

# Implementation of EduLightHub Learning Platform

## 1. Core Structure and Layout

The foundation of the platform would start with the HTML structure and Tailwind CSS styling. Here's how the main layout might be structured:

```
<!DOCTYPE html>

<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>EduLightHub - Learning Platform for BTech Students</title>
  <link
href="https://cdn.jsdelivr.net/npm/tailwindcss@2.2.19/dist/tailwind.min.css"
rel="stylesheet">
  <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.0.0-beta3/css/all.min.css">
  <link href="custom.css" rel="stylesheet">
</head>
<body class="bg-gray-50 font-sans">
  <!-- Navigation Header -->
  <header class="bg-white shadow-sm fixed w-full z-10">
    <nav class="container mx-auto px-4 py-3 flex justify-between items-center">
      <div class="flex items-center space-x-2">
        
        <span class="text-indigo-600 font-bold text-xl">EduLightHub</span>
      </div>

      <div class="hidden md:flex space-x-6 text-gray-600">
        <a href="#dashboard" class="hover:text-indigo-600 transition-colors">Dashboard</a>
        <a href="#courses" class="hover:text-indigo-600 transition-colors">Courses</a>
        <a href="#certificates" class="hover:text-indigo-600 transition-colors">Certificates</a>
      </div>
    </nav>
  </header>
```

```
        <a href="#resources" class="hover:text-indigo-600 transition-
colors">Resources</a>
    </div>
```

```
<!-- User Profile Dropdown -->
```

```
<div class="relative" id="userDropdown">
    <button class="flex items-center space-x-2 focus:outline-none">
        
        <span class="hidden md:inline text-gray-700">Rahul Singh</span>
        <i class="fas fa-chevron-down text-xs text-gray-500"></i>
    </button>
```

```
<!-- Dropdown Menu (Hidden by Default) -->
```

```
<div class="absolute right-0 mt-2 w-48 bg-white rounded-md shadow-lg
py-1 hidden" id="dropdownMenu">
    <a href="#profile" class="block px-4 py-2 text-sm text-gray-700 hover:bg-
gray-100">
        <i class="fas fa-user mr-2"></i> Profile
    </a>
    <a href="#settings" class="block px-4 py-2 text-sm text-gray-700 hover:bg-
gray-100">
        <i class="fas fa-cog mr-2"></i> Settings
    </a>
    <a href="#logout" class="block px-4 py-2 text-sm text-red-600 hover:bg-
gray-100">
        <i class="fas fa-sign-out-alt mr-2"></i> Logout
    </a>
</div>
</div>
</nav>
</header>
```

```
<!-- Main Content -->
```

```
<main class="container mx-auto px-4 pt-24 pb-12">
```

```
<!-- Dashboard Section -->
```

```
<section id="dashboard" class="mb-12">
```

```

        <!-- Dashboard Content Goes Here -->
    </section>

    <!-- Courses Section -->
    <section id="courses" class="mb-12">
        <!-- Courses Content Goes Here -->
    </section>

    <!-- Other Sections... -->
</main>

<!-- Footer -->
<footer class="bg-gray-800 text-white py-8">
    <div class="container mx-auto px-4">
        <!-- Footer Content -->
    </div>
</footer>

<!-- Modal Templates (Hidden by Default) -->
<div id="loginModal" class="fixed inset-0 bg-black bg-opacity-50 flex items-center justify-center z-50 hidden">
    <!-- Login Form -->
</div>

<script src="app.js"></script>
</body>
</html>

```

This foundation sets up a responsive layout with a fixed navigation header, main content sections, and a footer. The user dropdown and modals are initially hidden and will be toggled with JavaScript.

## 2. Dashboard Implementation

The dashboard would show student progress metrics and active courses:

```

<section id="dashboard" class="mb-12">
    <h2 class="text-2xl font-bold text-gray-800 mb-6">Your Learning Dashboard</h2>

```

<!-- Learning Metrics -->

<div class="grid grid-cols-1 md:grid-cols-4 gap-4 mb-8">

<!-- Courses In Progress -->

<div class="bg-white rounded-lg shadow p-6 flex items-center space-x-4">

<div class="bg-blue-100 p-3 rounded-full">

<i class="fas fa-book-open text-blue-600 text-xl"></i>

</div>

<div>

<p class="text-sm text-gray-500">Courses in Progress</p>

<p class="text-2xl font-bold text-gray-800">4</p>

</div>

</div>

<!-- Completed Courses -->

<div class="bg-white rounded-lg shadow p-6 flex items-center space-x-4">

<div class="bg-green-100 p-3 rounded-full">

<i class="fas fa-check-circle text-green-600 text-xl"></i>

</div>

<div>

<p class="text-sm text-gray-500">Completed Courses</p>

<p class="text-2xl font-bold text-gray-800">12</p>

</div>

</div>

<!-- Learning Hours -->

<div class="bg-white rounded-lg shadow p-6 flex items-center space-x-4">

<div class="bg-purple-100 p-3 rounded-full">

<i class="fas fa-clock text-purple-600 text-xl"></i>

</div>

<div>

<p class="text-sm text-gray-500">Learning Hours</p>

<p class="text-2xl font-bold text-gray-800">86</p>

</div>

</div>

```

<!-- Certificates Earned -->
<div class="bg-white rounded-lg shadow p-6 flex items-center space-x-4">
  <div class="bg-yellow-100 p-3 rounded-full">
    <i class="fas fa-medal text-yellow-600 text-xl"></i>
  </div>
  <div>
    <p class="text-sm text-gray-500">Certificates Earned</p>
    <p class="text-2xl font-bold text-gray-800">8</p>
  </div>
</div>
</div>

<!-- Progress Section -->
<div class="bg-white rounded-lg shadow p-6 mb-8">
  <h3 class="text-lg font-semibold text-gray-800 mb-4">Your Learning Progress</h3>

  <!-- Progress Bar -->
  <div class="mb-6">
    <div class="flex justify-between mb-1">
      <span class="text-sm font-medium text-gray-700">Overall
Completion</span>
      <span class="text-sm font-medium text-gray-700">68%</span>
    </div>
    <div class="w-full bg-gray-200 rounded-full h-2.5">
      <div class="bg-indigo-600 h-2.5 rounded-full" style="width:
68%"></div>
    </div>
  </div>

  <!-- Course Progress List -->
  <div class="space-y-4">
    <!-- Course 1 -->
    <div class="border-b pb-4">
      <div class="flex justify-between mb-1">

```

```

        <span class="font-medium text-gray-800">Data Structures &
Algorithms</span>

        <span class="text-sm font-medium text-gray-700">85%</span>
    </div>
    <div class="w-full bg-gray-200 rounded-full h-2.5">
        <div class="bg-green-500 h-2.5 rounded-full" style="width:
85%"></div>
    </div>
</div>

<!-- Course 2 -->
<div class="border-b pb-4">
    <div class="flex justify-between mb-1">
        <span class="font-medium text-gray-800">Database Management
Systems</span>

        <span class="text-sm font-medium text-gray-700">72%</span>
    </div>
    <div class="w-full bg-gray-200 rounded-full h-2.5">
        <div class="bg-indigo-500 h-2.5 rounded-full" style="width:
72%"></div>
    </div>
</div>

<!-- More courses... -->
</div>
</div>
</section>

```

### 3. Course Management System

Let's implement the course catalog with filtering options:

```

<section id="courses" class="mb-12">
    <div class="flex justify-between items-center mb-6">
        <h2 class="text-2xl font-bold text-gray-800">Course Catalog</h2>

        <!-- Filters -->
    </div>
    <div class="flex space-x-2">

```

```
        <select class="bg-white border border-gray-300 text-gray-700 rounded-md px-3 py-2 text-sm">
```

```
            <option value="all">All Categories</option>
            <option value="programming">Programming</option>
            <option value="algorithms">Algorithms</option>
            <option value="database">Database Systems</option>
            <option value="networking">Computer Networks</option>
        </select>
```

```
        <select class="bg-white border border-gray-300 text-gray-700 rounded-md px-3 py-2 text-sm">
```

```
            <option value="all">All Levels</option>
            <option value="beginner">Beginner</option>
            <option value="intermediate">Intermediate</option>
            <option value="advanced">Advanced</option>
```

```
        </select>
```

```
    </div>
```

```
</div>
```

```
<!-- Course Grid -->
```

```
<div class="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-6">
```

```
    <!-- Course Card 1 -->
```

```
        <div class="bg-white rounded-lg shadow overflow-hidden transition-transform hover:transform hover:scale-105">
```

```
            <div class="relative">
```

```
                
```

```
                <span class="absolute top-2 right-2 bg-green-500 text-white text-xs font-bold px-2 py-1 rounded">
```

```
                    Beginner
```

```
                </span>
```

```
            </div>
```

```
        <div class="p-5">
```

```
            <div class="flex justify-between items-center mb-2">
```

```
                <h3 class="text-lg font-bold text-gray-800">Data Structures</h3>
```

```
                <div class="flex items-center space-x-1">
```

```

        <i class="fas fa-star text-yellow-400"></i>
        <span class="text-sm font-medium">4.8</span>
    </div>
</div>

```

```

<p class="text-gray-600 text-sm mb-4">Master fundamental data
structures with practical exercises</p>

```

```

<div class="flex justify-between text-sm text-gray-500 mb-4">
    <span><i class="far fa-clock mr-1"></i> 24 hours</span>
    <span><i class="far fa-list-alt mr-1"></i> 8 modules</span>
</div>

```

```

<!-- Progress Bar (For enrolled courses) -->
<div class="mb-4">
    <div class="flex justify-between mb-1 text-xs">
        <span>Progress</span>
        <span>85%</span>
    </div>
    <div class="w-full bg-gray-200 rounded-full h-1.5">
        <div class="bg-green-500 h-1.5 rounded-full" style="width:
85%"></div>
    </div>
</div>

```

```

<a href="#continue-course" class="block text-center bg-indigo-600 text-white
py-2 px-4 rounded hover:bg-indigo-700 transition-colors">

```

Continue Learning

```

    </a>
</div>
</div>

```

```

<!-- Course Card 2 (Not enrolled) -->
<div class="bg-white rounded-lg shadow overflow-hidden transition-transform
hover:transform hover:scale-105">
    <div class="relative">

```



```

```

```
<span class="absolute top-2 right-2 bg-yellow-500 text-white text-xs font-bold px-2 py-1 rounded">
```

Intermediate

```
</span>
```

```
</div>
```

```
<div class="p-5">
```

```
<div class="flex justify-between items-center mb-2">
```

```
<h3 class="text-lg font-bold text-gray-800">Computer Networks</h3>
```

```
<div class="flex items-center space-x-1">
```

```
<i class="fas fa-star text-yellow-400"></i>
```

```
<span class="text-sm font-medium">4.6</span>
```

```
</div>
```

```
</div>
```

```
<p class="text-gray-600 text-sm mb-4">Learn networking concepts with practical examples</p>
```

```
<div class="flex justify-between text-sm text-gray-500 mb-4">
```

```
<span><i class="far fa-clock mr-1"></i> 32 hours</span>
```

```
<span><i class="far fa-list-alt mr-1"></i> 12 modules</span>
```

```
</div>
```

```
<a href="#enroll-course" class="block text-center bg-white border border-indigo-600 text-indigo-600 py-2 px-4 rounded hover:bg-indigo-50 transition-colors">
```

Enroll Now

```
</a>
```

```
</div>
```

```
</div>
```

```
<!-- More course cards... -->
```

```
</div>
```

```
</section>
```

## 4. Authentication System

The authentication system would be implemented with modals for login and signup:

```
<!-- Login Modal -->

<div id="loginModal" class="fixed inset-0 bg-black bg-opacity-50 flex items-center justify-center z-50 hidden">

  <div class="bg-white rounded-lg shadow-lg max-w-md w-full mx-4">

    <div class="flex justify-between items-center p-6 border-b">

      <h3 class="text-xl font-bold text-gray-800">Welcome Back</h3>

      <button class="text-gray-400 hover:text-gray-600" id="closeLoginModal">

        <i class="fas fa-times"></i>

      </button>

    </div>

    <form class="p-6">

      <div class="mb-4">

        <label for="email" class="block text-gray-700 text-sm font-medium mb-2">Email Address</label>

        <input type="email" id="email" class="w-full px-3 py-2 border border-gray-300 rounded-md focus:outline-none focus:ring-2 focus:ring-indigo-500" required>

      </div>

      <div class="mb-6">

        <label for="password" class="block text-gray-700 text-sm font-medium mb-2">Password</label>

        <input type="password" id="password" class="w-full px-3 py-2 border border-gray-300 rounded-md focus:outline-none focus:ring-2 focus:ring-indigo-500" required>

        <a href="#forgot-password" class="text-xs text-indigo-600 hover:text-indigo-800 mt-1 inline-block">

          Forgot your password?

        </a>

      </div>

      <button type="submit" class="w-full bg-indigo-600 text-white py-2 px-4 rounded-md hover:bg-indigo-700 focus:outline-none focus:ring-2 focus:ring-indigo-500 focus:ring-offset-2">
```

Sign In

```
</button>
```

```
<div class="mt-4 text-center text-sm">
```

```
<span class="text-gray-600">Don't have an account?</span>
```

```
<a href="#" id="showSignupModal" class="text-indigo-600 hover:text-indigo-800 ml-1">Sign up</a>
```

```
</div>
```

```
</form>
```

```
</div>
```

```
</div>
```

## 5. JavaScript for Interactive Elements

Let's implement the JavaScript for toggling the user dropdown and modals:

```
// app.js
```

```
// DOM Elements
```

```
const userDropdown = document.getElementById('userDropdown');
```

```
const dropdownMenu = document.getElementById('dropdownMenu');
```

```
const loginModal = document.getElementById('loginModal');
```

```
const closeLoginModal = document.getElementById('closeLoginModal');
```

```
const showSignupModal = document.getElementById('showSignupModal');
```

```
// Toggle User Dropdown
```

```
userDropdown.addEventListener('click', function(e) {
```

```
  e.stopPropagation();
```

```
  dropdownMenu.classList.toggle('hidden');
```

```
});
```

```
// Close dropdown when clicking outside
```

```
document.addEventListener('click', function() {
```

```
  if (!dropdownMenu.classList.contains('hidden')) {
```

```
    dropdownMenu.classList.add('hidden');
```

```
  }
```

```
});
```

```
// Modal Control Functions
```

```
function openModal(modalId) {  
    const modal = document.getElementById(modalId);  
    modal.classList.remove('hidden');  
    document.body.style.overflow = 'hidden'; // Prevent scrolling when modal is open  
}
```

```
function closeModal(modalId) {  
    const modal = document.getElementById(modalId);  
    modal.classList.add('hidden');  
    document.body.style.overflow = 'auto'; // Re-enable scrolling  
}
```

```
// Modal Event Listeners
```

```
closeLoginModal.addEventListener('click', function() {  
    closeModal('loginModal');  
});
```

```
// Close modals when clicking outside
```

```
loginModal.addEventListener('click', function(e) {  
    if (e.target === loginModal) {  
        closeModal('loginModal');  
    }  
});
```

```
// Switch between login and signup modals
```

```
showSignupModal.addEventListener('click', function(e) {  
    e.preventDefault();  
    closeModal('loginModal');  
    openModal('signupModal');
```

```
});
```

```
// Course Filter Functionality
```

```
const categoryFilter = document.querySelector('select[value="all"]');
```

```
const levelFilter = document.querySelector('select[value="all"]');
```

```
function filterCourses() {
```

```
    const category = categoryFilter.value;
```

```
    const level = levelFilter.value;
```

```
    // Get all course cards
```

```
    const courseCards = document.querySelectorAll('.course-card');
```

```
    courseCards.forEach(card => {
```

```
        const cardCategory = card.dataset.category;
```

```
        const cardLevel = card.dataset.level;
```

```
        // Check if the card matches both filters or if filter is set to "all"
```

```
        const categoryMatch = category === 'all' || cardCategory === category;
```

```
        const levelMatch = level === 'all' || cardLevel === level;
```

```
        // Show or hide the card based on filter match
```

```
        if (categoryMatch && levelMatch) {
```

```
            card.style.display = 'block';
```

```
        } else {
```

```
            card.style.display = 'none';
```

```
        }
```

```
    });
```

```
}
```

```
// Add event listeners to filters
```

```
if (categoryFilter && levelFilter) {
```

```
    categoryFilter.addEventListener('change', filterCourses);
```

```
    levelFilter.addEventListener('change', filterCourses);
}
```

```
// AI Chatbot Functionality
```

```
const chatbotButton = document.getElementById('openChatbot');
const chatbotModal = document.getElementById('chatbotModal');
const chatMessages = document.getElementById('chatMessages');
const chatInput = document.getElementById('chatInput');
const sendMessage = document.getElementById('sendMessage');
```

```
function initializeChatbot() {
```

```
    if (!chatbotButton || !chatbotModal) return;
```

```
    chatbotButton.addEventListener('click', function() {
        openModal('chatbotModal');
    });
```

```
    sendMessage.addEventListener('click', function() {
        const message = chatInput.value.trim();
        if (message) {
            addMessage('user', message);
            chatInput.value = "";
```

```
            // Simulate AI response (in real implementation, this would call an
API)
            setTimeout(() => {
                processMessage(message);
            }, 1000);
        }
    });
```

```
    // Allow sending message with Enter key
    chatInput.addEventListener('keypress', function(e) {
```

```
    if (e.key === 'Enter') {  
        sendMessage.click();  
    }  
});  
}
```

```
function addMessage(sender, text) {  
    const messageDiv = document.createElement('div');  
    messageDiv.classList.add('mb-4', 'flex');  
  
    if (sender === 'user') {  
        messageDiv.classList.add('justify-end');  
        messageDiv.innerHTML = `  
            <div class="bg-indigo-100 rounded-lg py-2 px-4 max-w-[70%]">  
                <p class="text-gray-800">${text}</p>  
            </div>  
        `;  
    } else {  
        messageDiv.classList.add('justify-start');  
        messageDiv.innerHTML = `  
            <div class="bg-white rounded-lg py-2 px-4 max-w-[70%] shadow">  
                <p class="text-gray-800">${text}</p>  
            </div>  
        `;  
    }  
  
    chatMessages.appendChild(messageDiv);  
    chatMessages.scrollTop = chatMessages.scrollHeight;  
}
```

```
function processMessage(message) {
```

```

    // Simple keyword-based responses (in a real implementation, this would use
    NLP/ML)

    message = message.toLowerCase();

    if (message.includes('hello') || message.includes('hi')) {
        addMessage('bot', 'Hello! How can I help you with your studies today?');
    } else if (message.includes('course')) {
        addMessage('bot', 'We have many courses available. Are you looking for beginner,
intermediate, or advanced level courses?');
    } else if (message.includes('assignment')) {
        addMessage('bot', 'You can find your pending assignments in the dashboard under "Tasks".
Would you like me to show you how to submit them?');
    } else if (message.includes('certificate')) {
        addMessage('bot', 'Certificates are issued automatically upon successful completion of a course.
You can view and download your certificates from the "Certificates" section.');
```

```
    } else {
```

```
        addMessage('bot', 'I\'m not sure I understand. Could you rephrase your question or choose
from common topics like courses, assignments, progress, or certificates?');
    }
}
```

```
// Initialize chatbot when DOM is loaded
```

```
document.addEventListener('DOMContentLoaded', function() {
    initializeChatbot();
});
```

```
// Voice Input Functionality for Notes
```

```
const voiceButton = document.getElementById('voiceInput');
const notesField = document.getElementById('notes');
```

```
function initializeVoiceInput() {
    if (!voiceButton || !notesField) return;
```



```

voiceButton.addEventListener('click', function() {
    // Check if browser supports SpeechRecognition
    if ('SpeechRecognition' in window || 'webkitSpeechRecognition' in window) {
        const SpeechRecognition = window.SpeechRecognition ||
window.webkitSpeechRecognition;
        const recognition = new SpeechRecognition();

        recognition.lang = 'en-US';
        recognition.interimResults = false;

        recognition.onstart = function() {
            voiceButton.classList.add('recording');

            voiceButton.innerHTML = '<i class="fas fa-microphone text-red-500"></i>
Recording...';
        };

        recognition.onresult = function(event) {
            const transcript = event.results[0][0].transcript;
            notesField.value += transcript + ' ';
        };

        recognition.onerror = function(event) {
            console.error('Speech recognition error', event.error);
            voiceButton.classList.remove('recording');

            voiceButton.innerHTML = '<i class="fas fa-microphone"></i> Voice Input';
        };

        recognition.onend = function() {
            voiceButton.classList.remove('recording');

            voiceButton.innerHTML = '<i class="fas fa-microphone"></i> Voice Input';
        };
    }
});

```

```

        recognition.start();
    } else {
        alert('Sorry, your browser does not support speech recognition.');
```

```

    }
});

// Initialize voice input when DOM is loaded
document.addEventListener('DOMContentLoaded', function() {
    initializeVoiceInput();
});
```

## 6. AI Chatbot Implementation

Let's create the chatbot interface:

```

<!-- AI Chatbot Button (Fixed at bottom right) -->
<button id="openChatbot" class="fixed bottom-6 right-6 bg-indigo-600 text-white rounded-full p-4 shadow-lg hover:bg-indigo-700 focus:outline-none">
    <i class="fas fa-robot text-xl"></i>
</button>

<!-- Chatbot Modal -->
<div id="chatbotModal" class="fixed inset-0 bg-black bg-opacity-50 flex items-center justify-center z-50 hidden">
    <div class="bg-gray-100 rounded-lg shadow-lg w-full max-w-md h-[500px] flex flex-col">
        <div class="bg-indigo-600 text-white px-4 py-3 rounded-t-lg flex justify-between items-center">
            <h3 class="font-medium">EduLight Assistant</h3>
            <button id="closeChatbot" class="text-white">
                <i class="fas fa-times"></i>
            </button>
        </div>

        <div id="chatMessages" class="flex-1 overflow-y-auto p-4 space-y-4">
            <!-- Bot welcome message -->
```

```

    <div class="flex justify-start mb-4">
      <div class="bg-white rounded-lg py-2 px-4 max-w-[70%] shadow">
        <p class="text-gray-800">Hi there! I'm your learning
assistant. How can I help you today?</p>
      </div>
    </div>

    <!-- Messages will be added here dynamically -->
  </div>

  <div class="border-t p-4 bg-white rounded-b-lg">
    <div class="flex space-x-2">
      <input type="text" id="chatInput" class="flex-1 border border-gray-300
rounded-l-lg px-4 py-2 focus:outline-none focus:ring-2 focus:ring-indigo-500" placeholder="Type
your question...">

      <button id="sendMessage" class="bg-indigo-600 text-white px-4 py-2
rounded-r-lg hover:bg-indigo-700">

        <i class="fas fa-paper-plane"></i>
      </button>
    </div>
  </div>
</div>
</div>

```

## 7. Course Content Page

Let's implement a course content page with video player and interactive quizzes:

```

<div class="container mx-auto px-4 pt-24 pb-12">
  <!-- Course Header -->
  <div class="bg-white rounded-lg shadow-md p-6 mb-6">
    <div class="flex items-center justify-between mb-4">
      <h1 class="text-2xl font-bold text-gray-800">Data Structures &
Algorithms</h1>
      <span class="bg-green-100 text-green-800 text-xs font-semibold px-3 py-1
rounded-full">
        85% Complete
      </span>
    </div>

```

```
</div>
```

```
<div class="flex flex-wrap gap-4 text-sm text-gray-600 mb-4">
```

```
  <span><i class="fas fa-user mr-1"></i> Instructor: Dr. Patel</span>
```

```
  <span><i class="fas fa-calendar mr-1"></i> Updated: March 2025</span>
```

```
  <span><i class="fas fa-clock mr-1"></i> 24 hours total</span>
```

```
  <span><i class="fas fa-signal mr-1"></i> Beginner</span>
```

```
</div>
```

```
<div class="w-full bg-gray-200 rounded-full h-2.5 mb-2">
```

```
  <div class="bg-green-500 h-2.5 rounded-full" style="width: 85%"></div>
```

```
</div>
```

```
</div>
```

```
<!-- Course Content -->
```

```
<div class="grid grid-cols-1 lg:grid-cols-3 gap-6">
```

```
  <!-- Video Player and Content Area -->
```

```
  <div class="lg:col-span-2">
```

```
    <!-- Video Player -->
```

```
    <div class="bg-black rounded-lg shadow-md mb-6 aspect-video">
```

```
      <video id="videoPlayer" class="w-full h-full rounded-lg" controls>
```

```
        <source src="lecture1.mp4" type="video/mp4">
```

Your browser does not support the video tag.

```
      </video>
```

```
    </div>
```

```
  <!-- Content Tabs -->
```

```
  <div class="bg-white rounded-lg shadow-md mb-6">
```

```
    <div class="border-b">
```

```
      <nav class="flex" aria-label="Tabs">
```

```
        <button class="px-4 py-3 text-indigo-600 border-b-2  
border-indigo-600 font-medium">
```

Lecture Notes

```
      </button>
```

```

font-medium">
    Quiz
    </button>
font-medium">
    Resources
    </button>
font-medium">
    Discussion
    </button>
</nav>
</div>

```

```

<div class="p-6">
  <!-- Lecture Notes Content -->
  <div id="lectureNotes">
    <h2 class="text-xl font-bold mb-4">Array Data
Structures</h2>

```

```

    <p class="mb-4">An array is a collection of items stored
at contiguous memory locations. The idea is to store multiple items of the same
type together.</p>

```

```

    <h3 class="text-lg font-semibold mb-2">Key Characteristics:</h3>
    <ul class="list-disc pl-6 mb-4 space-y-1">
      <li>Fixed size (in most programming languages)</li>
      <li>Homogeneous elements (same data type)</li>
      <li>O(1) time complexity for
<!-- Continuing from the course content page -->
      <li>O(1) time complexity for random access</li>
      <li>Elements are identified by index</li>
    </ul>

```

```

    <h3 class="text-lg font-semibold mb-2">Common
Operations:</h3>

```

```

<ul class="list-disc pl-6 mb-4 space-y-1">
  <li>Insertion -  $O(n)$  in worst case</li>
  <li>Deletion -  $O(n)$  in worst case</li>
  <li>Searching -  $O(n)$  for linear search,  $O(\log n)$  for
binary search (if sorted)</li>
  <li>Traversal -  $O(n)$ </li>
</ul>

<div class="bg-gray-100 p-4 rounded-lg mb-4">
  <h3 class="text-lg font-semibold mb-2">Code Example:</h3>
  <pre class="bg-gray-800 text-white p-4 rounded
overflow-x-auto">
// Array implementation in C++
#include <iostream>
using namespace std;

int main() {
    // Declaring an array
    int arr[5] = {10, 20, 30, 40, 50};

    // Accessing array elements
    cout << "Element at index 2: " << arr[2] << endl;

    // Modifying array elements
    arr[2] = 35;
    cout << "Modified element at index 2: " << arr[2] << endl;

    // Array traversal
    cout << "Array elements: ";
    for(int i = 0; i < 5; i++) {
        cout << arr[i] << " ";
    }

    return 0;

```

```
}
```

```
</pre>
```

```
</div>
```

```
<div class="flex space-x-2 mb-4">
```

```
<button id="voiceInput" class="flex items-center space-x-1 bg-gray-100 hover:bg-gray-200 text-gray-700 px-3 py-2 rounded">
```

```
<i class="fas fa-microphone"></i>
```

```
<span>Voice Input</span>
```

```
</button>
```

```
<button class="flex items-center space-x-1 bg-gray-100 hover:bg-gray-200 text-gray-700 px-3 py-2 rounded">
```

```
<i class="fas fa-download"></i>
```

```
<span>Download Notes</span>
```

```
</button>
```

```
</div>
```

```
<div class="border rounded-lg p-4">
```

```
<h3 class="text-lg font-semibold mb-2">Your Notes</h3>
```

```
<textarea id="notes" class="w-full border rounded-md p-2 h-24" placeholder="Add your notes here..."></textarea>
```

```
<div class="flex justify-end mt-2">
```

```
<button class="bg-indigo-600 text-white px-4 py-2 rounded hover:bg-indigo-700">
```

```
Save Notes
```

```
</button>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
<!-- Quiz Content (Hidden by default) -->
```

```
<div id="quizContent" class="hidden">
```

```
<h2 class="text-xl font-bold mb-4">Module Quiz:
```

```
Arrays</h2>
```

```

<div class="space-y-6">
  <!-- Question 1 -->
  <div class="border rounded-lg p-4">
    <p class="font-medium mb-3">1. What is the time
complexity for accessing an element in an array?</p>
    <div class="space-y-2">
      <div class="flex items-center">
        <input type="radio" id="q1a" name="q1"
class="mr-2">

        <label for="q1a">O(1)</label>
      </div>
      <div class="flex items-center">
        <input type="radio" id="q1b" name="q1"
class="mr-2">

        <label for="q1b">O(log n)</label>
      </div>
      <div class="flex items-center">
        <input type="radio" id="q1c" name="q1"
class="mr-2">

        <label for="q1c">O(n)</label>
      </div>
      <div class="flex items-center">
        <input type="radio" id="q1d" name="q1"
class="mr-2">

        <label for="q1d">O(n2)</label>
      </div>
    </div>
  </div>

```

```

<!-- Question 2 -->
<div class="border rounded-lg p-4">
  <p class="font-medium mb-3">2. What is the worst-
case time complexity for inserting an element at the beginning of an array?</p>
  <div class="space-y-2">
    <div class="flex items-center">
      <input type="radio" id="q2a" name="q2"
class="mr-2">

      <label for="q2a">O(1)</label>
    </div>
  </div>

```



```

</div>
<div class="flex items-center">
  <input type="radio" id="q2b" name="q2"

class="mr-2">

  <label for="q2b">O(log n)</label>
</div>
<div class="flex items-center">
  <input type="radio" id="q2c" name="q2"

class="mr-2">

  <label for="q2c">O(n)</label>
</div>
<div class="flex items-center">
  <input type="radio" id="q2d" name="q2"

class="mr-2">

  <label for="q2d">O(n2)</label>
</div>
</div>
</div>

```

```

<!-- Question 3 -->
<div class="border rounded-lg p-4">
  <p class="font-medium mb-3">3. Consider an array A
with n elements. What is the index of the last element?</p>
  <div class="space-y-2">
    <div class="flex items-center">
      <input type="radio" id="q3a" name="q3"

class="mr-2">

      <label for="q3a">n</label>
    </div>
    <div class="flex items-center">
      <input type="radio" id="q3b" name="q3"

class="mr-2">

      <label for="q3b">n-1</label>
    </div>
    <div class="flex items-center">
      <input type="radio" id="q3c" name="q3"

class="mr-2">

      <label for="q3c">n+1</label>
    </div>
  </div>
</div>

```

```

        </div>
        <div class="flex items-center">
            <input type="radio" id="q3d" name="q3"
class="mr-2">
            <label for="q3d">0</label>
        </div>
    </div>
</div>

    <div class="flex justify-end">
        <button class="bg-indigo-600 text-white px-6 py-2
rounded hover:bg-indigo-700">
            Submit Quiz
        </button>
    </div>
</div>
</div>
</div>
</div>
</div>
</div>
</div>
</div>

<!-- Course Sidebar -->
<div class="lg:col-span-1">
    <!-- Module Navigator -->
    <div class="bg-white rounded-lg shadow-md mb-6">
        <div class="p-4 border-b">
            <h3 class="font-semibold">Course Content</h3>
        </div>

        <div class="p-4">
            <div class="space-y-4">
                <!-- Module 1 -->
                <div>
                    <div class="flex items-center justify-between cursor-
pointer">
                        <span class="font-medium">Module 1: Introduction
to Data Structures</span>

```

```

        <i class="fas fa-chevron-down text-gray-500"></i>
    </div>

    <div class="ml-4 mt-2 space-y-2">
        <!-- Lecture -->
        <div class="flex items-center justify-between py-2 pl-2
border-l-2 border-indigo-600">

            <div class="flex items-center">
                <i class="fas fa-play-circle text-indigo-600 mr-
2"></i>

                <span class="text-sm">1.1 Array Data
Structures</span>

            </div>
            <span class="text-xs bg-green-100 text-green-800
px-2 py-1 rounded">Completed</span>
        </div>

        <!-- Quiz -->
        <div class="flex items-center justify-between py-2 pl-2
border-l-2 border-gray-200">

            <div class="flex items-center">
                <i class="fas fa-question-circle text-gray-500 mr-
2"></i>

                <span class="text-sm">Quiz: Arrays</span>
            </div>
            <span class="text-xs bg-yellow-100 text-yellow-800
px-2 py-1 rounded">Pending</span>
        </div>

        <!-- Assignment -->
        <div class="flex items-center justify-between py-2 pl-2
border-l-2 border-gray-200">

            <div class="flex items-center">
                <i class="fas fa-file-alt text-gray-500 mr-2"></i>
                <span class="text-sm">Assignment: Array
Implementation</span>
            </div>

```

```

                                <span class="text-xs bg-gray-100 text-gray-800 px-2
py-1 rounded">Not Started</span>
                                </div>
                                </div>
                                </div>
                                </div>

<!-- Module 2 -->
<div>
    <div class="flex items-center justify-between cursor-
pointer">
        <span class="font-medium">Module 2: Linked
Lists</span>
        <i class="fas fa-chevron-right text-gray-500"></i>
    </div>
</div>

<!-- Module 3 -->
<div>
    <div class="flex items-center justify-between cursor-
pointer">
        <span class="font-medium">Module 3: Stacks &
Queues</span>
        <i class="fas fa-chevron-right text-gray-500"></i>
    </div>
</div>

<!-- Module 4 -->
<div>
    <div class="flex items-center justify-between cursor-
pointer">
        <span class="font-medium">Module 4: Trees &
Graphs</span>
        <i class="fas fa-chevron-right text-gray-500"></i>
    </div>
</div>
</div>
</div>
</div>

```

```

<!-- Instructor Info -->
<div class="bg-white rounded-lg shadow-md mb-6">
  <div class="p-4 border-b">
    <h3 class="font-semibold">Instructor</h3>
  </div>

  <div class="p-4">
    <div class="flex items-center space-x-3 mb-3">
      

      <div>
        <h4 class="font-medium">Dr. Anita Patel</h4>
        <p class="text-sm text-gray-600">PhD, Computer Science</p>
      </div>
    </div>

    <p class="text-sm text-gray-700 mb-3">
      Dr. Patel has over 10 years of experience teaching data structures and algorithms at
      premier technical universities.

    </p>

    <a href="#contact-instructor" class="text-indigo-600 text-sm hover:text-
indigo-800">
      <i class="fas fa-envelope mr-1"></i> Contact Instructor
    </a>
  </div>
</div>
</div>
</div>

<!-- Certificate Generation System -->
<div class="container mx-auto px-4 py-12" id="certificates">
  <h2 class="text-2xl font-bold text-gray-800 mb-6">Your Certificates</h2>

```

```

<div class="grid grid-cols-1 md:grid-cols-2 lg:grid-cols-3 gap-6">
  <!-- Certificate Card 1 -->
  <div class="bg-white rounded-lg shadow-md overflow-hidden">
    <div class="relative">
      
      <div class="absolute top-0 left-0 w-full h-full bg-black bg-opacity-50 flex items-center justify-center opacity-0 hover:opacity-100 transition-opacity">
        <button class="bg-white text-gray-800 px-4 py-2 rounded-md hover:bg-gray-100">
          <i class="fas fa-eye mr-1"></i> View
        </button>
      </div>
    </div>

    <div class="p-4">
      <h3 class="font-bold text-gray-800 mb-1">Introduction to Web
Development</h3>
      <p class="text-gray-600 text-sm mb-3">Completed on: March 15,
2025</p>

      <div class="flex justify-between text-sm">
        <a href="#download" class="text-indigo-600 hover:text-indigo-800">
          <i class="fas fa-download mr-1"></i> Download
        </a>
        <a href="#share" class="text-indigo-600 hover:text-indigo-800">
          <i class="fas fa-share-alt mr-1"></i> Share
        </a>
      </div>
    </div>
  </div>

  <!-- Certificate Card 2 -->
  <div class="bg-white rounded-lg shadow-md overflow-hidden">
    <div class="relative">
      

```

```

        <div class="absolute top-0 left-0 w-full h-full bg-black bg-opacity-
50 flex items-center justify-center opacity-0 hover:opacity-100 transition-opacity">
            <button class="bg-white text-gray-800 px-4 py-2 rounded-md hover:bg-
gray-100">

                <i class="fas fa-eye mr-1"></i> View

            </button>
        </div>
    </div>
</div>

```

```

<div class="p-4">
    <h3 class="font-bold text-gray-800 mb-1">Database Systems</h3>
    <p class="text-gray-600 text-sm mb-3">Completed on: February 2,
2025</p>

```

```

    <div class="flex justify-between text-sm">
        <a href="#download" class="text-indigo-600 hover:text-indigo-800">
            <i class="fas fa-download mr-1"></i> Download
        </a>
        <a href="#share" class="text-indigo-600 hover:text-indigo-800">
            <i class="fas fa-share-alt mr-1"></i> Share
        </a>
    </div>
</div>
</div>
</div>
</div>

```

```

<!-- JavaScript for Interactive Features -->
<script>
// Tab Switching Functionality
document.addEventListener('DOMContentLoaded', function() {
    const tabButtons = document.querySelectorAll('nav button');
    const tabContents = [
        document.getElementById('lectureNotes'),
        document.getElementById('quizContent')

        // Add other content elements as needed
    ]

```

```
];
```

```
tabButtons.forEach((button, index) => {  
    button.addEventListener('click', () => {  
        // Reset all buttons  
        tabButtons.forEach(btn => {  
            btn.classList.remove('text-indigo-600', 'border-b-2', 'border-indigo-600');  
            btn.classList.add('text-gray-500');  
        });  
    });
```

```
        // Highlight active button  
        button.classList.remove('text-gray-500');  
        button.classList.add('text-indigo-600', 'border-b-2', 'border-indigo-600');
```

```
        // Show corresponding content  
        tabContents.forEach((content, i) => {  
            if (i === index) {  
                content.classList.remove('hidden');  
            } else {  
                content.classList.add('hidden');  
            }  
        });  
    });  
});  
});
```

```
    // Module Dropdown Toggle  
    const moduleHeaders = document.querySelectorAll('.cursor-pointer');  
    moduleHeaders.forEach(header => {  
        header.addEventListener('click', () => {  
            const icon = header.querySelector('i');  
            const content = header.nextElementSibling;
```



```

    if (content.style.display === 'none' || content.style.display === '') {
        content.style.display = 'block';
        icon.classList.remove('fa-chevron-right');
        icon.classList.add('fa-chevron-down');
    } else {
        content.style.display = 'none';
        icon.classList.remove('fa-chevron-down');
        icon.classList.add('fa-chevron-right');
    }
});
});

```

*// Voice Input Functionality*

```

const voiceButton = document.getElementById('voiceInput');
const notesField = document.getElementById('notes');

if (voiceButton && notesField) {
    voiceButton.addEventListener('click', function() {
        // Check if browser supports SpeechRecognition
        if ('SpeechRecognition' in window || 'webkitSpeechRecognition' in window) {
            const SpeechRecognition = window.SpeechRecognition ||
window.webkitSpeechRecognition;
            const recognition = new SpeechRecognition();

            recognition.lang = 'en-US';
            recognition.interimResults = false;

            recognition.onstart = function() {
                voiceButton.classList.add('bg-red-100');

                voiceButton.innerHTML = '<i class="fas fa-microphone-
slash"></i><span>Recording...</span>';
            };

```

```

        recognition.onresult = function(event) {

            const transcript = event.results[0][0].transcript;

            notesField.value += transcript + ' ';

        };

        recognition.onerror = function(event) {

            console.error('Speech recognition error', event.error);

            voiceButton.classList.remove('bg-red-100');

            voiceButton.innerHTML = '<i class="fas fa-microphone"></i><span>Voice
Input</span>';

        };

        recognition.onend = function() {

            voiceButton.classList.remove('bg-red-100');

            voiceButton.innerHTML = '<i class="fas fa-microphone"></i><span>Voice
Input</span>';

        };

        recognition.start();

    } else {

        alert('Sorry, your browser does not support speech recognition.');
```

```

<!-- JavaScript for Certificate Modal -->
```

```

<script>
```

```

document.addEventListener('DOMContentLoaded', function() {

    const viewButtons = document.querySelectorAll('.rounded-md');
```

```
viewButtons.forEach(button => {

    button.addEventListener('click', function() {

        // Create modal dynamically

        const modal = document.createElement('div');

        modal.classList.add('fixed', 'inset-0', 'bg-black', 'bg-opacity-50', 'flex', 'items-center', 'justify-center', 'z-50');

        modal.innerHTML = `

            <div class="bg-white rounded-lg shadow-lg max-w-3xl w-full mx-4 p-6">

                <div class="flex justify-between items-center mb-6">

                    <h3 class="text-xl font-bold text-gray-800">Certificate of

Completion</h3>

                    <button class="text-gray-400 hover:text-gray-600 close-

modal">

                        <i class="fas fa-times"></i>

                    </button>

                </div>

                <div class="border p-6 mb-6">

                    <div class="text-center">

                        <h2 class="text-3xl font-bold text-indigo-600 mb-

2">EduLightHub</h2>

                        <p class="text-xl mb-6">Certificate of Completion</p>

                        <p class="text-lg mb-2">This certifies that</p>

                        <p class="text-2xl font-bold mb-2">Rahul Singh</p>

                        <p class="text-lg mb-6">has successfully completed the

course</p>

                        <p class="text-2xl font-bold text-indigo-600 mb-

6">Introduction to Web Development</p>

                    </div>

                    <div class="flex justify-between items-center">

                        <div class="text-left">

                            <p class="font-medium">Date</p>

                            <p>March 15, 2025</p>

                        </div>

                        <div class="text-right">

                            <p class="font-medium">Signature</p>

                            <p>_____</p>

                        </div>

                    </div>

                </div>

            </div>

        `;

        document.body.appendChild(modal);
    });
});
```

```

        </div>

        <div class="text-right">
            <p class="font-medium">Instructor</p>
            <p>Dr. Anita Patel</p>
        </div>
    </div>
</div>
</div>
</div>

<div class="flex justify-end space-x-2">
    <button class="bg-white border border-indigo-600 text-indigo-600
px-4 py-2 rounded hover:bg-indigo-50 close-modal">
        Close
    </button>
    <button class="bg-indigo-600 text-white px-4 py-2 rounded
hover:bg-indigo-700">
        <i class="fas fa-download mr-1"></i> Download
    </button>
</div>
</div>
`
;

document.body.appendChild(modal);
document.body.style.overflow = 'hidden';

// Add event listener to close the modal
modal.querySelectorAll('.close-modal').forEach(closeBtn => {
    closeBtn.addEventListener('click', function() {
        document.body.removeChild(modal);
        document.body.style.overflow = 'auto';
    });
});

// Close modal when clicking outside

```

```

        modal.addEventListener('click', function(e) {
        if (e.target === modal) {
            document.body.removeChild(modal);
            document.body.style.overflow = 'auto';
        }
    });
});
});
});
</script>

```

<!-- AI Chatbot JavaScript -->

```

<script>
document.addEventListener('DOMContentLoaded', function() {
    const chatbotButton = document.getElementById('openChatbot');
    const chatbotModal = document.getElementById('chatbotModal');
    const closeChatbot = document.getElementById('closeChatbot');
    const chatMessages = document.getElementById('chatMessages');
    const chatInput = document.getElementById('chatInput');
    const sendMessage = document.getElementById('sendMessage');

    if (!chatbotButton || !chatbotModal) return;

    // Open chatbot modal
    chatbotButton.addEventListener('click', function() {
        chatbotModal.classList.remove('hidden');
        document.body.style.overflow = 'hidden';
    });

    // Close chatbot modal
    closeChatbot.addEventListener('click', function() {
        chatbotModal.classList.add('hidden');
    });
});

```

```
document.body.style.overflow = 'auto';  
});
```

```
    // Close modal when clicking outside  
    chatbotModal.addEventListener('click', function(e) {  
    if (e.target === chatbotModal) {  
        chatbotModal.classList.add('hidden');  
        document.body.style.overflow = 'auto';  
    }  
});
```

```
    // Send message function  
function sendUserMessage() {  
    const message = chatInput.value.trim();  
    if (message) {  
        addMessage('user', message);  
        chatInput.value = "";
```

```
        // Simulate AI response (in real implementation, this would call an  
API)  
        setTimeout(() => {  
            processMessage(message);  
        }, 1000);  
    }  
}
```

```
    // Send message on button click  
sendMessage.addEventListener('click', sendUserMessage);
```

```
    // Send message on Enter key  
chatInput.addEventListener('keypress', function(e) {  
    if (e.key === 'Enter') {  
        sendUserMessage();
```

```

    }
  });

  // Add message to chat
function addMessage(sender, text) {
    const messageDiv = document.createElement('div');
    messageDiv.classList.add('mb-4', 'flex');

    if (sender === 'user') {
        messageDiv.classList.add('justify-end');
        messageDiv.innerHTML = `
            <div class="bg-indigo-100 rounded-lg py-2 px-4 max-w-[70%]">
                <p class="text-gray-800">${text}</p>
            </div>
        `;
    } else {
        messageDiv.classList.add('justify-start');
        messageDiv.innerHTML = `
            <div class="bg-white rounded-lg py-2 px-4 max-w-[70%] shadow">
                <p class="text-gray-800">${text}</p>
            </div>
        `;
    }

    chatMessages.appendChild(messageDiv);
    chatMessages.scrollTop = chatMessages.scrollHeight;
}

// Process user message and generate response
function processMessage(message) {
    message = message.toLowerCase();

```

```

    if (message.includes('hello') || message.includes('hi')) {

        addMessage('bot', 'Hello! How can I help you with your studies today?');

    } else if (message.includes('array') || message.includes('data structure')) {

        addMessage('bot', 'Arrays are a fundamental data structure that store elements of the same
type in contiguous memory locations. Would you like me to explain more about arrays or another
data structure?');

    } else if (message.includes('quiz') || message.includes('test')) {

        addMessage('bot', 'You have a quiz on Arrays in Module 1. The quiz contains 3 questions and
you can access it from the Course Content sidebar or by clicking the Quiz tab above the lecture
notes.');
```

addMessage('bot', 'Your current assignment is on Array Implementation. The deadline is May 5, 2025. Would you like me to help you understand the requirements?');

```

    } else if (message.includes('certificate')) {

        addMessage('bot', 'You\'ll receive a certificate once you complete all modules and pass the
final assessment. You currently have 2 certificates that you can view in the Certificates section.');
```

}

```

    } else {

        addMessage('bot', 'I\'m not sure I understand. Could you rephrase your question? I can help
with course content, assignments, quizzes, and general questions about the platform.');
```

}

```

    }

});
</script>

```

```

<!-- File Upload System for Content Sharing -->
<div class="container mx-auto px-4 py-12" id="resources">
    <h2 class="text-2xl font-bold text-gray-800 mb-6">Resource Sharing</h2>

    <div class="grid grid-cols-1 lg:grid-cols-3 gap-6">
        <!-- Upload Section -->
        <div class="lg:col-span-1">
            <div class="bg-white rounded-lg shadow-md p-6">
                <h3 class="text-lg font-semibold mb-4">Share Resources</h3>

                <form>

```



```
<div class="mb-4">
  <label for="resourceTitle" class="block text-sm font-medium text-
gray-700 mb-1">Title</label>
  <input type="text" id="resourceTitle" class="w-full border border-
gray-300 rounded-md px-3 py-2 focus:outline-none focus:ring-2 focus:ring-indigo-500">
</div>
```

```
<div class="mb-4">
  <label for="resourceType" class="block text-sm font-medium text-
gray-700 mb-1">Resource Type</label>
  <select id="resourceType" class="w-full border border-gray-300
rounded-md px-3 py-2 focus:outline-none focus:ring-2 focus:ring-indigo-500">
    <option value="notes">Lecture Notes</option>
    <option value="assignment">Assignment</option>
    <option value="project">Project</option>
    <option value="reference">Reference Material</option>
  </select>
</div>
```

```
<div class="mb-4">
  <label for="resourceCategory" class="block text-sm font-medium
text-gray-700 mb-1">Category</label>
  <select id="resourceCategory" class="w-full border border-gray-300
rounded-md px-3 py-2 focus:outline-none focus:ring-2 focus:ring-indigo-500">
    <option value="ds">Data Structures</option>
    <option value="algo">Algorithms</option>
    <option value="db">Database Systems</option>
    <option value="web">Web Development</option>
    <option value="ml">Machine Learning</option>
  </select>
</div>
```

```
<div class="mb-4">
  <label for="resourceDescription" class="block text-sm font-medium
text-gray-700 mb-1">Description</label>
  <textarea id="resourceDescription" rows="3" class="w-full border
border-gray-300 rounded-md px-3 py-2 focus:outline-none focus:ring-2 focus:ring-indigo-
500"></textarea>
```

```
</div>
```

```
<div class="mb-6">
```

```
<label class="block text-sm font-medium text-gray-700 mb-1">File Upload</label>
```

```
<div class="border-2 border-dashed border
```