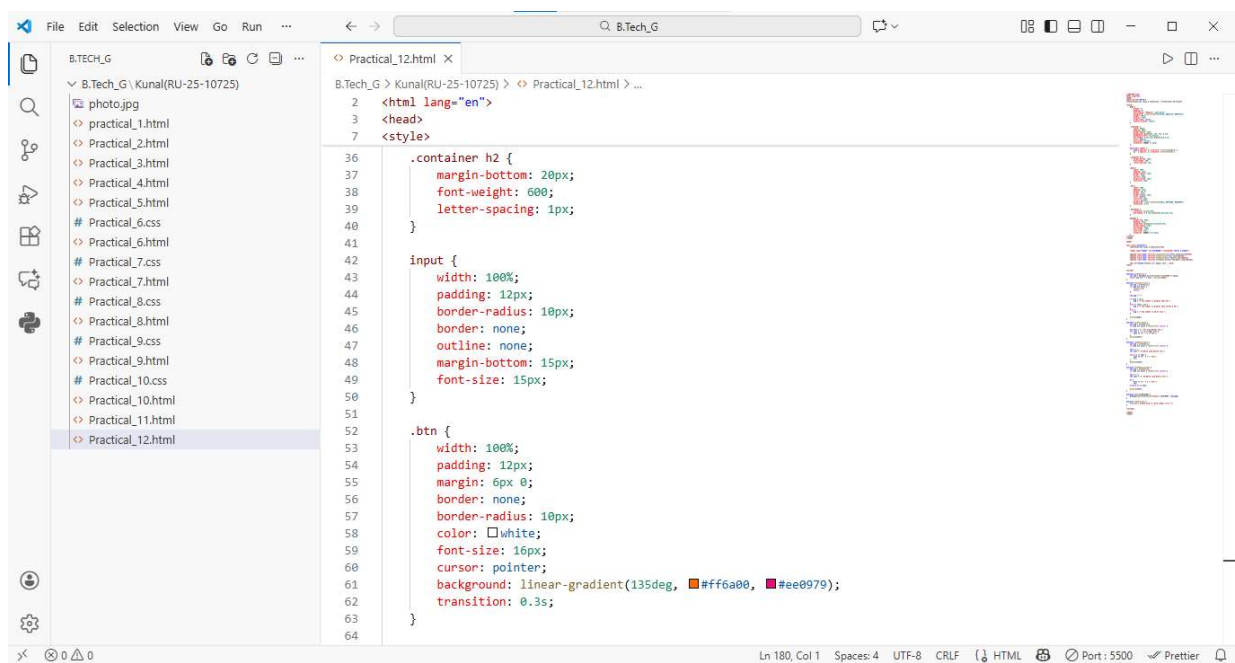
Practical_11.html
2 <html lang="en">
102 <body>
121 <script>
122 function calculate(operation) {
134   switch(operation) {
135     case 'add':
136       result = num1 + num2;
137       break;
138     case 'subtract':
139       result = num1 - num2;
140       break;
141     case 'multiply':
142       result = num1 * num2;
143       break;
144     case 'divide':
145       if(num2 === 0){
146         alert("⚠ Division by zero is not allowed!");
147         return;
148       }
149       result = num1 / num2;
150       break;
151   }
152
153   output.textContent = `Result: ${result}`;
154   output.classList.remove('show');
155   void output.offsetWidth; // Trigger reflow
156   output.classList.add('show');
157 }
158 </script>
159
160 </body>
161 </html>
```



12. Write JavaScript to demonstrate conditional statements and looping (for, while, do...while).



```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <meta charset="UTF-8">
5 <title>JavaScript Loops & Conditions - Professional UI</title>
6
7 <style>
8   body {
9     margin: 0;
10    padding: 0;
11    font-family: "Poppins", sans-serif;
12    background: linear-gradient(135deg, #6a11cb, #2575fc);
13    height: 100vh;
14    display: flex;
15    align-items: center;
16    justify-content: center;
17  }
18
19  .container {
20    width: 450px;
21    padding: 30px;
22    border-radius: 20px;
23    background: rgba(255, 255, 255, 0.15);
24    backdrop-filter: blur(12px);
25    box-shadow: 0 8px 32px rgba(0,0,0,0.2);
26    color: white;
27    text-align: center;
28    animation: fadeIn 1s ease;
29  }
30
31  @keyframes fadeIn {
32    from { opacity: 0; transform: translateY(20px); }
```



```
2 <html lang="en">
3 <head>
4 <style>
5
36 .container h2 {
37   margin-bottom: 20px;
38   font-weight: 600;
39   letter-spacing: 1px;
40 }
41
42 input {
43   width: 100%;
44   padding: 12px;
45   border-radius: 10px;
46   border: none;
47   outline: none;
48   margin-bottom: 15px;
49   font-size: 15px;
50 }
51
52 .btn {
53   width: 100%;
54   padding: 12px;
55   margin: 6px 0;
56   border: none;
57   border-radius: 10px;
58   color: white;
59   font-size: 16px;
60   cursor: pointer;
61   background: linear-gradient(135deg, #ff6a00, #ee0979);
62   transition: 0.3s;
63 }
64
```

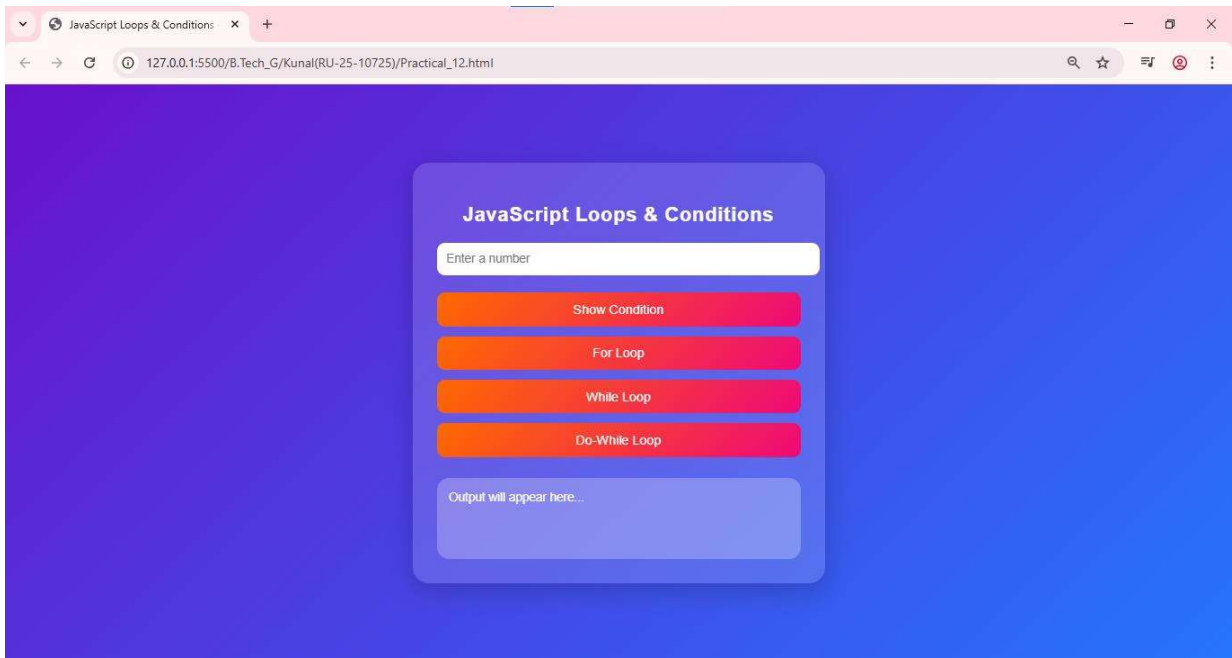

This screenshot shows a VS Code editor window with a file explorer on the left and a code editor on the right. The file explorer shows a project named 'B.Tech_G' with a subdirectory 'Kunal(RU-25-10725)' containing various files. The code editor displays the 'Practical_12.html' file, which contains JavaScript code for three functions: 'showForLoop()', 'showWhileLoop()', and 'showDoWhileLoop()'. The 'showForLoop()' function uses a 'for' loop to calculate the sum of numbers from 1 to 'num'. The 'showWhileLoop()' function uses a 'while' loop for the same purpose. The 'showDoWhileLoop()' function uses a 'do-while' loop. All functions include a 'display()' call to show the result. The status bar at the bottom indicates 'Ln 180, Col 1', 'Spaces: 4', 'UTF-8', 'CRLF', 'HTML', 'Port: 5500', and 'Prettier'.

```
2 <html lang="en">
83 <body>
99 <script>

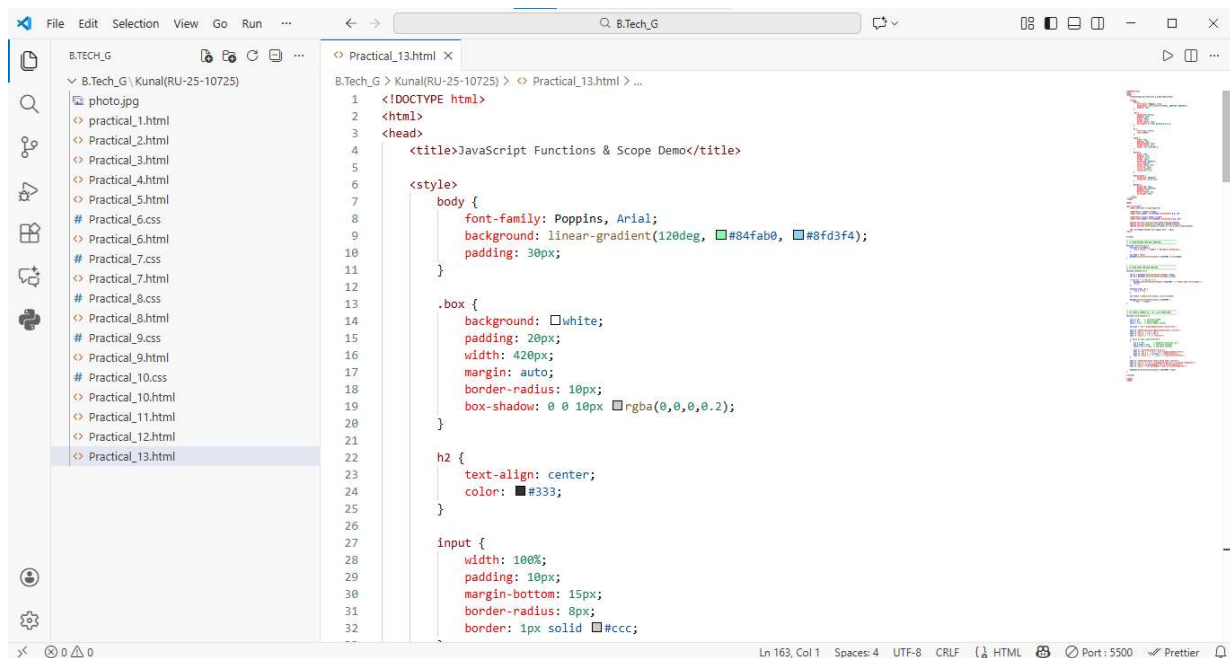
128 function showForLoop() {
129   let num = getNumber();
130   if (num === null) { showError(); return; }
131
132   let text = "For Loop Result:<br>";
133   for (let i = 1; i <= num; i++) {
134     text += " " + i + "<br>";
135   }
136   display(text);
137 }
138
139 function showWhileLoop() {
140   let num = getNumber();
141   if (num === null) { showError(); return; }
142
143   let i = 1;
144   let text = "While Loop Result:<br>";
145
146   while (i <= num) {
147     text += " " + i + "<br>";
148     i++;
149   }
150   display(text);
151 }
152
153 function showDoWhileLoop() {
154   let num = getNumber();
155   if (num === null) { showError(); return; }
156 }
```

This screenshot shows the same VS Code editor window, but the code editor now displays the completion of the 'showDoWhileLoop()' function and the closing tags for the HTML document. The 'showDoWhileLoop()' function uses a 'do-while' loop to calculate the sum of numbers from 1 to 'num'. The 'display()' function is defined to update the 'output' element's innerHTML. The 'showError()' function displays a message if the input is invalid. The HTML structure is completed with 'body', 'script', and 'html' tags. The status bar at the bottom indicates 'Ln 180, Col 1', 'Spaces: 4', 'UTF-8', 'CRLF', 'HTML', 'Port: 5500', and 'Prettier'.

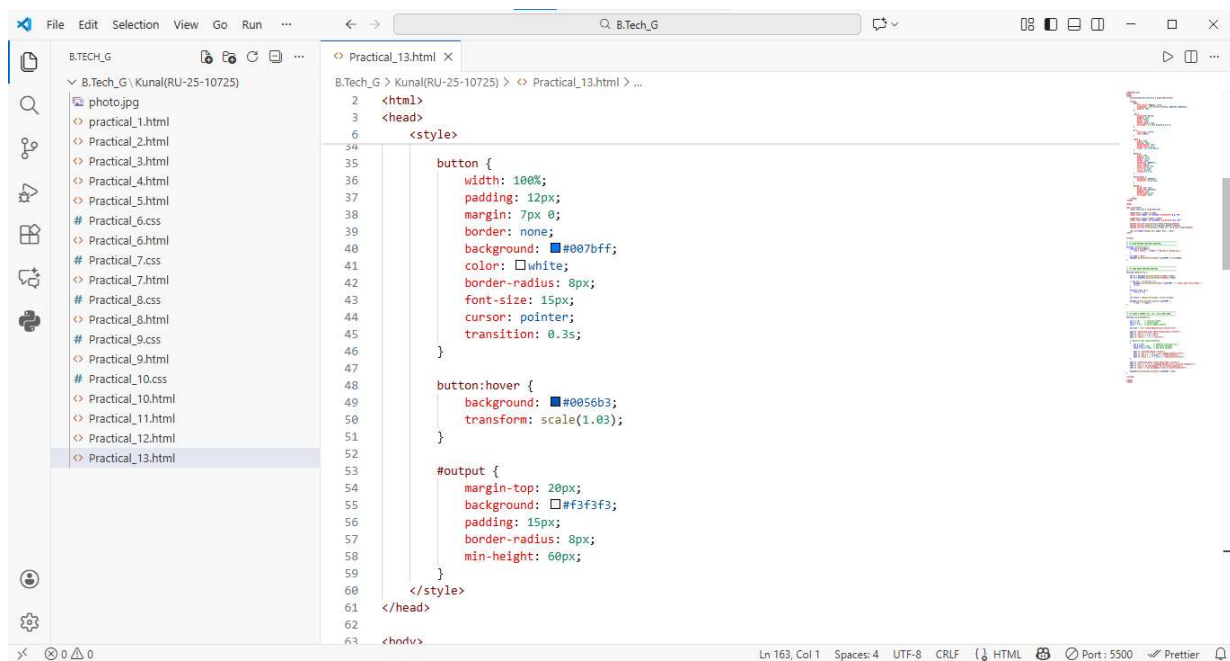
```
153 function showDoWhileLoop() {
156
157   let i = 1;
158   let text = "Do-While Loop Result:<br>";
159
160   do {
161     text += " " + i + "<br>";
162     i++;
163   } while (i <= num);
164
165   display(text);
166 }
167
168 function display(message) {
169   document.getElementById("output").innerHTML = message;
170 }
171
172 function showError() {
173   display("❌ Please enter a valid number first.");
174 }
175
176 </script>
177
178 </body>
179 </html>
180
```



13. Create and invoke user-defined functions in JavaScript; use var, let, and const for scope demonstration.



```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>JavaScript Functions & Scope Demo</title>
5
6   <style>
7     body {
8       font-family: Poppins, Arial;
9       background: linear-gradient(120deg, #84fab0, #8fd3f4);
10      padding: 30px;
11    }
12
13    .box {
14      background: white;
15      padding: 20px;
16      width: 420px;
17      margin: auto;
18      border-radius: 10px;
19      box-shadow: 0 0 10px rgba(0,0,0,0.2);
20    }
21
22    h2 {
23      text-align: center;
24      color: #333;
25    }
26
27    input {
28      width: 100%;
29      padding: 10px;
30      margin-bottom: 15px;
31      border-radius: 8px;
32      border: 1px solid #ccc;
```

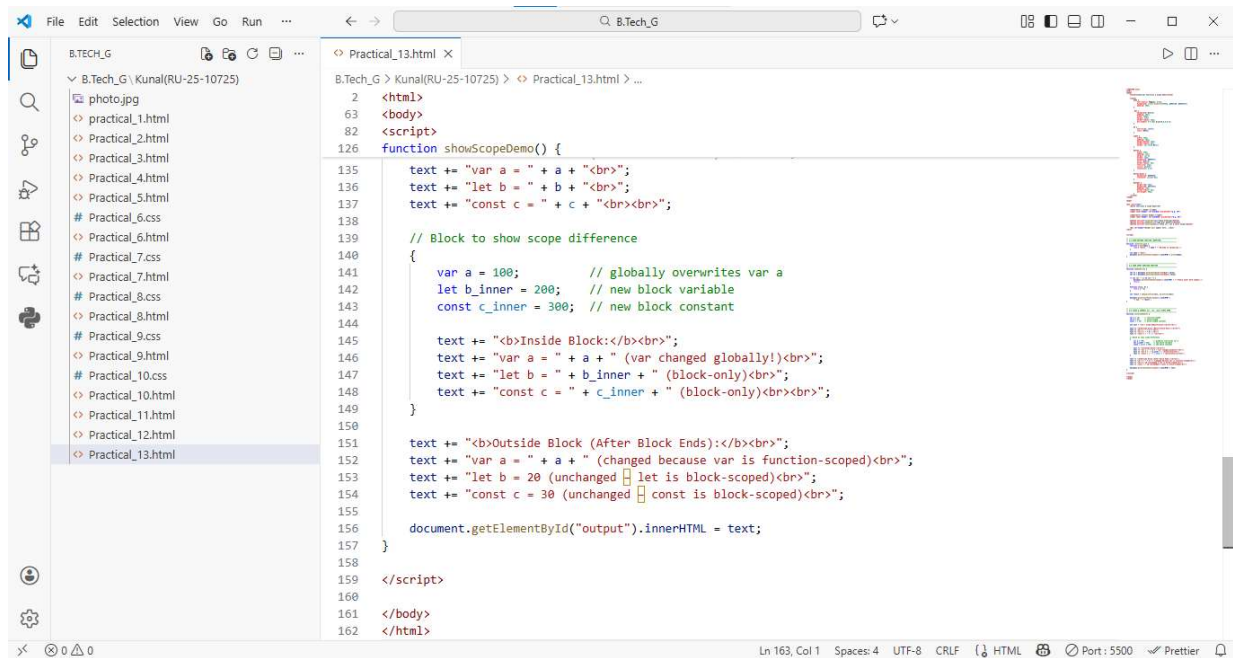


```
34
35    button {
36      width: 100%;
37      padding: 12px;
38      margin: 7px 0;
39      border: none;
40      background: #007bff;
41      color: white;
42      border-radius: 8px;
43      font-size: 15px;
44      cursor: pointer;
45      transition: 0.3s;
46    }
47
48    button:hover {
49      background: #0056b3;
50      transform: scale(1.03);
51    }
52
53    #output {
54      margin-top: 20px;
55      background: #f3f3f3;
56      padding: 15px;
57      border-radius: 8px;
58      min-height: 60px;
59    }
60  </style>
61 </head>
62
63 <body>
```

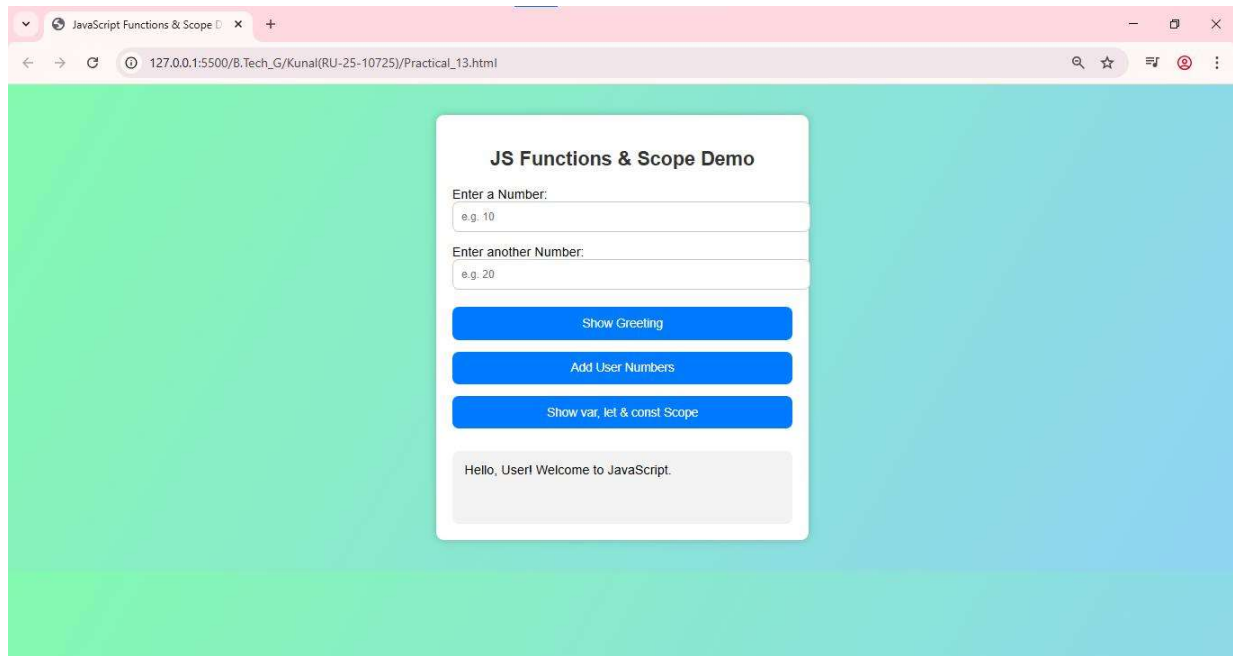


```
File Edit Selection View Go Run ... B.Tech_G Practical_13.html X
B.Tech_G > Kunal(RU-25-10725) > Practical_13.html > ...
2 <html>
63 <body>
65 <div class="box">
66 <h2>JS Functions & Scope Demo</h2>
67
68 <label>Enter a Number:</label>
69 <input type="number" id="userNum" placeholder="e.g. 10">
70
71 <label>Enter another Number:</label>
72 <input type="number" id="userNum2" placeholder="e.g. 20">
73
74 <button onclick="showGreeting()">Show Greeting</button>
75 <button onclick="addNumbers()">Add User Numbers</button>
76 <button onclick="showScopeDemo()">Show var, let & const Scope</button>
77
78 <div id="output">Output will appear here...</div>
79 </div>
80
81 <script>
82
83
84 // -----
85 // [ ] USER-DEFINED FUNCTION (GREETING)
86 // -----
87 function showGreeting() {
88   function greet(name) {
89     return "Hello, " + name + "! Welcome to JavaScript.";
90   }
91
92   let name = "User";
93   document.getElementById("output").innerHTML = greet(name);
94 }
```

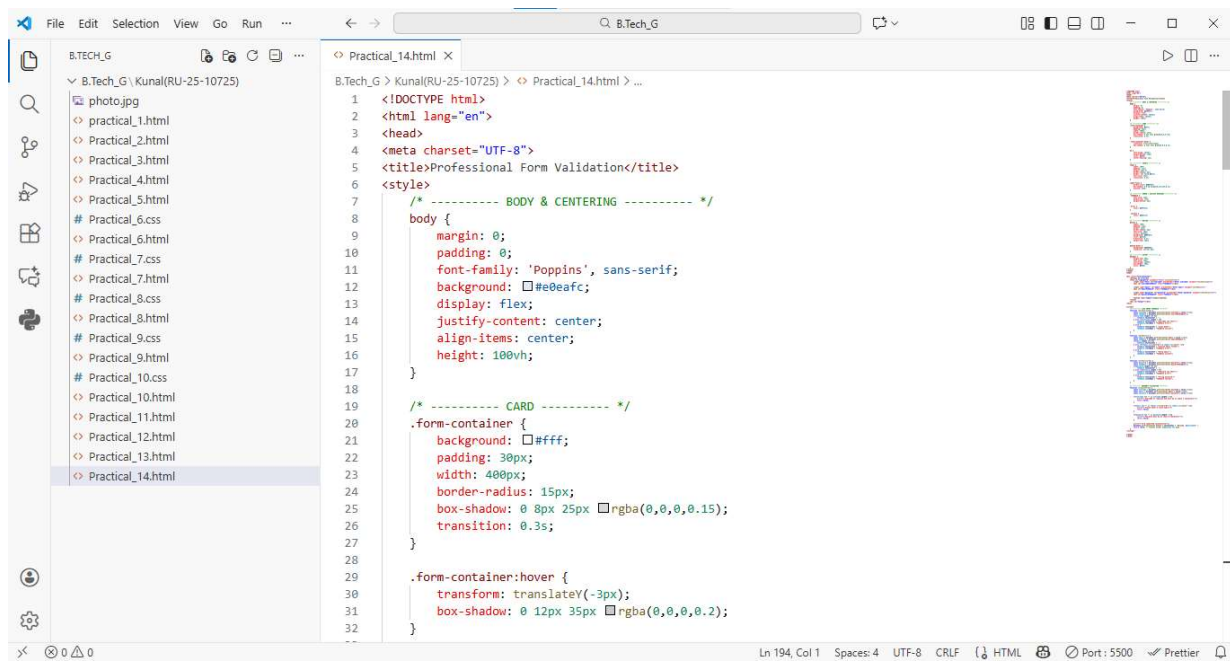
```
File Edit Selection View Go Run ... B.Tech_G Practical_13.html X
B.Tech_G > Kunal(RU-25-10725) > Practical_13.html > ...
2 <html>
63 <body>
82 <script>
98 // -----
99 // [ ] USER INPUT ADDITION FUNCTION
100 // -----
101 function addNumbers() {
102
103   let n1 = document.getElementById("userNum").value;
104   let n2 = document.getElementById("userNum2").value;
105
106   if (n1 === "" || n2 === "") {
107     document.getElementById("output").innerHTML = "❌ Please enter both numbers.";
108     return;
109   }
110
111   function add(a, b) {
112     return a + b;
113   }
114
115   let result = add(parseFloat(n1), parseFloat(n2));
116
117   document.getElementById("output").innerHTML =
118     "✓ Sum: " + result ;
119 }
120
121
122
123 // -----
124 // [ ] FIXED & CORRECT var, let, const SCOPE DEMO
125 // -----
126 function showScopeDemo() {
```



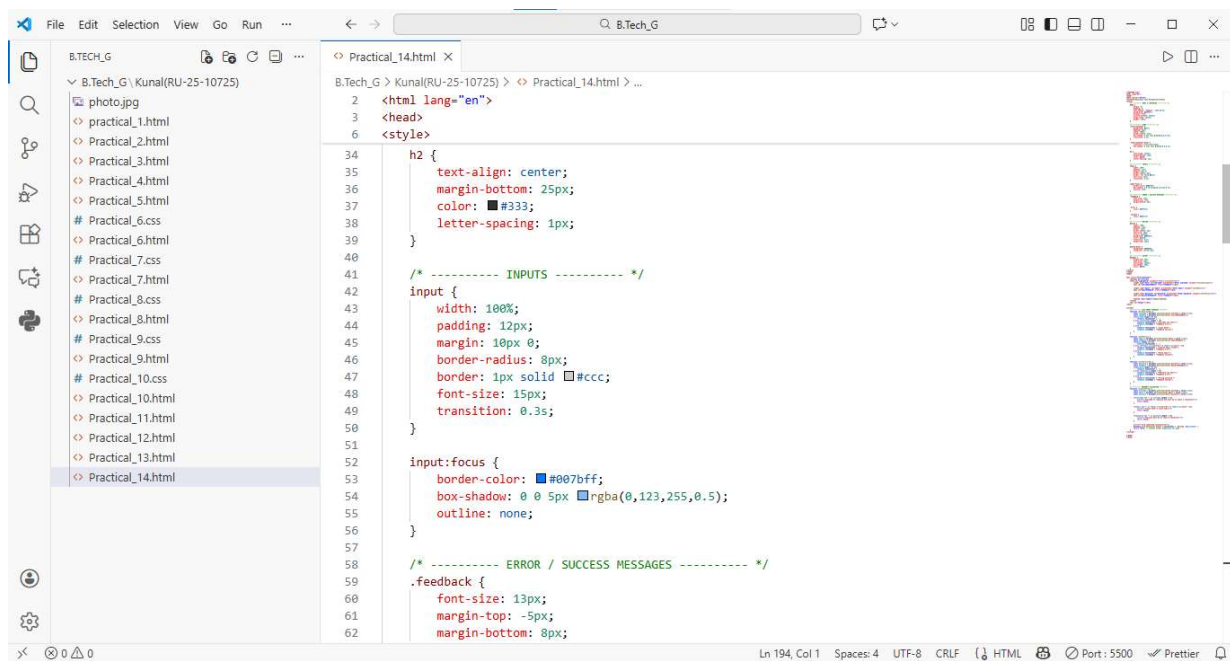
```
1  <html>
2  <body>
3  <script>
4  function showScopeDemo() {
5
6      text += "var a = " + a + "<br>";
7      text += "let b = " + b + "<br>";
8      text += "const c = " + c + "<br><br>";
9
10     // Block to show scope difference
11     {
12         var a = 100; // globally overwrites var a
13         let b_inner = 200; // new block variable
14         const c_inner = 300; // new block constant
15
16         text += "<b>Inside Block:</b><br>";
17         text += "var a = " + a + " (var changed globally!)<br>";
18         text += "let b = " + b_inner + " (block-only)<br>";
19         text += "const c = " + c_inner + " (block-only)<br><br>";
20     }
21
22     text += "<b>Outside Block (After Block Ends):</b><br>";
23     text += "var a = " + a + " (changed because var is function-scoped)<br>";
24     text += "let b = 20 (unchanged) let is block-scoped<br>";
25     text += "const c = 30 (unchanged) const is block-scoped<br>";
26
27     document.getElementById("output").innerHTML = text;
28 }
29
30 </script>
31
32 </body>
33 </html>
```



14. Handle HTML form validation using JavaScript events like onsubmit, oninput, and use alert() for feedback.



```
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <meta charset="UTF-8">
5 <title>Professional Form Validation</title>
6 <style>
7 /* ----- BODY & CENTERING ----- */
8
9 body {
10     margin: 0;
11     padding: 0;
12     font-family: 'Poppins', sans-serif;
13     background: #e0eafc;
14     display: flex;
15     justify-content: center;
16     align-items: center;
17     height: 100vh;
18 }
19
20 /* ----- CARD ----- */
21 .form-container {
22     background: #ffff;
23     padding: 30px;
24     width: 400px;
25     border-radius: 15px;
26     box-shadow: 0 8px 25px #0000000.15;
27     transition: 0.3s;
28 }
29
30 .form-container:hover {
31     transform: translateY(-3px);
32     box-shadow: 0 12px 35px #0000000.2;
```



```
2 <html lang="en">
3 <head>
4 <style>
5
6
7
8
9
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11
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14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34 h2 {
35     text-align: center;
36     margin-bottom: 25px;
37     color: #333;
38     letter-spacing: 1px;
39 }
40
41 /* ----- INPUTS ----- */
42 input {
43     width: 100%;
44     padding: 12px;
45     margin: 10px 0;
46     border-radius: 8px;
47     border: 1px solid #ccc;
48     font-size: 15px;
49     transition: 0.3s;
50 }
51
52 input:focus {
53     border-color: #007bff;
54     box-shadow: 0 0 5px #007bff;
55     outline: none;
56 }
57
58 /* ----- ERROR / SUCCESS MESSAGES ----- */
59 .feedback {
60     font-size: 13px;
61     margin-top: -5px;
62     margin-bottom: 8px;
```

```
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practical_7.html
# practical_8.css
practical_8.html
# practical_9.css
practical_9.html
# practical_10.css
practical_10.html
practical_11.html
practical_12.html
practical_13.html
practical_14.html

Practical_14.html X
B.Tech_G > Kunal(RU-25-10725) > Practical_14.html > ...
2 <html lang="en">
3 <head>
6 <style>
65 .error {
66   color: #e74c3c;
67 }
68
69 .success {
70   color: #2ecc71;
71 }
72
73 /* ----- BUTTON ----- */
74 button {
75   width: 100%;
76   padding: 12px;
77   border: none;
78   border-radius: 8px;
79   font-size: 16px;
80   cursor: pointer;
81   background: #007bff;
82   color: white;
83   transition: 0.3s;
84   margin-top: 10px;
85 }
86
87 button:hover {
88   background: #0056b3;
89   transform: scale(1.02);
90 }
91
92 /* ----- OUTPUT ----- */
93 #output {
```

```
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photo.jpg
practical_1.html
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practical_12.html
practical_13.html
practical_14.html

Practical_14.html X
B.Tech_G > Kunal(RU-25-10725) > Practical_14.html > ...
2 <html lang="en">
3 <head>
6 <style>
92 /* ----- OUTPUT ----- */
93 #output {
94   margin-top: 20px;
95   font-size: 14px;
96   text-align: center;
97   min-height: 30px;
98   color: #333;
99 }
100 </style>
101 </head>
102 <body>
103
104 <div class="form-container">
105   <h2>Sign Up Form</h2>
106   <form id="signupForm" onsubmit="return validateForm()">
107     <input type="text" id="username" placeholder="Enter username" oninput="checkUsername()">
108     <div id="usernameFeedback" class="feedback"></div>
109
110     <input type="email" id="email" placeholder="Enter email" oninput="checkEmail()">
111     <div id="emailFeedback" class="feedback"></div>
112
113     <input type="password" id="password" placeholder="Enter password" oninput="checkPassword()">
114     <div id="passwordFeedback" class="feedback"></div>
115
116     <button type="submit">Submit</button>
117   </form>
118   <div id="output"></div>
119 </div>
120
```

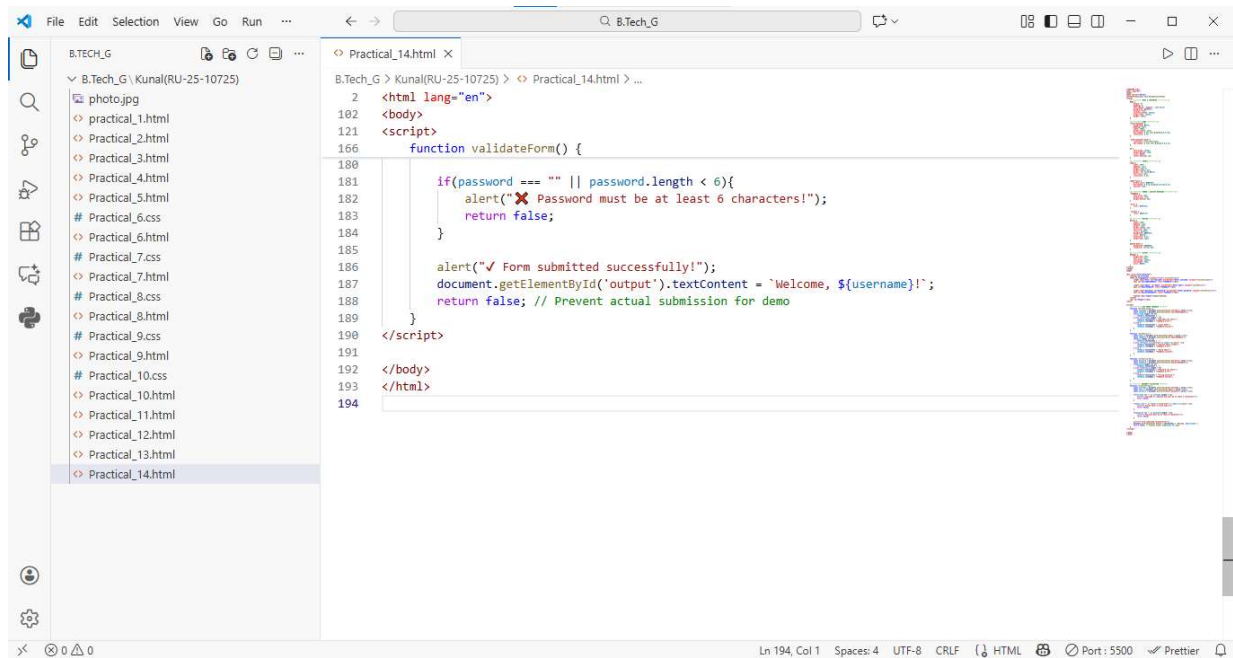
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File Edit Selection View Go Run ... B.Tech_G
photo.jpg
practical_1.html
practical_2.html
practical_3.html
practical_4.html
practical_5.html
# practical_6.css
practical_6.html
# practical_7.css
practical_7.html
# practical_8.css
practical_8.html
# practical_9.css
practical_9.html
# practical_10.css
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practical_12.html
practical_13.html
practical_14.html

Practical_14.html X
B.Tech_G > Kunal(RU-25-10725) > Practical_14.html > ...
2 <html lang="en">
102 <body>
121 <script>
122 // ----- LIVE INPUT FEEDBACK -----
123 function checkUsername() {
124   const username = document.getElementById('username').value.trim();
125   const feedback = document.getElementById('usernameFeedback');
126   if(username.length === 0){
127     feedback.textContent = '';
128   } else if(username.length < 3){
129     feedback.textContent = "Username too short!";
130     feedback.className = "feedback error";
131   } else {
132     feedback.textContent = "Looks good!";
133     feedback.className = "feedback success";
134   }
135 }
136
137 function checkEmail() {
138   const email = document.getElementById('email').value.trim();
139   const feedback = document.getElementById('emailFeedback');
140   if(email.length === 0){
141     feedback.textContent = '';
142   } else if(!email.includes('@') || !email.includes(".")){
143     feedback.textContent = "Invalid email format!";
144     feedback.className = "feedback error";
145   } else {
146     feedback.textContent = "Valid email!";
147     feedback.className = "feedback success";
148   }
149 }
150
```

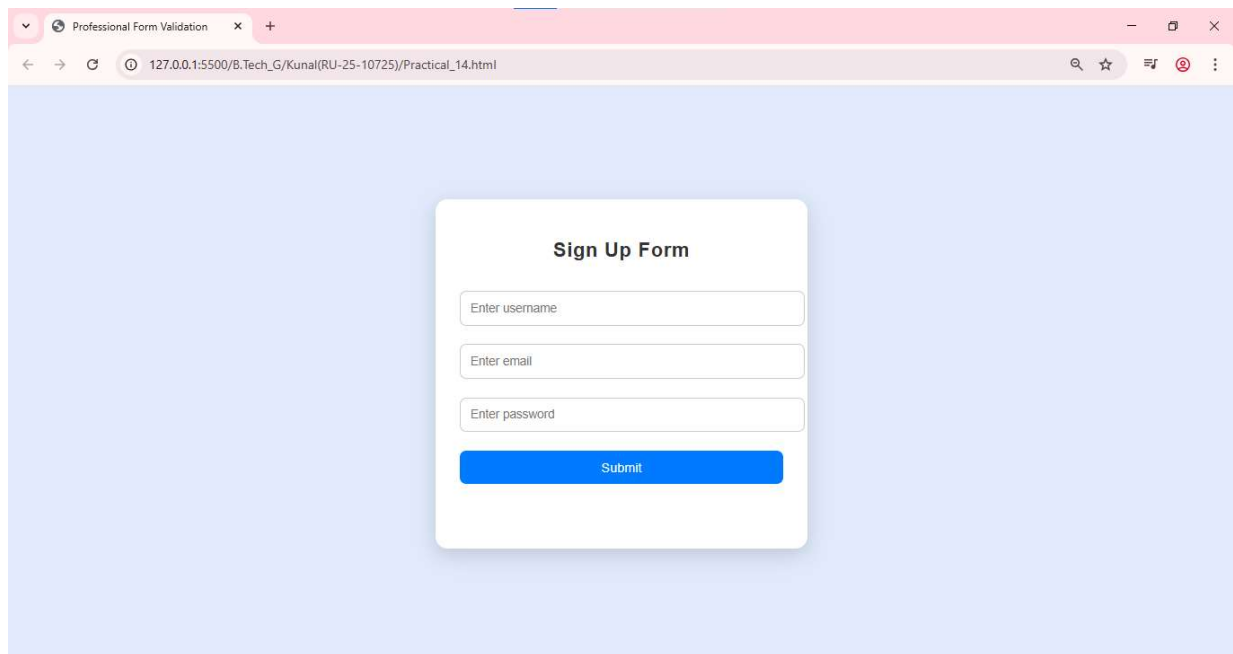
```
File Edit Selection View Go Run ... B.Tech_G
photo.jpg
practical_1.html
practical_2.html
practical_3.html
practical_4.html
practical_5.html
# practical_6.css
practical_6.html
# practical_7.css
practical_7.html
# practical_8.css
practical_8.html
# practical_9.css
practical_9.html
# practical_10.css
practical_10.html
practical_11.html
practical_12.html
practical_13.html
practical_14.html

Practical_14.html X
B.Tech_G > Kunal(RU-25-10725) > Practical_14.html > ...
2 <html lang="en">
102 <body>
121 <script>
151 function checkPassword() {
152   const password = document.getElementById('password').value.trim();
153   const feedback = document.getElementById('passwordFeedback');
154   if(password.length === 0){
155     feedback.textContent = '';
156   } else if(password.length < 6){
157     feedback.textContent = "Password too short!";
158     feedback.className = "feedback error";
159   } else {
160     feedback.textContent = "Strong password!";
161     feedback.className = "feedback success";
162   }
163 }
164
165 // ----- ONSUBMIT VALIDATION -----
166 function validateForm() {
167   const username = document.getElementById('username').value.trim();
168   const email = document.getElementById('email').value.trim();
169   const password = document.getElementById('password').value.trim();
170
171   if(username === "" || username.length < 3){
172     alert("❌ Username is required and must be at least 3 characters!");
173     return false;
174   }
175
176   if(email === "" || !email.includes("@") || !email.includes(".")){
177     alert("❌ Please enter a valid email!");
178     return false;
179   }

```

```
2 <html lang="en">
102 <body>
121 <script>
166 function validateForm() {
180
181     if(password === "" || password.length < 6){
182         alert("✗ Password must be at least 6 characters!");
183         return false;
184     }
185
186     alert("✓ Form submitted successfully!");
187     document.getElementById('output').textContent = `Welcome, ${username}!`;
188     return false; // Prevent actual submission for demo
189 }
190 </script>
191
192 </body>
193 </html>
194
```



Professional Form Validation

127.0.0.1:5500/B.Tech_G/Kunal(RU-25-10725)/Practical_14.html

Sign Up Form

Enter username

Enter email

Enter password

Submit

