



Full Stack Web Development MERN

React.js, Node.js, MongoDB

Duration: 90 Days



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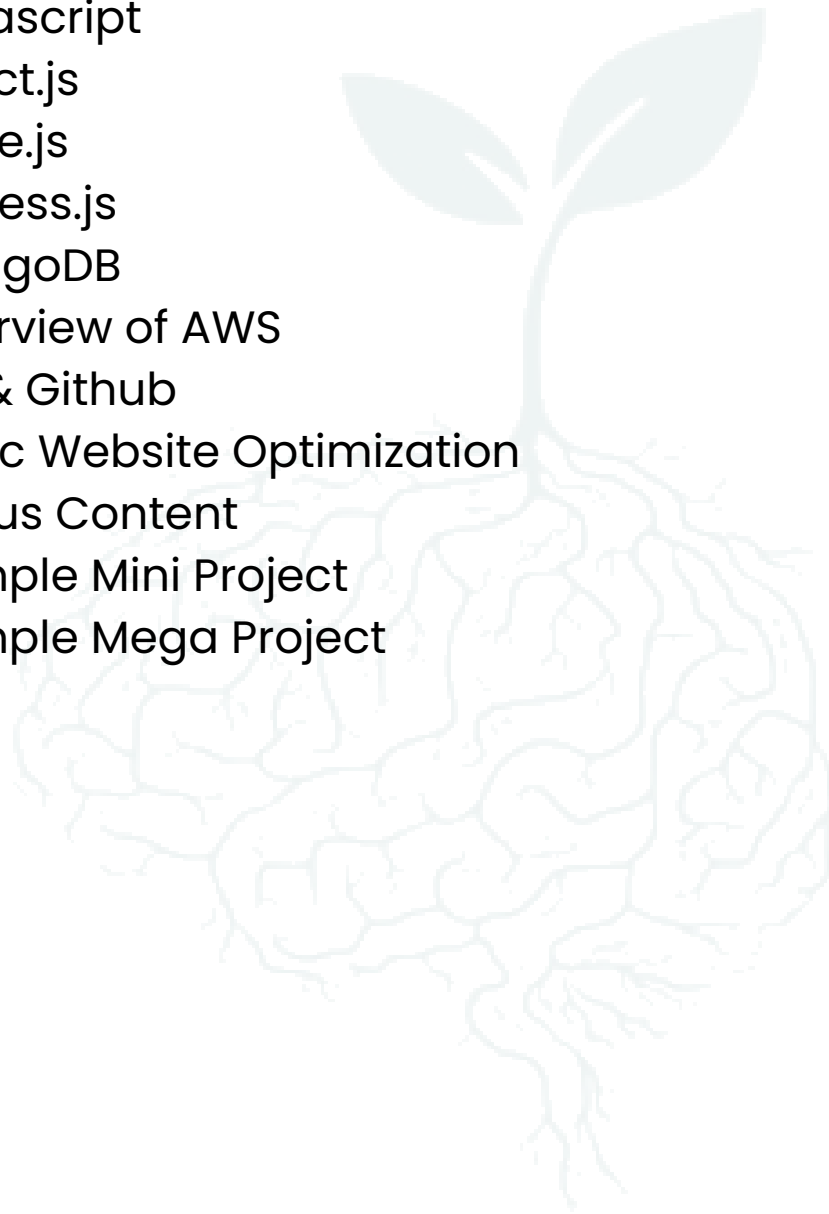
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Syllabus Summary

- HTML
- CSS
- Bootstrap
- Javascript
- React.js
- Node.js
- Express.js
- MongoDB
- Overview of AWS
- Git & Github
- Basic Website Optimization
- Bonus Content
- Sample Mini Project
- Sample Mega Project



HTML

- Introduction to HTML
- Tags, Elements, and Attributes
- Basics of Syntax
- Creating Tables
- Working with Lists
- Building Forms
- Structure of HTML5
- Semantic and Non-semantic Tags
- HTML5 Features
- New Input Types
- Form Attributes
- Introduction to SVG (Scalable Vector Graphics)
- Canvas Element for Graphics
- Implementing Audio and Video Tags

CSS

- Using Attributes (ID, Class, Style, Title)
- CSS Types (Inline, Internal, External)
- Understanding the Box Model
- Display Property (Block, Inline, None)
- Visibility and the Hidden Attribute
- Positioning Elements (Static, Relative, Absolute, Fixed)
- Z-index Property for Stacking Order
- Working with Combinators (Descendant, Child, Adjacent Sibling, General Sibling)
- Exploring CSS Pseudo-classes (Link, Visited, Hover, Active)
- Utilizing CSS Pseudo-elements (First Line, First Letter, Before, After, Selection)
- Creating a Static Web Page
- Implementing the Viewport Meta Tag for Responsiveness

CSS3

- Background, Multiple Backgrounds
- Font Related Features (online fonts)
- Text-Effect and Box-Effect
- Gradients-Linear and Radial
- Transition
- Transformation
- Animation
- Media Queries



Bootstrap

- Introduction to Bootstrap
- Bootstrap Grid System and Responsive Design
- Bootstrap Components (Navbar, Carousel, Modal, etc.)
- Customizing Bootstrap Themes
- Introduction to Web Performance Optimization
- Minification and Compression of Assets
- Lazy Loading Images and Optimizing CSS/JavaScript

Javascript

- Introduction to JavaScript
- Variables, Data Types, and Type Conversion
- Operators and Expressions
- Conditional Statements (if, else, switch)
- Looping Statements (for, while, do-while)
- Function Declarations and Expressions
- Scope and Variable Visibility
- Handling Objects and Arrays
- String Operations
- Document Object Model (DOM)
- Selecting and Modifying HTML Elements
- Creating and Removing Elements Dynamically
- Event Handling and Listeners
- Event Handling with Event Delegation
- Dynamic Content Updates without Page Refresh
- Fetching Data from APIs and Updating the DOM

React.js

- Introduction to React.js and its core concepts
 - Components, JSX, and the Virtual DOM
- Building your first React component
 - Functional components vs. class components.
 - JSX syntax and rendering elements
- Props and State
 - Passing data to components using props
 - Managing component state using setState
- React Router and Single-Page Applications
 - React router
 - Route parameters and dynamic routing
 - Nested routes
 - Protecting routes with authentication guards



- State Management with Redux (or Context API)
 - Introduction to Redux
 - Actions, reducers, and the Redux store
 - Dispatching actions and updating state
 - Async actions with Redux Thunk or Redux Saga
 - Redux project structure
- React Hooks and Functional Components
 - useState, useEffect, and other built-in hooks
 - Fetching data from APIs
 - Custom hooks
- Reusable UI Components
 - Component libraries (e.g., Material-UI, Ant Design)
 - CSS-in-JS, styled-components, and CSS modules
 - Creating a library of reusable UI elements
- Consuming RESTful APIs
 - Axios and Fetch API
 - API responses and errors
 - Integrating API data into React components

Node.js And Express.js

- Introduction
- Core modules
- Callbacks, Promises, and async/await
- Introduction to Express.js
 - Defining routes and handling HTTP methods
- Middleware
 - Custom middleware
 - Request & response objects
- Error Handling and Validation
 - Error middleware
 - Input validation
- Integration with MongoDB
 - Performing CRUD (Create, Read, Update, Delete) operations
- Mongoose
 - Schemas and models
 - Database operation using Mongoose
 - Indexing, aggregation, and data validation
 - Handling relationships
- Authentication
 - JSW-based authentication
 - Passport.js
 - OAuth
- Logging & Error Handling



- Libraries – Winston/Morgan
- Rest APIs

MongoDB

- SQL vs NoSQL
- Data Modeling
- Creating and Inserting Documents
 - Inserting data into collections.
 - Bulk inserts and data import.
- Querying Data
 - Find, findOne, and query operators
 - Sorting and Pagination
- Updating and Deleting Documents
 - Update operations and modifiers.
 - Removing documents from collections.
- Aggregation framework
 - \$group, \$match
- Indexing

Overview of AWS

- Cloud computing overview
- Introduction to AWS
- AWS Service Categories – Compute, Storage, Database, Networking, Security, etc.
- AWS Management Console
- Regions and Availability Zones
- EC2
- S3
- RDS, DynamoDB
- VPC, Security Groups
- Cloudwatch
- Lambda
- Best practices and cost management



Git & Github

- Version Control with Git and GitHub
- Introduction to Version Control and Git Concepts
- Cloning, Committing, and Pushing Code to Repositories

Basic Website Optimization

- Basics of Web Performance Optimization
- Minification and Compression of Assets
- Lazy Loading Images and Optimizing CSS/JavaScript
- Web Accessibility Considerations and Practices

Bonus Content

- Guest Lectures by Industry Professionals
- Mock Interviews and Resume Building Workshops
- Guidance on Building a Professional Portfolio
- Soft Skills Development: Communication, Teamwork, Problem-Solving
- Mid-Course Assessment to Gauge Understanding and Progress
- Job Interview Preparation and Mock Interview Sessions
- Assistance in Job Placement and Internships
- Access to Alumni Network and Industry Events



Sample Mini Projects

- Personal portfolio website that showcases the student's skills and projects. The website would include
 - A homepage with a brief introduction and profile picture.
 - Sections for displaying projects, each with a title, description, and images/screenshots.
 - A contact section with a form for visitors to send messages.
 - Utilize HTML, CSS (including Bootstrap), and possibly a bit of JavaScript for form validation
- Interactive image gallery that displays a collection of images and provides user-friendly features. The project would involve:
 - Creating a grid of images using HTML and CSS.
 - Implementing lightbox functionality: clicking on an image opens a larger version with navigation buttons.
 - Adding filters or categories to sort images dynamically using JavaScript/jQuery.
 - Applying CSS for a visually appealing and responsive design.
- Simple to-do list web application that allows users to manage tasks. This project can cover various concepts including:
 - Designing the user interface using HTML, CSS, and Bootstrap.
 - Using JavaScript/jQuery to handle tasks like adding, deleting, and marking tasks as completed.
 - Implementing local storage to persist tasks even after page refresh.
 - Enhancing the user experience with animations and transitions.

Sample Mega Project

- Web platform where users can search and browse real estate listings. The application will allow real estate agents to list properties for sale or rent, and potential buyers or renters can search for properties based on various criteria
 - User Authentication and Profiles
 - Property Listings
 - Search and Filter Functionality
 - Interactive Map
 - Property Details
 - User Reviews and Ratings
 - Saved Searches and Alerts



Sample Course Completion Certificate



Sample Internship Completion Letter



Course Details		
1	Duration	90 days
2	Mode of Training	Offline/Online
3	Registration Fees	₹ 999



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