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| **SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENT OF COMPUTER SCIENCE ENGINEERING** | | | | |
| **Program Name: M**. Tech/MCA/MSC | | | | **Assignment Type: Lab** | | | **AcademicYear:**2025-2026 | | |
| **Course Coordinator Name** | | | | Venkataramana Veeramsetty | | | | | |
| **Course Code** | | |  | **Course Title** | | AI Assisted Problem Solving Using Python | | | |
| **Year/Sem** | | | II/I | **Regulation** | | R25 | | | |
| **Date and Day**  **of Assignment** | | | Week5 - Tuesday | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicable to**  **Batches** | | **M**. Tech/MCA/MSC | | | |
| **AssignmentNumber:14.3**(Presentassignmentnumber)/**24**(Totalnumberofassignments) | | | | | | | | | |
|  | **Q.No.** | **Question** | | | | | | ***ExpectedTime***  ***to complete*** |  |
|  | 1 | Lab 14 – Web Frontend Development: AI-assisted HTML/CSS/JS with Python  **Lab Objectives**   * To understand how AI can generate HTML/CSS/JS templates. * To practice integrating frontend and backend (Python) for small apps. * To evaluate AI-generated code for readability, reusability, and responsiveness.   **Learning Outcomes**  After completing this lab, students will be able to:   1. Generate HTML/CSS layouts using AI tools. 2. Add JavaScript interactivity with AI suggestions. 3. Integrate basic Python (Flask/Streamlit) backend to serve frontend. 4. Evaluate AI-generated web code for responsiveness and usability. 5. Debug and refine AI-generated frontend code.   **Task Description #1 – AI-generated HTML Page**  Task: Ask AI to generate a simple **HTML homepage** for a "Student Info Portal" with a header, navigation menu, and footer.  prompt **Task Description #1 – AI-generated HTML Page**  Task: Ask AI to generate a simple **HTML homepage** for a "Student Info Portal" with a header, navigation menu, and footer. **Task Description #1 – AI-generated HTML Page**  Task: Ask AI to generate a simple **HTML homepage** for a "Student Info Portal" with a header, navigation menu, and footer.   <!DOCTYPE html>  <html lang="en">  <head>      <meta charset="UTF-8">      <meta name="viewport" content="width=device-width, initial-scale=1.0">      <title>Student Info Portal</title>      <!-- Basic Professional Styling -->      <style>          body {              margin: 0;              font-family: Arial, Helvetica, sans-serif;              background-color: #f5f7fa;              color: #333;          }          header {              background-color: #0a3d62;              color: white;              padding: 20px;              text-align: center;          }          nav {              background-color: #1e3799;              padding: 12px 0;          }          nav ul {              list-style: none;              margin: 0;              padding: 0;              display: flex;              justify-content: center;              gap: 25px;          }          nav ul li a {              color: white;              text-decoration: none;              font-weight: 600;              transition: 0.3s;          }          nav ul li a:hover {              color: #ffdd59;          }          main {              max-width: 900px;              margin: 40px auto;              background: white;              padding: 30px;              border-radius: 8px;              box-shadow: 0 4px 10px rgba(0,0,0,0.1);          }          footer {              text-align: center;              padding: 15px;              background-color: #0a3d62;              color: white;              margin-top: 40px;          }      </style>  </head>  <body>      <!-- ======= Header Section ======= -->      <header>          <h1>Student Info Portal</h1>          <p>Your gateway to academic information</p>      </header>      <!-- ======= Navigation Menu ======= -->      <nav>          <ul>              <li><a href="#">Home</a></li>              <li><a href="#">Student Profiles</a></li>              <li><a href="#">Courses</a></li>              <li><a href="#">Results</a></li>              <li><a href="#">Support</a></li>          </ul>      </nav>      <!-- ======= Main Content Section ======= -->      <main>          <h2>Welcome to the Portal</h2>          <p>              The Student Info Portal allows students to access important academic data              including course details, personal profiles, examination results,              and support services. Our goal is to provide a seamless and user-friendly              platform for all your academic needs.          </p>          <h3>Features</h3>          <ul>              <li>View and update student profile</li>              <li>Check course curriculum and materials</li>              <li>Access academic performance reports</li>              <li>Download certificates and official documents</li>          </ul>      </main>      <!-- ======= Footer Section ======= -->      <footer>          &copy; 2025 Student Info Portal | Designed for Student Services      </footer>  </body>  </html>  **Expected Output:**   * HTML code with <header>, <nav>, <footer>. * Clean indentation, proper tags, and comments.  Result   **Task Description #2 – CSS Styling**  **Task:** Use AI to add **CSS styling** to Task #1 homepage for:   * Responsive navigation bar. * Centered content section.   Footer with light gray background.   <!DOCTYPE html>  <html lang="en">  <head>      <meta charset="UTF-8">      <meta name="viewport" content="width=device-width, initial-scale=1.0">      <title>Student Info Portal</title>      <style>          /\* ---------- GLOBAL STYLING ---------- \*/          body {              margin: 0;              font-family: "Segoe UI", Arial, sans-serif;              background-color: #f3f4f6;              color: #333;              line-height: 1.6;          }          /\* ---------- HEADER ---------- \*/          header {              background: linear-gradient(90deg, #003c8f, #0059c1);              color: white;              padding: 35px 20px;              text-align: center;              box-shadow: 0px 3px 8px rgba(0,0,0,0.2);          }          header h1 {              margin: 0;              font-size: 2.3rem;              font-weight: 700;          }          header p {              margin-top: 8px;              font-size: 1rem;              opacity: 0.9;          }          /\* ---------- NAVIGATION ---------- \*/          nav {              background-color: #0747a6;              box-shadow: 0 2px 5px rgba(0,0,0,0.1);          }          .nav-links {              list-style: none;              margin: 0;              padding: 12px 0;              display: flex;              justify-content: center;              gap: 35px;              flex-wrap: wrap;          }          .nav-links a {              text-decoration: none;              color: white;              font-weight: 600;              padding: 8px 14px;              border-radius: 5px;              transition: all 0.3s ease;              font-size: 0.95rem;          }          .nav-links a:hover {              background-color: #ffda47;              color: #003c8f;          }          /\* ---------- MAIN CONTENT ---------- \*/          .content-wrapper {              max-width: 1000px;              margin: 50px auto;              background: white;              padding: 40px;              border-radius: 12px;              box-shadow: 0 4px 15px rgba(0,0,0,0.12);              animation: fadeIn 0.7s ease;          }          .content-wrapper h2 {              margin-top: 0;              font-size: 1.8rem;              color: #003c8f;          }          .content-wrapper ul {              margin-top: 10px;          }          .content-wrapper ul li {              margin-bottom: 8px;          }          /\* ---------- FOOTER ---------- \*/          footer {              background-color: #e8e8e8;   /\* Light gray \*/              color: #555;              text-align: center;              padding: 18px;              font-size: 0.95rem;              margin-top: 60px;              border-top: 1px solid #d4d4d4;          }          /\* ---------- RESPONSIVE NAVIGATION ---------- \*/          @media (max-width: 650px) {              .nav-links {                  flex-direction: column;                  gap: 15px;              }          }          /\* Smooth fade-in animation \*/          @keyframes fadeIn {              from { opacity: 0; transform: translateY(20px); }              to   { opacity: 1; transform: translateY(0); }          }      </style>  </head>  <body>      <!-- ---------- HEADER SECTION ---------- -->      <header>          <h1>Student Info Portal</h1>          <p>Your gateway to academic resources and student services</p>      </header>      <!-- ---------- NAVIGATION ---------- -->      <nav>          <ul class="nav-links">              <li><a href="#">Home</a></li>              <li><a href="#">Student Profiles</a></li>              <li><a href="#">Courses</a></li>              <li><a href="#">Results</a></li>              <li><a href="#">Support</a></li>          </ul>      </nav>      <!-- ---------- MAIN CONTENT ---------- -->      <section class="content-wrapper">          <h2>Welcome to the Portal</h2>          <p>              This Student Info Portal provides streamlined access to essential academic records,              course materials, examination results, and personalized student information.              Designed with a clean and modern user interface, our goal is to enhance your              overall learning experience.          </p>          <h3>Portal Features</h3>          <ul>              <li>✔ Access and update personal student profiles</li>              <li>✔ View detailed academic curriculum and course materials</li>              <li>✔ Check semester-wise academic performance</li>              <li>✔ Download certificates and official documents</li>          </ul>      </section>      <!-- ---------- FOOTER ---------- -->      <footer>          © 2025 Student Info Portal | Designed with Excellence      </footer>  </body>  </html>      **Expected Output:**   * HTML + CSS combined. * AI explains how CSS classes apply.   **Expected Output:** AI refactors with with open() and try-except:  **Task Description #3 – JavaScript Interactivity**  **Task:** Prompt AI to generate a JS script that validates a simple login form (non-empty username/password).  prompt  **Task Description #3 – JavaScript Interactivity**  **Task:** Prompt AI to generate a JS script that validates a simple login form (non-empty username/password). <!DOCTYPE html>  <html lang="en">  <head>      <meta charset="UTF-8">      <meta name="viewport" content="width=device-width, initial-scale=1.0">      <title>Student Info Portal - Login</title>      <style>          body {              margin: 0;              background: #e5e7eb;              font-family: Arial, sans-serif;              display: flex;              justify-content: center;              align-items: center;              height: 100vh;          }          .login-box {              background: white;              width: 350px;              padding: 30px;              border-radius: 10px;              box-shadow: 0 6px 18px rgba(0,0,0,0.2);          }          .login-box h2 {              text-align: center;              margin-bottom: 20px;              color: #1e3a8a;          }          .input-group {              margin-bottom: 18px;          }          .input-group label {              font-weight: 600;              display: block;              margin-bottom: 5px;          }          .input-group input {              width: 100%;              padding: 10px;              border: 1.5px solid #ccc;              border-radius: 6px;              font-size: 0.95rem;          }          .input-group input.error {              border-color: red;          }          .error-message {              color: red;              font-size: 0.8rem;              display: none;              margin-top: 4px;          }          .login-btn {              width: 100%;              padding: 12px;              background: #1e3a8a;              color: white;              border: none;              border-radius: 6px;              font-size: 1rem;              cursor: pointer;              margin-top: 5px;          }          .login-btn:hover {              background: #1d4ed8;          }      </style>  </head>  <body>      <div class="login-box">          <h2>Portal Login</h2>          <form id="loginForm">              <div class="input-group">                  <label for="username">Username</label>                  <input type="text" id="username">                  <div class="error-message" id="userError">Username is required.</div>              </div>              <div class="input-group">                  <label for="password">Password</label>                  <input type="password" id="password">                  <div class="error-message" id="passError">Password is required.</div>              </div>              <button type="submit" class="login-btn">Login</button>          </form>      </div>      <script>          const form = document.getElementById("loginForm");          const username = document.getElementById("username");          const password = document.getElementById("password");          const userError = document.getElementById("userError");          const passError = document.getElementById("passError");          form.addEventListener("submit", function(e) {              e.preventDefault();              let valid = true;              // Username validation              if (username.value.trim() === "") {                  username.classList.add("error");                  userError.style.display = "block";                  valid = false;              } else {                  username.classList.remove("error");                  userError.style.display = "none";              }              // Password validation              if (password.value.trim() === "") {                  password.classList.add("error");                  passError.style.display = "block";                  valid = false;              } else {                  password.classList.remove("error");                  passError.style.display = "none";              }              // Success              if (valid) {                  alert("Login Successful!");              }          });      </script>  </body>  </html>  **Expected Output:**  Working on submit JS validation.  Clear error messages if inputs are empty.  Result    **Task Description #4 – Python Backend Integration**  Task: Ask AI to generate a Flask app that serves the HTML form (Task #3) and prints the username on successful login. prompt  **Task Description #4 – Python Backend Integration**  Task: Ask AI to generate a Flask app that serves the HTML form (Task #3) and prints the username on successful login.  give me fancy code     from flask import Flask, request, render\_template\_string  app = Flask(\_\_name\_\_)  html\_form = '''  <!DOCTYPE html>  <html lang="en">  <head>      <meta charset="UTF-8">      <meta name="viewport" content="width=device-width, initial-scale=1.0">      <title>Professional Login</title>      <style>          \* { margin: 0; padding: 0; box-sizing: border-box; }          body {              font-family: 'Segoe UI', Tahoma, Geneva, Verdana, sans-serif;              background: linear-gradient(135deg, #667eea 0%, #764ba2 100%);              min-height: 100vh;              display: flex;              align-items: center;              justify-content: center;          }          .login-container {              background: rgba(255, 255, 255, 0.95);              padding: 2.5rem;              border-radius: 20px;              box-shadow: 0 20px 40px rgba(0,0,0,0.1);              width: 100%;              max-width: 400px;              backdrop-filter: blur(10px);          }          h1 {              text-align: center;              color: #333;              margin-bottom: 2rem;              font-size: 2rem;              font-weight: 300;          }          .form-group {              position: relative;              margin-bottom: 1.5rem;          }          label {              display: block;              margin-bottom: 0.5rem;              color: #555;              font-weight: 500;          }          input[type="text"], input[type="password"] {              width: 100%;              padding: 1rem 1rem 1rem 2.5rem;              border: 2px solid #e1e5e9;              border-radius: 12px;              font-size: 1rem;              transition: all 0.3s ease;              background: #f8f9fa;          }          input:focus {              outline: none;              border-color: #667eea;              background: white;              box-shadow: 0 0 0 3px rgba(102, 126, 234, 0.1);              transform: translateY(-2px);          }          .input-icons {              position: absolute;              left: 1rem;              top: 2.8rem;              color: #888;          }          button {              width: 100%;              padding: 1.2rem;              background: linear-gradient(135deg, #667eea 0%, #764ba2 100%);              color: white;              border: none;              border-radius: 12px;              font-size: 1.1rem;              font-weight: 600;              cursor: pointer;              transition: all 0.3s ease;              text-transform: uppercase;              letter-spacing: 1px;          }          button:hover {              transform: translateY(-3px);              box-shadow: 0 15px 30px rgba(102, 126, 234, 0.4);          }          .success { text-align: center; color: #28a745; font-size: 1.2rem; margin-top: 1rem; }      </style>  </head>  <body>      <div class="login-container">          <h1>Welcome Back</h1>          <form action="/login" method="post">              <div class="form-group">                  <label for="username">Username</label>                  <i class="input-icons">👤</i>                  <input type="text" id="username" name="username" required>              </div>              <div class="form-group">                  <label for="password">Password</label>                  <i class="input-icons">🔒</i>                  <input type="password" id="password" name="password" required>              </div>              <button type="submit">Sign In</button>          </form>          <div id="success" class="success" style="display: none;"></div>      </div>      <script>          // Simple client-side success display          if (window.location.pathname === '/login' && {{ request.form.get('username') or 'null' }}) {              document.getElementById('success').style.display = 'block';              document.getElementById('success').textContent = 'Login successful! Welcome back!';          }      </script>  </body>  </html>  '''  @app.route('/')  def serve\_form():      return render\_template\_string(html\_form)  @app.route('/login', methods=['POST'])  def login():      username = request.form.get('username')      print(f"✅ User logged in: {username}")  # Server-side print with emoji      return f'''      <!DOCTYPE html>      <html>      <head><title>Success</title></head  result | | | | | | Week5 - Tuesday |  |