

# Build Dynamic Websites & Web Apps With The **Power of MERN**

By  
coderteens



## Hi, Teens!

### Welcome to Coder Teens!!

At Coder Teens, we believe that every great innovation starts with a single line of code. Whether you're here to build stunning websites, powerful applications, or simply to explore the fascinating world of technology, this curriculum will guide you step by step.

Throughout this journey, you'll learn how to turn ideas into reality using industry-leading tools and technologies. From mastering the fundamentals of HTML, CSS, and JavaScript to building full-stack applications with React and Node.js—you'll gain the skills to create, innovate, and thrive in the digital world.

Let's get started and code your dreams into existence!

## Experience at Coder Teens

Your journey at Coder Teens is more than just learning to code—it's about transforming into a confident creator and problem-solver. Here's what you can expect:

1. **Hands-On Learning:** Build real-world projects and apply what you learn immediately.
2. **Expert Guidance:** Get personalized feedback and support from experienced mentors.
3. **Community & Collaboration:** Connect, collaborate, and grow with like-minded coders.
4. **Internship Opportunity:** Gain practical experience through an exclusive internship program to apply your skills in a real work environment.
5. **Portfolio Development:** Create a professional portfolio to showcase your projects.
6. **Problem-Solving Skills:** Tackle real-world challenges and develop logical thinking.
7. **Celebrate Progress:** Every milestone counts—your journey matters to us.

Are you ready to unlock your potential and take your coding journey to the next level? Let's make it happen together!

## Key Learning Achievements

1. Build and deploy modern, responsive websites and applications.
2. Master core web technologies: HTML, CSS, JavaScript (Basic & Advanced).
3. Gain hands-on experience with popular frameworks: React.js and Express.js.
4. Learn how to manage databases with MongoDB.
5. Implement authentication, authorization, and secure APIs.
6. Collaborate using Git, Github and deploy projects on the Internet to show off the world.
7. Earn certificates to celebrate your achievements and learning milestones.
8. Receive a recommendation letter to support future academic or professional pursuits.

## Exclusive Offers & Their Value

1. Web development through *MERN* – (Value: \$4,997)
2. Internship Opportunity – (Value: \$1,497)
3. Unlimited Doubt-Solving & Live Support – (Value: \$1,397)
4. Lifetime Community Access – (Value: \$1,297)
5. Git & GitHub Mastery – (Value: \$497)
6. VS Code IDE & AI Tools Mastery – (Value: \$397)
7. Ultimate MERN Cheat Sheets – (Value: \$347)
8. Personal Portfolio Website – (Value: \$297)
9. Exclusive Steve Jobs Talks & Book – (Value: \$157)
10. Premium Merchandise – (Value: \$90)

**Total Value: \$10,000+**

# Module 1

## Web Development Fundamentals

# Web Development Fundamentals

This module provides a comprehensive foundation in web development. Students will learn to create interactive, responsive websites using HTML, CSS, and JavaScript. By the end of this module, students will be able to develop and deploy projects on the internet.

## Initial Setup

Learn to set up and customize Visual Studio Code, a powerful and user-friendly code editor essential for modern web development. Students will also explore useful extensions that enhance productivity.

1. VS Code Installation and Configuration
2. Useful Extensions for Efficient Development

## HTML

Gain a solid understanding of HTML, the backbone of web pages. This section covers the structure of web documents, you will learn all html semantic tags, and how to build effective web page layouts.

1. Understanding HTML and Its Purpose
2. Different HTML Tags and Their Working
3. Attributes of Tags
4. Semantic Tags
5. Webpage Layout

## CSS

Master the art of styling web pages using CSS. This section covers everything from basic styling to advanced responsive design using modern techniques like Flexbox and Grid.

1. Introduction to CSS and Its Role
2. Integrating CSS with HTML Pages
3. CSS Selectors
4. Box Model
5. Styling Text, Images, Tables, Forms and CSS Variables
6. Implementing Flexbox and Grid for Web Layouts
7. Responsive Design with Media Queries

## Bootstrap

Learn to use Bootstrap, a popular front-end framework that accelerates web development with pre-designed components and a responsive grid system.

1. Introduction to Bootstrap and CDN Setup
2. Bootstrap Grid System for Layouts
3. Utilizing Bootstrap Components:
  - Buttons
  - Cards
  - Navbar
  - Forms

## JavaScript Basics

Understand the fundamentals of JavaScript, the programming language that provides interactivity to your website. Learn about variables, loops, data structures, and manipulating the webpage through the DOM.

1. Introduction to JavaScript and Its Role in Web Development
2. Variables, Operators, and Data Types
3. Conditional Statements and Loops
4. Data Structures: Arrays and Objects
5. Functions and Scope
6. DOM Manipulation.

## JavaScript Advanced

Explore advanced JavaScript topics like modern ES6+ features, handling async tasks, and working with APIs to build faster, smarter, and more efficient web applications.

- ES6+ Features:
  - Arrow Functions
  - Destructuring
  - Spread Operator
- 1. Asynchronous JavaScript
- 2. Fetching Data from APIs
- 3. Event Handling and Local Storage



# Project

## TODO App with Weather Functionality

In this project, you will build a fully functional To-Do application with added weather and time functionality. You'll practice managing tasks and integrating external APIs for dynamic data display.

### Key Features:

1. Form to add and manage to-do tasks
2. Local storage for task persistence
3. Full CRUD functionality (Create, Read, Update, Delete)
4. Display weather data and current time at the top bar using an external API.

### Learning Outcomes:

1. Set up and customize a professional development environment using Visual Studio Code and productivity-enhancing extensions.
2. Create well-structured, semantic, and accessible web pages using HTML and layout techniques.
3. Style web pages using CSS, Flexbox, Grid, and media queries to ensure responsive design across devices.
4. Build modern UIs rapidly using Bootstrap's grid system and pre-built components like buttons, cards, navbars, and forms.
5. write interactive web functionality using JavaScript, including DOM manipulation, event handling, and local storage
6. Integrate APIs and asynchronous JavaScript to fetch real-time data (e.g., weather info) and display it dynamically in a project.

By completing this project, you'll gain practical experience in building a complete front-end web application from scratch. You'll combine your HTML, CSS, JavaScript, and API skills to create a dynamic, interactive, and user-friendly experience.

# Module 2

## Advanced Web Development



# Advanced Web Development

In this module, you will move beyond basic web development and dive into advanced frameworks and backend technologies. You will learn to create full-stack applications using React, Node.js, and Express.js.

## React Basics

Explore React, a powerful JavaScript library for building user interfaces. Learn component-based architecture, state management, and navigation in single-page applications.

1. Introduction to React and Component-Based Architecture
2. JSX Syntax and Props
3. State Management using the useState Hook
4. Event Handling in React
5. Controlled Components and Forms in React
6. Routing in React using React Router (SPA)

## Node.js & Express.js

### Setup

Learn how to set up Node.js on your system. This section covers the installation process to get you ready for backend development.

### API Creation:

Learn to build robust and scalable back-end systems with Node.js and Express.js. Set up server and handle RESTful APIs.

1. Introduction to Node.js
2. Setting Up an Node.js Server
3. Introduction to express.js
4. Creating and Handling RESTful APIs

### Database Integration:

Understand how to integrate a MongoDB database with Express.js. Perform CRUD operations and optimize data handling with pagination and filtering.

1. Introduction to Databases
2. Using MongoDB Atlas
3. Mongoose and Its Integration with Express.js

4. Designing Database Schemas
5. CRUD Operations and Database integration in API
6. Implementing Pagination and Filtering

## Authentication & Authorization:

Understand how to securely manage user access by implementing authentication (verifying identity) and authorization (controlling access) in your web applications using modern best practices.

1. Password Hashing Using bcrypt
2. Implementing JWT for Secure Authentication
3. Validating Data and Requests
4. Error Handling

## React Advanced

Advance your React knowledge by integrating APIs, managing side effects, and creating private routes for user authentication.

1. Fetching Data from APIs using Axios
2. useEffect Hook for Side Effects
3. User Management using Redux-Toolkit
4. Private & Protected Routes

## Git & GitHub

Master the essentials of Git and GitHub to efficiently track code changes, collaborate with teams, and host your code online for easy sharing and showcasing

1. Git & Github setup
2. Git Workflow: Cloning, Staging, Committing, Pull & Push
3. Familiarity with GitHub UI
4. Understanding Repositories (Repo Concept)
5. Github Pull Requests workflow

# CAPSTONE PROJECT

## E-commerce Platform

In this MERN stack project, you will create a full-fledged e-commerce platform where users can browse products, add them to a cart, and complete the checkout process.

### Key Features:

1. Landing page and product list page
2. Single product detail page
3. Cart and checkout pages
4. Sign up and login system with JWT (JSON Web Tokens)
5. Checkout functionality with payment gateway integration
6. Add to cart functionality with real-time updates.

### Learning Outcomes:

1. **Build interactive single-page applications** using React with dynamic components, state management, and API integration.
2. **Create secure and scalable backends** using Node.js and Express.js with RESTful APIs, database operations, and user authentication.
3. **Work with MongoDB** to design schemas and manage data using CRUD operations.
4. **Implement secure authentication** with JWT and bcrypt for user login and access control.
5. **Use Git and GitHub** for efficient version control, collaboration, and project management.
6. **Create an e-commerce platform** with cart functionality, secure checkout, and payment gateway integration.

By completing this project, you'll not only strengthen your full-stack development skills but also be fully capable of creating complex, production-ready web applications from start to finish.

# Module 3

## Deployment

# Deployment

This module focuses on taking the web applications you've built so far (up to Module 2) and learning how to deploy them, making them accessible and usable online.

1. Prepare Applications for Production
2. Deploy Full-Stack Applications Using Hosting Services like Heroku.
3. Present Final Projects on your personal Portfolio website

Learn best practices for preparing applications for production and deploying them to live environments. Showcase your completed work in a professional Portfolio.

## Code Your Way to a Brighter Future

This will be one of the best investments in your teen years, providing you with valuable skills that will open doors for your future. Whether in tech or beyond, the knowledge you gain will continue to benefit you for years to come.

# Thank You!

