

ASSIGMENT-14.5

AI ASSIGNED CODE:

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BATCH:16

Lab 14: Web Design Application – AI-Assisted HTML/CSS/JS
Generation

Lab Objectives

- Design functional, visually appealing web applications using HTML, CSS, and JavaScript with AI assistance.
- Apply responsive, accessible, and interactive design

principles.

- Create practical UI components for real-world web applications.
- Use AI to optimize layout, UX, and performance.

Task 1: AI-Assisted Portfolio Website

Scenario:

A student wants to showcase their projects, skills, and contact details in

a portfolio website. Instead of writing all code manually, they want to

speed up the process using GitHub Copilot.

- Use Copilot to generate an HTML structure for a personal portfolio page (sections: Home, About, Projects, Contact).
- Ask Copilot to suggest responsive CSS styling for the layout (e.g., grid/flexbox).
- Customize Copilot's suggestions to add a hover effect on

project
cards.

Prompt:

```
1 <!-- Save as index.html -->
2 <!doctype html>
3 <html lang="en">
4 <head>
5   <meta charset="utf-8" />
6   <meta name="viewport" content="width=device-width,initial-scale=1" />
7   <title>Portfolio</title>
8   <style>
9     :root{--accent:#4f46e5;--bg:#0f172a;--card:#0b1220;color-scheme: dark}
10    *{box-sizing:border-box}body{margin:0;font-family:Inter,system-ui,Segoe UI,Roboto,'Helvetica Neue',Arial;background:linear-
11    .wrap{max-width:1100px;margin:32px auto;padding:24px}
12    header{display:flex;justify-content:space-between;align-items:center;margin-bottom:24px}
13    nav a{color:inherit;text-decoration:none;margin-left:16px;font-weight:600}
14    .hero{display:flex;gap:24px;align-items:center;justify-content:space-between;padding:28px;background:linear-gradient(90deg,
15    .hero h1{margin:0;font-size:clamp(1.4rem,2.6vw,2.2rem)}
16    .hero p{opacity:.85;margin:6px 0 0}
17    section{margin-top:28px}
18    .grid{display:grid;gap:16px}
19    /* Projects grid */
20    .projects .grid{grid-template-columns:repeat(auto-fit,minmax(220px,1fr))}
21    .card{background:linear-gradient(180deg,rgba(255,255,255,0.02),transparent);padding:16px;border-radius:10px;border:1px so
22    .card h3{margin:0 0 6px;font-size:1.05rem}
23    .card p{margin:0;font-size:.9rem;opacity:.85}
24    .card .tags{margin-top:10px;font-size:.78rem;opacity:.8}
25    .card .tags span{background:rgba(255,255,255,0.04);padding:4px 8px;border-radius:999px;margin-right:6px}
26    /* Hover effect */
27    .card::after{content:"";position:absolute;inset:0;background:linear-gradient(180deg,rgba(79,70,229,0.06),transparent);opa
28    .card:hover{transform:translateY(-10px) scale(1.02);box-shadow:0 10px 30px rgba(2,6,23,0.6)}
29    .card:hover::after{opacity:1}
30    /* Contact form */
```

Code:

```

3 <html lang="en" >
4 <head>
8   <style>
31     form{display:grid;gap:10px;max-width:600px}
32     input,textarea{background:transparent;border:1px solid #000;padding:10px;border-radius:8px;color:inherit}
33     button{background:var(--accent);color:white;padding:10px 14px;border:none;border-radius:8px;font-weight:700;cursor:pointer}
34     footer{margin-top:36px;opacity:.7;font-size:.9rem}
35     @media (max-width:720px){.hero{flex-direction:column;align-items:flex-start}}
36   </style>
37 </head>
38 <body>
39   <div class="wrap">
40     <header>
41       <div style="font-weight:800">Your Name</div>
42       <nav>
43         <a href="#home">Home</a><a href="#about">About</a><a href="#projects">Projects</a><a href="#contact">Contact</a>
44       </nav>
45     </header>
46
47     <section id="home" class="hero">
48       <div>
49         <h1>Hi, I'm Your Name – Student Developer</h1>
50         <p>Building small web apps, experimenting with UI and open-source. Available for internships.</p>
51       </div>
52       <div style="text-align:right;opacity:.95">🌐 Portfolio</div>
53     </section>
54
55     <section id="about">
56       <h2>About</h2>
57       <p style="max-width:70ch;opacity:.9">Short bio: what you study, main skills (HTML, CSS, JS, React, Python), and interes

```

```

3 <html lang="en" >
8 <body>
89   <div class="wrap">
95     <section id="about">
97       <p style="max-width:70ch;opacity:.9">Short bio: what you study, main skills (HTML, CSS, JS, React, Python), and interes
98     </section>
99
100    <section id="projects" class="projects">
101      <h2>Projects</h2>
102      <div class="grid">
103        <article class="card">
104          <h3>Project One</h3>
105          <p>Short description of the project – what it does and tech used.</p>
106          <div class="tags"><span>React</span><span>API</span></div>
107        </article>
108
109        <article class="card">
110          <h3>Project Two</h3>
111          <p>Another brief project summary with highlights and link to repo.</p>
112          <div class="tags"><span>Python</span><span>ML</span></div>
113        </article>
114
115        <article class="card">
116          <h3>Project Three</h3>
117          <p>Small web app that demonstrates responsive UI and animations.</p>
118          <div class="tags"><span>Vanilla JS</span><span>CSS</span></div>
119        </article>
120      </div>
121    </section>

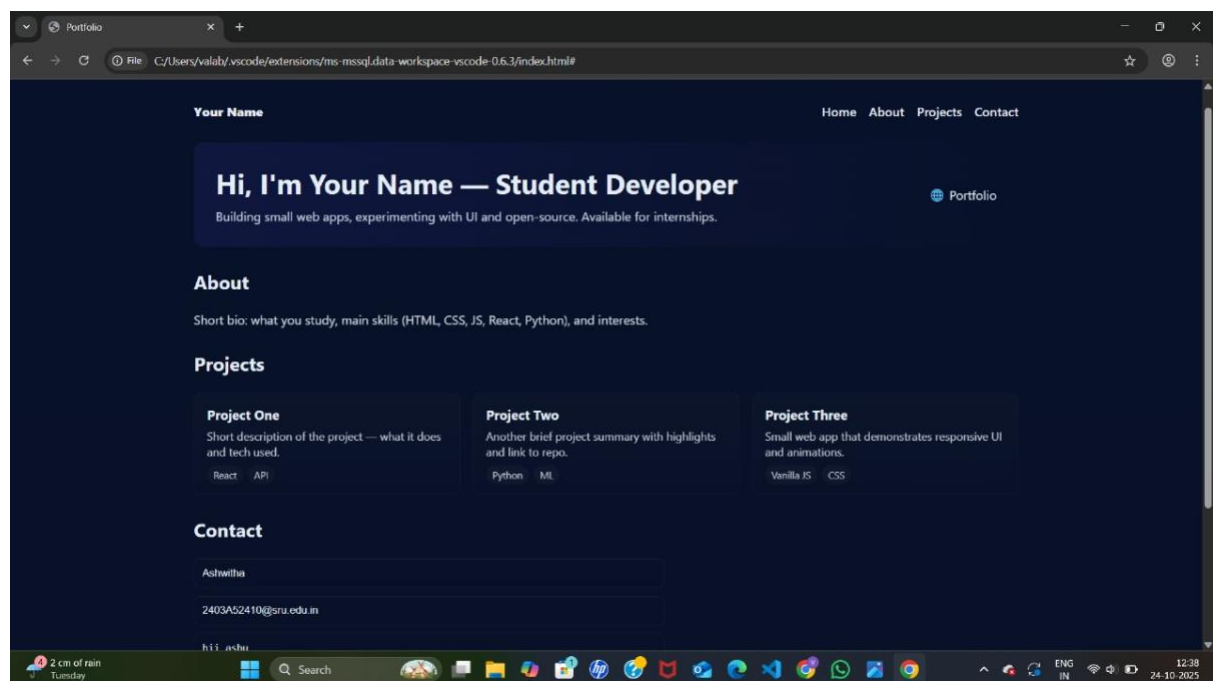
```

```

3 <html lang="en">
4 <body>
5   <div class="wrap">
6     <section id="projects" class="projects">
7       <div class="grid">
8         <div class="project">
9           <h3>Project One</h3>
10          <p>Short description of the project — what it does and tech used.</p>
11          <p>React API</p>
12        </div>
13        <div class="project">
14          <h3>Project Two</h3>
15          <p>Another brief project summary with highlights and link to repo.</p>
16          <p>Python ML</p>
17        </div>
18        <div class="project">
19          <h3>Project Three</h3>
20          <p>Small web app that demonstrates responsive UI and animations.</p>
21          <p>Vanilla JS CSS</p>
22        </div>
23      </div>
24    </section>
25
26    <section id="contact">
27      <h2>Contact</h2>
28      <form action="mailto:you@example.com" method="post" enctype="text/plain">
29        <input type="text" name="name" placeholder="Your name" required />
30        <input type="email" name="email" placeholder="you@example.com" required />
31        <textarea name="message" rows="5" placeholder="Message"></textarea>
32        <button type="submit">Send</button>
33      </form>
34    </section>
35
36    <footer>
37      <p>© Your Name — <a href="#" style="color:inherit;text-decoration:underline">Resume</a></p>
38    </footer>
39  </div>
40 </body>
41 </html>

```

Output:



Task 2: AI-Generated Restaurant Landing Page

Scenario:

A local restaurant needs a simple landing page with a navigation bar, menu highlights, and an image gallery. The developer wants to

quickly

generate it using AI assistance.

- Use Copilot to create a navigation bar with links (Home, Menu, Gallery, Contact).
- Generate a menu section styled with CSS cards.
- Add a JavaScript-based image slider for the gallery, with Copilot suggesting the base code.

Prompt:

```
ai.html X
C: > Users > valab > .vscode > extensions > ms-mssql.data-workspace-vscode-0.6.3 > ai.html > htrn
1 <!doctype html>
2 <html lang="en">
3 <head>
4 <meta charset="utf-8" />
5 <meta name="viewport" content="width=device-width,initial-scale=1" />
6 <title>Local Restaurant</title>
7 <style>
8 :root{--accent:#c0392b;--bg:#faf7f4;--card:#fff}
9 body{margin:0;font-family:system-ui,-apple-system,Segoe UI,Roboto,"Helvetica Neue",Arial;background:var(--bg);color:#222}
10 header{display:flex;justify-content:space-between;align-items:center;padding:1rem 2rem;background:#fff;box-shadow:0 2px 6px #
11 .brand{font-weight:700;color:var(--accent)}
12 nav a{margin:0 0.6rem;text-decoration:none;color:inherit;font-weight:600}
13 nav a:hover{color:var(--accent)}
14 main{max-width:1000px;margin:2rem auto;padding:0 1rem}
15 /* Menu cards */
16 .menu-grid{display:grid;grid-template-columns:repeat(auto-fit,minmax(220px,1fr));gap:1rem}
17 .card{background:var(--card);padding:1rem;border-radius:10px;box-shadow:0 6px 20px #00000006}
18 .card h3{margin:.2rem 0;color:var(--accent)}
19 .price{font-weight:700;color:#111}
20 /* Gallery slider */
21 .slider{position:relative;overflow:hidden;border-radius:10px}
22 .slides{display:flex;transition:transform .5s ease}
23 .slide{min-width:100%;flex-shrink:0}
24 .slide img{width:100%;display:block;height:320px;object-fit:cover}
25 .controls{position:absolute;top:50%;left:0;right:0;display:flex;justify-content:space-between;transform:translateY(-50%);pointer-
26 button.ctrl{background:rgba(0,0,0,.4);color:#fff;border:0;padding:.5rem .7rem;border-radius:6px;margin:0 .6rem;pointer-even
27 .dots{display:flex;gap:.4rem;justify-content:center;padding:.6rem}
28 .dot{width:10px;height:10px;border-radius:50%;background:#ddd;border:0}
29 .dot.active{background:var(--accent)}
30 footer{padding:2rem 1rem;text-align:center;color:#666}
```

Code:

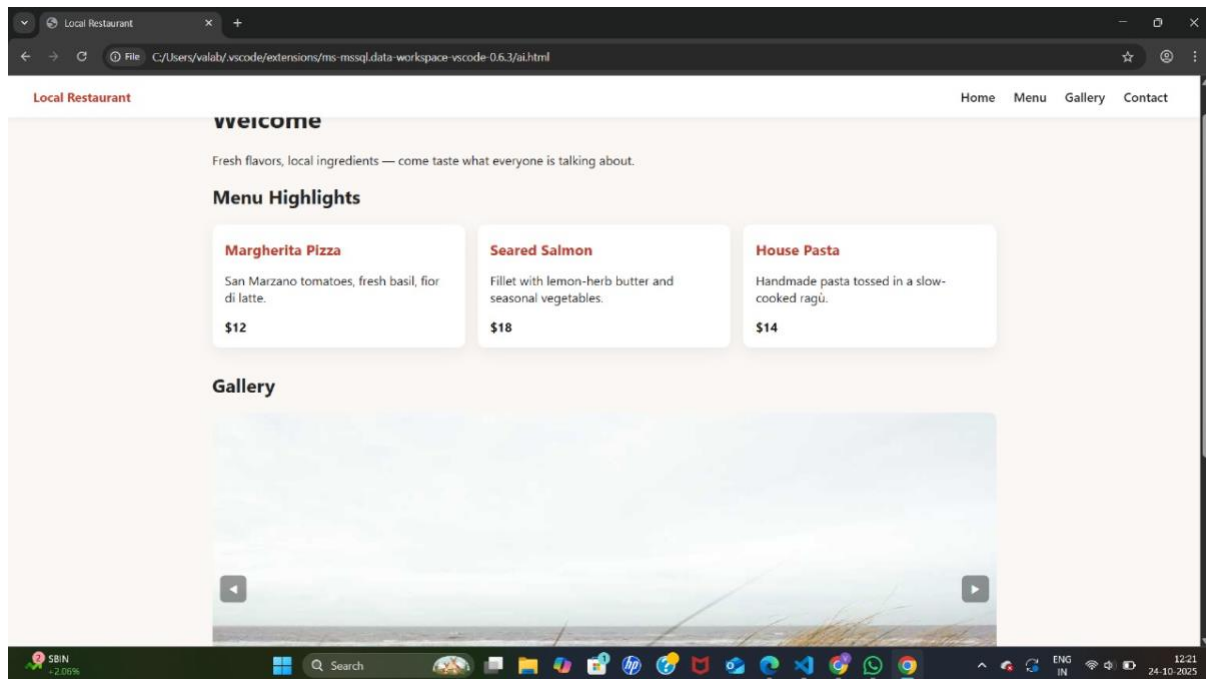

```
ai.html X
C: > Users > valab > .vscode > extensions > ms-mssql.data-workspace-vscode-0.6.3 > ai.html > htn
2 <html lang="en">
3 <head>
7 <style>
31 @media(min-width:700px){ .slide img{height:420px} }
32 </style>
33 </head>
34 <body>
35 <header>
36 <div class="brand">Local Restaurant</div>
37 <nav>
38 <a href="#home">Home</a>
39 <a href="#menu">Menu</a>
40 <a href="#gallery">Gallery</a>
41 <a href="#contact">Contact</a>
42 </nav>
43 </header>
44
45 <main>
46 <section id="home">
47 <h1>Welcome</h1>
48 <p>Fresh flavors, local ingredients – come taste what everyone is talking about.</p>
49 </section>
50
51 <section id="menu">
52 <h2>Menu Highlights</h2>
53 <div class="menu-grid">
54 <div class="card">
55 <h3>Margherita Pizza</h3>
56 <p>San Marzano tomatoes, fresh basil, fior di latte.</p>
57 <div class="price">$12</div>
```

```
ai.html X
C: > Users > valab > .vscode > extensions > ms-mssql.data-workspace-vscode-0.6.3 > ai.html > htn
2 <html lang="en">
34 <body>
45 <main>
51 <section id="menu">
53 <div class="menu-grid">
58 </div>
59 <div class="card">
60 <h3>Seared Salmon</h3>
61 <p>Fillet with lemon-herb butter and seasonal vegetables.</p>
62 <div class="price">$18</div>
63 </div>
64 <div class="card">
65 <h3>House Pasta</h3>
66 <p>Handmade pasta tossed in a slow-cooked ragù.</p>
67 <div class="price">$14</div>
68 </div>
69 </div>
70 </section>
71
72 <section id="gallery" style="margin-top:2rem">
73 <h2>Gallery</h2>
74 <div class="slider" id="slider">
75 <div class="slides">
76 <div class="slide"></div>
77 <div class="slide"></div>
78 <div class="slide"></div>
79 </div>
80 <div class="controls">
81 <button class="ctrl" id="prev" aria-label="Previous"><<</button>
82 <button class="ctrl" id="next" aria-label="Next">>></button>
```

```
ai.html X
C:\Users\valab>.vscode>extensions>ms-mssql.data-workspace-vscode-0.6.3> ai.html > htn
2 <html lang="en">
34 <body>
45 <main>
72 <section id="gallery" style="margin-top:2rem">
74 <div class="slider" id="slider">
83 </div>
84 <div class="dots" id="dots"></div>
85 </div>
86 </section>
87
88 <section id="contact" style="margin-top:2rem">
89 <h2>Contact</h2>
90 <p>Phone: (555) 123-4567 • Address: 123 Main St</p>
91 </section>
92 </main>
93
94 <footer>
95 <p>© Local Restaurant</p>
96 </footer>
97
98 <script>
99 /* Simple JS slider (Copilot base) */
100 (function(){
101 const slider = document.getElementById('slider');
102 const slidesWrap = slider.querySelector('.slides');
103 const slides = Array.from(slidesWrap.children);
104 const prev = document.getElementById('prev'), next = document.getElementById('next');
105 const dotsWrap = document.getElementById('dots');
106 let index = 0, timer = null, interval = 3500;
107
```

```
> Users > valab > .vscode > extensions > ms-mssql.data-workspace-vscode-0.6.3 > ai.html > htn
2 <html lang="en">
34 <body>
98 <script>
100 (function(){
117 function update(){
118 slidesWrap.style.transform = `translateX(-${index*100}%)`;
119 dots.forEach((d,i)=>d.classList.toggle('active', i===index));
120 }
121 function goTo(i){ index = (i+slides.length)%slides.length; update(); }
122 prev.addEventListener('click',()=>{ goTo(index-1); pauseAuto(); });
123 next.addEventListener('click',()=>{ goTo(index+1); pauseAuto(); });
124
125 function startAuto(){ timer = setInterval(()=> goTo(index+1), interval); }
126 function pauseAuto(){ clearInterval(timer); timer = null; }
127 slider.addEventListener('mouseover', pauseAuto);
128 slider.addEventListener('mouseout', ()=>{ if(!timer) startAuto(); });
129
130 // init
131 update();
132 startAuto();
133 })();
134 </script>
135 </body>
136 </html>
```

Output:



Task 3: AI-Powered Event Registration Form

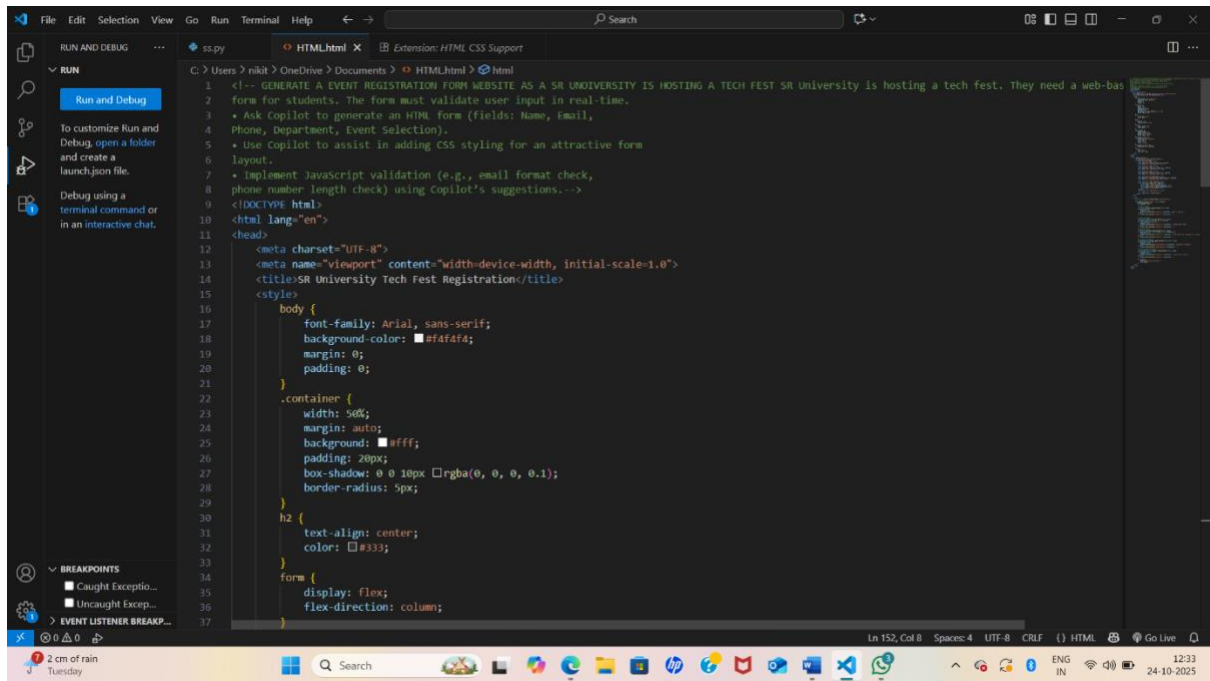
Scenario:

SR University is hosting a tech fest. They need a web-based registration

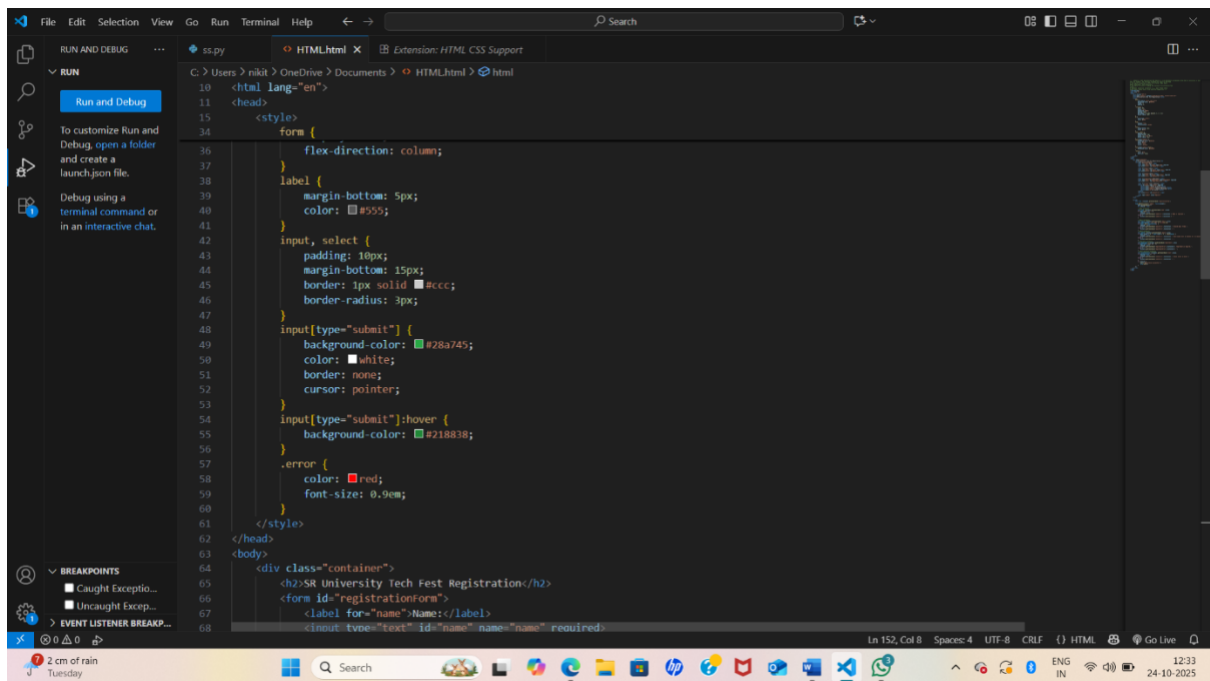
form for students. The form must validate user input in real-time.

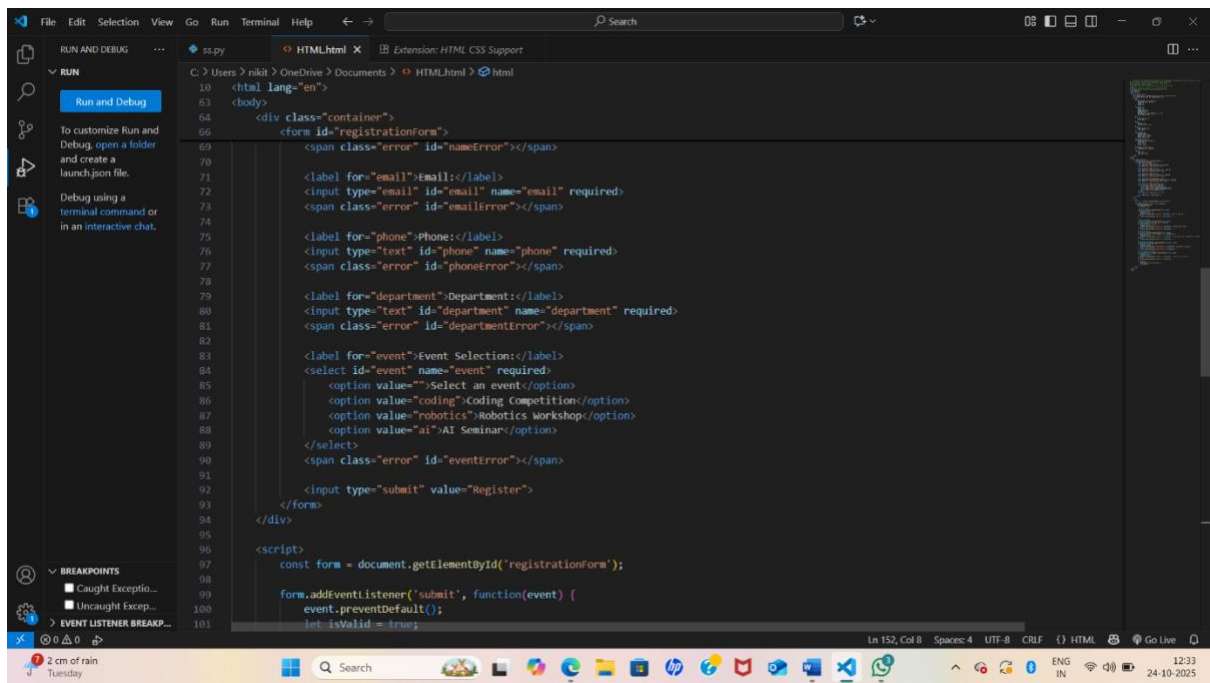
- Ask Copilot to generate an HTML form (fields: Name, Email, Phone, Department, Event Selection).
- Use Copilot to assist in adding CSS styling for an attractive form layout.
- Implement JavaScript validation (e.g., email format check, phone number length check) using Copilot's suggestions.

Prompt:



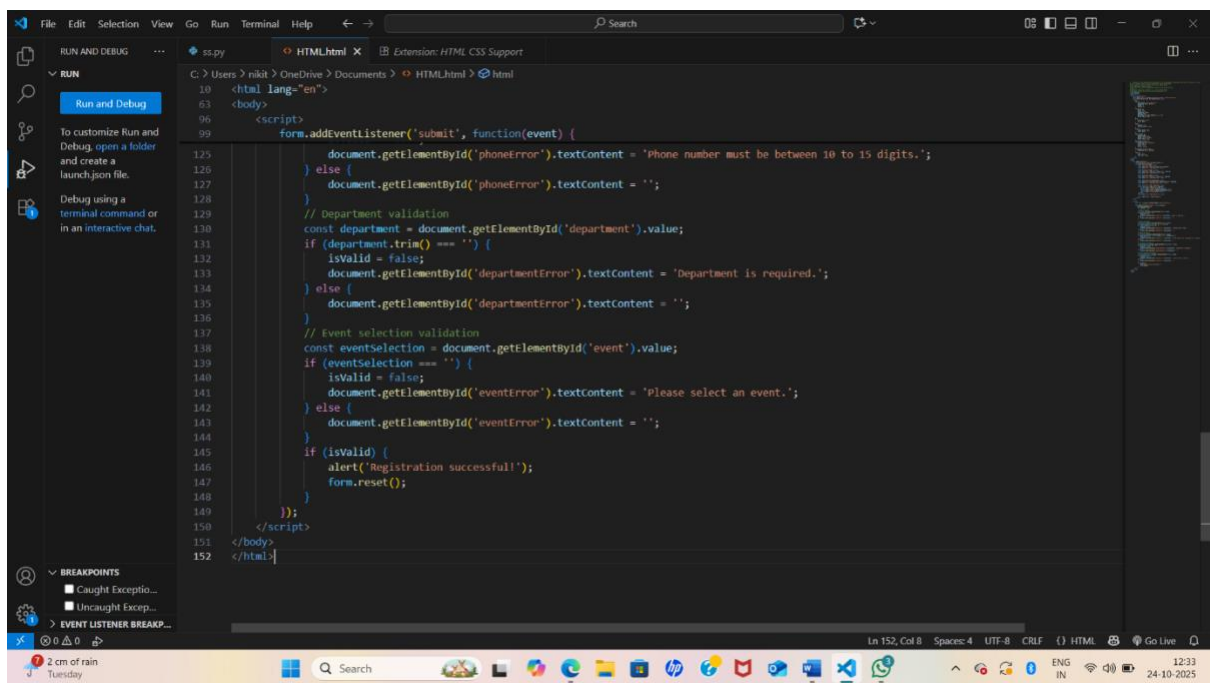
Code:





The screenshot shows the Visual Studio Code editor with a file named `HTML.html` open. The editor is displaying HTML and JavaScript code for a registration form. The HTML code defines a form with fields for email, phone, department, and event selection. The JavaScript code uses the `form` variable to add an event listener for the submit button, which prevents the default form submission and sets `isValid` to `true`.

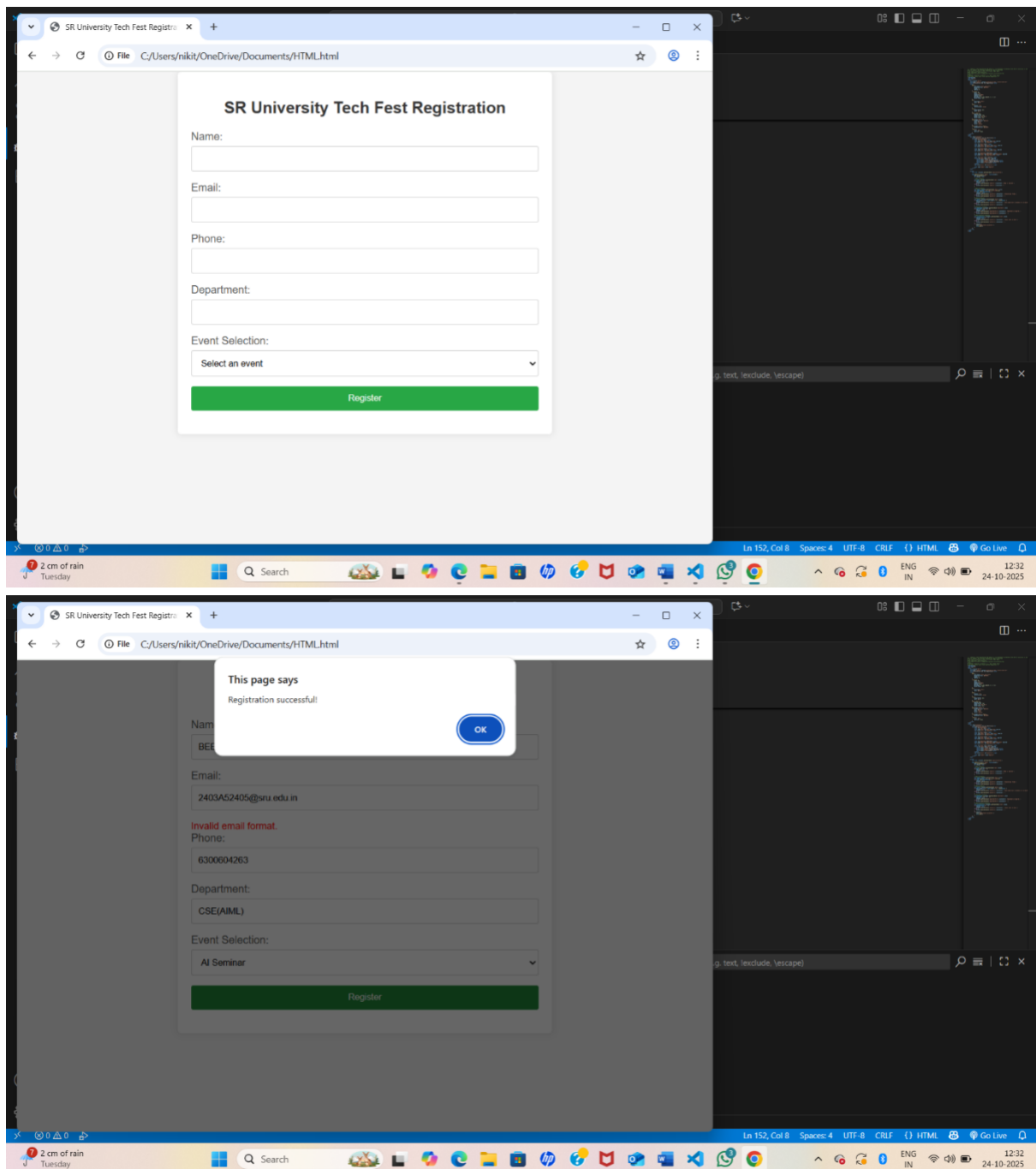
```
10 <html lang="en">
11 <body>
12   <div class="container">
13     <form id="registrationForm">
14       <span class="error" id="nameError"></span>
15       <label for="email">Email:</label>
16       <input type="email" id="email" name="email" required>
17       <span class="error" id="emailError"></span>
18       <label for="phone">Phone:</label>
19       <input type="text" id="phone" name="phone" required>
20       <span class="error" id="phoneError"></span>
21       <label for="department">Department:</label>
22       <input type="text" id="department" name="department" required>
23       <span class="error" id="departmentError"></span>
24       <label for="event">Event Selection:</label>
25       <select id="event" name="event" required>
26         <option value="">Select an event</option>
27         <option value="coding">Coding competition</option>
28         <option value="robotics">Robotics Workshop</option>
29         <option value="ai">AI Seminar</option>
30       </select>
31       <span class="error" id="eventError"></span>
32       <input type="submit" value="Register">
33     </form>
34   </div>
35   <script>
36     const form = document.getElementById('registrationForm');
37     form.addEventListener('submit', function(event) {
38       event.preventDefault();
39       let isValid = true;
```



The screenshot shows the continuation of the JavaScript code in the `HTML.html` file. The code implements validation logic for the phone number, department, and event selection. It uses `document.getElementById` to access the error messages and the form. If the validation fails, it sets the `isValid` flag to `false` and updates the error message. If the validation passes, it shows an alert and resets the form.

```
125     document.getElementById('phoneError').textContent = 'Phone number must be between 10 to 15 digits.';
126   } else {
127     document.getElementById('phoneError').textContent = '';
128   }
129   // Department validation
130   const department = document.getElementById('department').value;
131   if (department.trim() === '') {
132     isValid = false;
133     document.getElementById('departmentError').textContent = 'Department is required.';
134   } else {
135     document.getElementById('departmentError').textContent = '';
136   }
137   // Event selection validation
138   const eventSelection = document.getElementById('event').value;
139   if (eventSelection === '') {
140     isValid = false;
141     document.getElementById('eventError').textContent = 'Please select an event.';
142   } else {
143     document.getElementById('eventError').textContent = '';
144   }
145   if (isValid) {
146     alert('Registration successful!');
147     form.reset();
148   }
149   });
150 </script>
151 </body>
152 </html>
```

Output:



Task 4: AI-Assisted E-Commerce Product Page

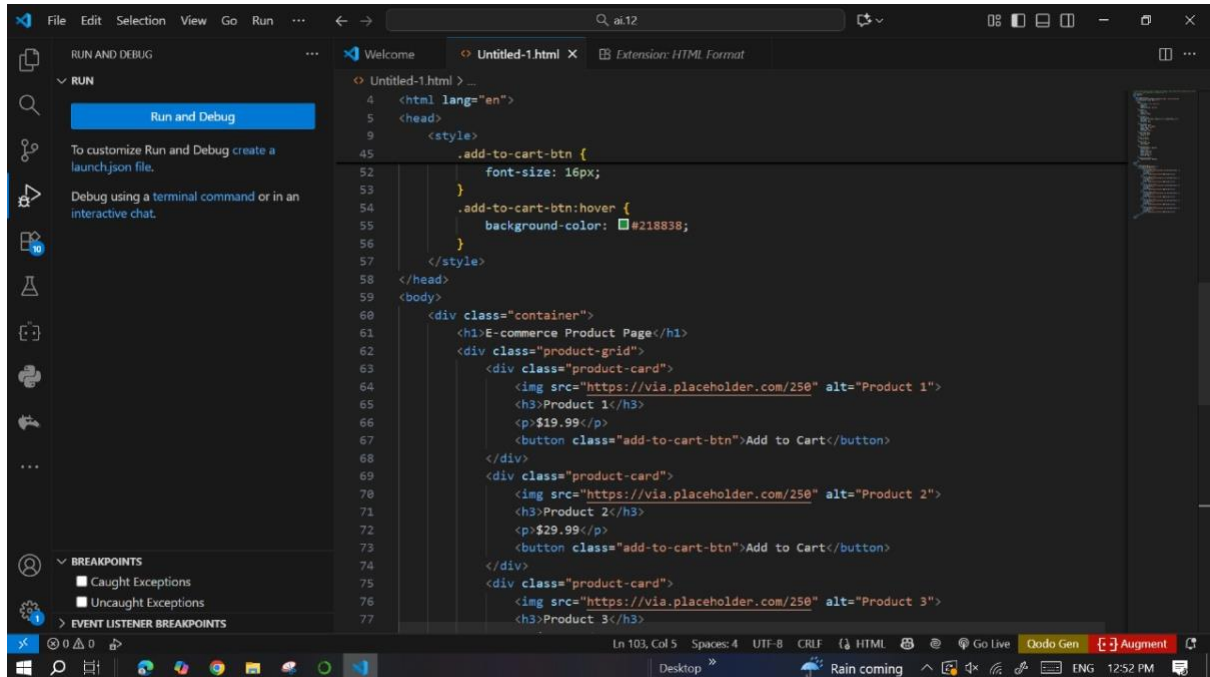
Scenario:

A startup wants a basic e-commerce product page to display products with prices and an “Add to Cart” button.

- Use Copilot to generate a grid-based product catalog in HTML/CSS.
- Implement a JavaScript “Add to Cart” functionality with Copilot’s guidance.

- Modify Copilot's suggestions to include a cart counter at the top-right corner of the page.

Prompt:



```
4 <html lang="en">
5 <head>
9 <style>
45 .add-to-cart-btn {
52     font-size: 16px;
53 }
54 .add-to-cart-btn:hover {
55     background-color: #218838;
56 }
57 </style>
58 </head>
59 <body>
60
61 <div class="container">
62 <h1>E-commerce Product Page</h1>
63 <div class="product-grid">
64 <div class="product-card">
65 
66 <h3>Product 1</h3>
67 <p>$19.99</p>
68 <button class="add-to-cart-btn">Add to Cart</button>
69 </div>
70 <div class="product-card">
71 
72 <h3>Product 2</h3>
73 <p>$29.99</p>
74 <button class="add-to-cart-btn">Add to Cart</button>
75 </div>
76 <div class="product-card">
77 
78 <h3>Product 3</h3>
```

Code:

```
4 <html lang="en">
59 <body>
60   <div class="container">
62     <div class="product-grid">
75       <div class="product-card">
79         <button class="add-to-cart-btn">Add to Cart</button>
80       </div>
81       <div class="product-card">
82         
83         <h3>Product 4</h3>
84         <p>$49.99</p>
85         <button class="add-to-cart-btn">Add to Cart</button>
86       </div>
87       <div class="product-card">
88         
89         <h3>Product 5</h3>
90         <p>$59.99</p>
91         <button class="add-to-cart-btn">Add to Cart</button>
92       </div>
93       <div class="product-card">
94         
95         <h3>Product 6</h3>
96         <p>$69.99</p>
97         <button class="add-to-cart-btn">Add to Cart</button>
98       </div>
99     </div>
100   </div>
101 </body>
102 </html>
103
```

```
4 <html lang="en">
59 <body>
60   <div class="container">
62     <div class="product-grid">
75       <div class="product-card">
79         <button class="add-to-cart-btn">Add to Cart</button>
80       </div>
81       <div class="product-card">
82         
83         <h3>Product 4</h3>
84         <p>$49.99</p>
85         <button class="add-to-cart-btn">Add to Cart</button>
86       </div>
87       <div class="product-card">
88         
89         <h3>Product 5</h3>
90         <p>$59.99</p>
91         <button class="add-to-cart-btn">Add to Cart</button>
92       </div>
93       <div class="product-card">
94         
95         <h3>Product 6</h3>
96         <p>$69.99</p>
97         <button class="add-to-cart-btn">Add to Cart</button>
98       </div>
99     </div>
100   </div>
101 </body>
102 </html>
103
```

Output:

