Course
NodeJS
Duration
10 days (5 Full days)
Lab Requirements
Windows Platform • 4GB RAM (Min) • Windows 7 or higher Software • Any preferred editor : VS Code/WebStorm/Sublime/Notepad++ etc. • Latest Browser – Chrome / Firefox / IE • Node • MongoDB Note : Participants need to have access to internet to download & install the libraries to meet the need of the training. Participants machine should have enough rights to install libraries on machine
Training Demo and Exercises : Problem Statement : Build an **OnlineTraining** App(**SPA & Traditional**) that renders list of available courses online. The application is built during the training to implement features likes routing, handling GET/POST/PUT/DELETE requests, using forms, expose JSON data at endpoints, video streaming, authentication using Passport.js, fetching data from MongoDB. Exercises/hands-on will be around these during the training as well as offline.
Syllabus
DAY I Course Introduction JavaScript Concepts Why Node.js Introduction to node Advantages of node.js

Differences between JavaScript and node.js
Node.js Place in the Tech Stack
Evolution of Node.js Frameworks
Installing Node.js
Nodejs Building Blocks
Starting Node
Node REPL
Working with node
Node Fundamentals
Modularizing code

- Core built-in modules
- Creating Node Modules
- Modularizing JavaScript code
- Using require() to modularize application code

DAY II

Export/Import Modules
    Modules Best Practices
Using Core Modules
    FS (FileSystem)
        OS Module
        HTTP Module

Installing Node Package Manager (NPM)
Working with NPM
Using npm for third-party modules
Maintaining Production and Developer Dependency
npm install command
Generating package.json
Understanding package.lock.json
Understanding node_modules
Why yarn?
Working with yarn
Yarn vs npm
Callbacks vs Events

DAY III

Streams as EventEmitters

Events Module

Why Events?

Working with Events

- EventEmitter Class
- Creating own Event Emitter
- Emitting events
- Associating event handlers
- Events subscription
- Events unsubscription
- Process Events

DAY IV

Streams –

- Reading from Stream
- Writing to Stream
- Piping Streams
- Streams as EventEmitters
- Chaining Streams
- Creating upload file server using streams
- Serving contents from directory

File System Access

- Reading and writing to files
- Async & Sync functions

External Modules

DAY V&VI

Understanding RESTFul Framework

Node.js and the web

- Building a web server
- Handling web requests
- Returning HTML

Building web applications using Express.js

- Installing Express.js
- Routing
- Parameters and queries in routing

- Building views using Jade view engine
  - Introduction to View Engines
  - Jade (PUG)
  - Using blocks for layout
- Displaying data
- Working with forms
- Installing Express Generator
  - Creating Express App using Generator

DAY VII

Using Middleware

- Understanding Middleware
- Create Custom Middleware
- Using Thirst Party Middleware's
- Serving HTML Pages.
- Serving Static Contents
- Bundling Static Contents
- Handling Errors

DAY VIII

Building RESTful API's using Express

- Handling HTTP GET Requests
- Handling HTTP POST Requests
- Calling Endpoints Using Postman
- Input Validation
- Handling HTTP PUT Requests
- Handling HTTP Delete Requests

DAY IX

- Creating an Express application
- Create and Read data using the MongoDB Shell
  - Introduction to the MongoDB API
  - Connecting App to Mongo DB Database
  - MongoDB Native Driver (mongodb)
- Getting Started with Node.js and DynamoDB

Rendering/sending data from MongoDB database

DAY X

Using Socket.IO

Creating Socket Server

Creating Socket Client

Continuous/Duplex communication

Node JS Securities

- Authenticating Node JS App with Passport.js
- Using JWT for API Authentication

Debugging (Can be covered earlier as well)

Console Object

Debugger Statement

Node's Built-in debugger