



TECHNOCATION FREELANCING TRAINING INSTITUTE & SOFTWARE HOUSE

# Professional AJAX Course Outline

## Module 1: Introduction to AJAX

- What is AJAX? Understanding Asynchronous JavaScript
- AJAX vs. Traditional Page Reloading
- How AJAX Works: Client-Server Communication
- Real-World Applications of AJAX

## Module 2: AJAX with JavaScript

- Making HTTP Requests with XMLHttpRequest
- Handling AJAX Responses (onreadystatechange, status codes)
- Sending GET & POST Requests
- Handling Errors in AJAX Calls

## Module 3: AJAX with Fetch API (Modern Approach)

- Introduction to the Fetch API
- Fetching Data from a REST API
- Handling JSON Responses & Errors
- Using `async/await` with Fetch API

## Module 4: AJAX with jQuery

- Using jQuery's `.ajax()`, `.get()`, and `.post()` Methods
- Handling API Responses & Data Processing
- AJAX Error Handling in jQuery
- Working with JSON & XML in jQuery AJAX

## Module 5: Working with APIs & AJAX

- Understanding RESTful APIs & HTTP Methods
- Fetching Data from External APIs (OpenWeather, GitHub API)
- Sending Form Data with AJAX
- Caching AJAX Requests for Performance

## **Module 6: AJAX in Real-World Applications**

- Creating an Auto-Search Suggestion Box
- Implementing AJAX-Based Pagination
- Building a Live Data Feed (Real-Time Updates)
- Submitting Forms without Page Reload

## **Module 7: AJAX with JSON & XML**

- JSON vs. XML: Differences & Use Cases
- Parsing JSON Data in AJAX Responses
- Handling XML Responses in AJAX
- Converting XML to JSON for Processing

## **Module 8: Handling Security in AJAX**

- Preventing Cross-Site Scripting (XSS)
- Understanding & Handling CORS (Cross-Origin Resource Sharing)
- Using Authentication Tokens (JWT, OAuth) in AJAX Requests
- Secure Data Transmission with HTTPS

## **Module 9: AJAX & Performance Optimization**

- Debouncing & Throttling AJAX Requests
- Caching AJAX Responses for Faster Performance
- Optimizing Large Data Transfers
- Best Practices for Reducing AJAX Load Times

## **Module 10: AJAX with Backend Technologies**

- AJAX with Node.js & Express
- AJAX with PHP & MySQL (Fetching Database Data)
- AJAX with Python & Flask/Django
- Integrating AJAX with Laravel API

## **Module 11: Advanced AJAX Concepts**

- WebSockets vs. AJAX for Real-Time Communication

- Using AJAX in Single Page Applications (SPA)
- Combining AJAX with Vue.js, React.js, and Angular
- Error Logging & Debugging AJAX Requests

## **Module 12: Final Project & Certification Preparation**

- Developing a Full-Stack AJAX-Based Web Application
- Implementing API Calls, Database Integration & Frontend Interactions
- Debugging & Optimizing AJAX for Production
- Preparing for AJAX-Related Interview Questions