

## Week 1

### Session 1: Fundamentals of HTML

- Introduction to HTML
- Basic structure of an HTML document
- Common tags (headings, paragraphs, links, images, lists)
- Form elements and attributes
- Input types and validation
- Semantic HTML tags (header, nav, section, article, footer)
- **Project: First landing page with HTML**

### Session 2: Getting Started with CSS & github

- Inline, internal, and external CSS
- Basic selectors and properties (color, background, font, text alignment)
- Box model (margin, border, padding, content)
- Positioning (static, relative, absolute, fixed)
- Flexbox basics
- Introduction to git & github and its setup
- **Project: Creating a simple layout with CSS**

## Week 2

### Session 3: JavaScript Essentials

- Variables, data types, and operators
- Basic syntax and control structures (if statements, loops)
- Introduction to functions
- Let var and const
- Hoisting and scopes

- Closure
- Introduction to HOF
- DOM manipulation (getElementById, querySelector)
- Event handling (click, hover, etc.)
- Event bubbling and capturing

## **Session 4: Advanced Concepts of JavaScript**

- Arrow functions
- Destructuring arrays and objects
- Working with arrays (methods like push, pop, map, filter)
- Objects and their properties
- Working with asynchronous javascript (callbacks, promises, async/await)

## **Week 3**

### **Session 5: Introduction to React and JSX**

- What is React and why use it
- Setting up a React environment (using Create React App)
- Installing bundlers
- React.createElement and render method
- Introduction to JSX
- Tailwind CSS

### **Session 6: Components, Props, and State**

- Creating and rendering components
- Creating different components
- Understanding props
- Creating cards with props
- React reconciliation and React fibers

- Understanding keys in React
- Understanding the useState hook
- **Project: Creating a simple React project**

## **Week 4:**

### **Session 7: Advanced Hooks and State Management**

- Understanding the useEffect hook
- Clean-up function of useEffect
- Custom hooks
- State lifting
- Context API

### **Session 8: UI Functionalities and React-Routing**

- Introduction to React Router DOM
- Creating different paths
- Creating an error page using useRouteError hook
- Creating children routes
- Understanding types of routing (SSR vs CSR)
- Single Page Application and dynamic routing
- Using useParams hook
- Applying event handlers

## **Week 5: CSS Frameworks and Advanced React Concepts**

### **Session 9: Getting Started with Frameworks**

- Introduction to Bootstrap / Tailwind
- Setting up Bootstrap/Tailwind
- Grid system and responsive design

- Commonly used classes (buttons, cards, alerts)

## **Session 10: Advanced React Concepts**

- Higher-order components
- Lazy loading (on-demand loading)
- Controlled vs uncontrolled components

## **Week 6**

### **Session 11: Class Components**

- Creating class-based components
- States in class components
- Lifecycle methods of React

### **Session 12: Performance optimization**

- Error boundaries
- Fragments and StrictMode
- Performance optimization with React.memo and useCallback

## **Week 7**

### **Session 13: Introduction to Redux**

- What is Redux and why use it
- Setting up Redux
- Actions, reducers, and the store
- Connecting Redux with React components

### **Session 14: Advanced Redux**

- Advanced Redux concepts (middleware, async actions)

- Combining reducers
- Project work: Integrating Redux into the Recipe app

## **Week 8**

### **Session 15: Setting Up the E-commerce Website**

- Planning the project structure
- Setting up the environment with Create React App
- Installing necessary dependencies (React Router, Redux, Tailwind CSS, etc.)
- Creating the basic layout (header, footer, product listing)

### **Session 16: Implementing Functionality and deployment**

- Adding product data and displaying products
- Implementing product details page
- Adding a shopping cart with Redux
- Implementing checkout functionality
- Deployment of react front end on hosting platforms