

Full Stack Web Development curriculum



1ST YEAR – TRAINING

Topics:-

1...Basic Web Development

1.1. Introduction to Web Development

- What is Web Development?
- Client-side vs. Server-side
- Front-end vs. Back-end Development
- Web Browsers and How They Work

1.2. HTML (HyperText Markup Language)

- Basic Structure of a Web Page
- Common HTML Tags
- Headings (`<h1>` - `<h6>`)
- Paragraphs (`<p>`)
- Links (`<a>`)
- Images (``)
- Lists (``, ``, ``)
- Forms and Input Elements
- Semantic HTML
- Importance of `header`, `footer`, `article`, `section`, etc.

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1.3. CSS (Cascading Style Sheets)

- Introduction to CSS
- Selectors, Properties, and Values
- Box Model
- Styling Text
- Layout Techniques
- Flexbox
- Grid
- Responsive Design
- Media Queries
- Mobile-First Design
- CSS Frameworks
- Bootstrap, Tailwind CSS

1.4. JavaScript Basics

- Introduction to JavaScript
- Variables and Data Types
- Operators and Expressions Functions
- DOM Manipulation
- Selecting Elements (`getElementById`, `querySelector`)
- Modifying Content and Styles

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- Event Handling
- Click, Input, etc
- Basic Form Validation

2...Intermediate Web Development

2.1. Advanced JavaScript

- ES6+ Features
- Let, Const
- Arrow Functions
- Template Literals
- Destructuring
- Asynchronous JavaScript
- Callbacks
- Promises
- `async/await`
- Introduction to Git
- Basic Commands (Init, Clone, Commit, Push, Pull)
- Branching and Merging
- Working with GitHub

1ST YEAR – TRAINING

2.3. Package Managers

- Introduction to NPM/Yarn
- Installing Packages
- Managing Dependencies

2.4. Introduction to Frameworks and Libraries

- JavaScript Libraries
- jQuery
- Introduction to React.js or Vue.js
- CSS Preprocessors
- SASS/SCSS
- Task Runners
- Webpack Basics
- Gulp

2.5. Back-End Basics

- Introduction to Server Side Programming
- Overview of Node.js
- Introduction to Express.js

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- Working with Databases
- SQL vs. NoSQL
- CRUD Operations
- MongoDB Basics

3...Advanced Web Development

3.1. Advanced Front-End Frameworks

- React.js
- Component Lifecycle
- State Management
- Hooks
- React Router
- Vue.js
- Vue Components
- Vue CLI
- Vuex for State Management

3.2. Advanced CSS

- CSS Architecture
- BEM (Block Element Modifier)
- SMACSS (Scalable and Modular Architecture for CSS)
- Animations and Transitions
- CSS Variables

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3.3. Advanced JavaScript Concepts

- JavaScript Design Patterns
- Module Bundling
- Web Workers
- Service Workers & PWA (Progressive Web Apps)

3.4. Full-Stack Development

- Introduction to MERN Stack (MongoDB, Express, React, Node) Authentication and Authorization
- JWT (JSON Web Tokens)
- OAuth
- GraphQL
- Deployment
- Deployment on AWS, Heroku
- CI/CD Basics

3.5. Performance Optimization

- Minification and Compression
- Lazy Loading
- Code Splitting
- Caching Strategies

1ST YEAR – TRAINING

3.6. Testing

- Unit Testing
- Jest
- Mocha
- End-to-End Testing
- Cypress
- Test-Driven Development (TDD)

3.7. Security Best Practices

- Securing Web Applications
- OWASP Top Ten
- Data Encryption
- HTTPS and SSL
- Cross-Origin Resource Sharing (CORS)

2ND YEAR – PROJECT

- Weather App: Integrate an API and display weather information.
- E-commerce Store: Explore user authentication, payment gateways, and product management.
- Virtual Reality (VR) Experiences: Develop immersive VR web-based content.



3RD YEAR – INTERNSHIP

Guaranteed internship opportunity to gain practical exposure.

Task: – Working on the internship Project.

Let's Build a Real-Time Chat App

Project Overview:-

- We're going to create a web application where people can chat with each other instantly. Users will be able to log in, send and receive messages, and see their conversation history.

4TH YEAR – PLACEMENT

- Automated resume
 - aptitude training
 - mock exams
 - mock interviews
 - career counselling
 - continuous support
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- This roadmap should provide a solid foundation in Web Development , covering the essential topics and preparing you for more advanced studies or real-world applications.