Node JS Syllabus

Overview:

JavaScript's rising popularity has brought with it a lot of changes, and the face of web development today is dramatically different. The things that we can do on the web nowadays with JavaScript running on the server, as well as in the browser, were hard to imagine just several years ago, or were encapsulated within sandboxed environments like Flash or Java Applets.

Node.js is a packaged compilation of Google's V8 JavaScript engine, the libuv platform abstraction layer, and a core library, which is itself primarily written in JavaScript." Beyond that, it's worth noting that Ryan Dahl, the creator of Node.js, was aiming to create real-time websites with push capability, "inspired by applications like Gmail". In Node.js, he gave developers a tool for working in the non-blocking, event-driven I/O paradigm.

After over 20 years of stateless-web based on the stateless request-response paradigm, we finally have web applications with real-time, two-way connections.

Course Objectives

- Understand the JavaScript and technical concepts behind Node JS
- Structure a Node application in modules
- Understand and use the Event Emitter
- Understand Buffers, Streams, and Pipes
- Build a Web Server in Node and understand how it really works
- Use npm and manage node packages
- Build a web application and API more easily using Express
- Connect to a SQL or Mongo database in Node
- Understand how the MEAN stack works

Pre-requisite / Target Audience:

- Basic Knowledge of JavaScript and OOPS
- Knowledge in async programming will be added advantage

Module 1:- Introduction to Node JS

In this module, you learn What is Node JS and advantages of Node JS and How Node JS Works and the difference between the traditional web server and what are the limitations of the traditional web server modal.

- Introduction
- What is Node JS?
- Advantages of Node JS

- Traditional Web Server Model
- Node.js Process Model

Module 2:- Setup Dev Environment

In this chapter, you will learn about the tools required and steps to setup development environment to develop a Node.js application and to work with the REPL to work with the Console.

- Install Node.js on Windows
- Installing in mac os
- Working in REPL
- Node JS Console

Module 3:- Node JS Modules

In this chapter, you will know what is a module, functions and examples. And achieving modularity and separation of concern with the NodeJS Modules.

- Functions
- Buffer
- Module
- Module Types
- Core Modules
- Local Modules
- Module.Exports

Module 4:- Node Package Mananger

This deals with working with npm to install and update packages and Updating your package to the NPM and managing and updating your current Packages.

- What is NPM
- Installing Packages Locally
- Adding dependency in package.json
- Installing packages globally
- Updating packages

Module 5:- Creating Web server

In this chapter we will learn creating web server, hadling GET, POST,PUT and Delete requests and listening to certain port numbers and handling routing with basic web server.

- Creating web server

- Handling http requests
- Sending requests

Module 6:- File System

In this module, we will work with files, reading, writing, updating files, and the concept of chunks, buffers, and uploading files synchronously and asynchronously.

- Fs.readFile
- Writing a File
- Writing a file asynchronously
- Opening a file
- Deleting a file
- Other IO Operations

Module 7:- Debugging Node JS Application

In this chapter you will learn how to debug node js application. Debugging is a process of tracing the bugs and performance issues to optimize your code.

- Core Node JS debugger
- Debugging with Visual Studio

Module 8:- Events

In this chapter you work with the events in Node JS, and the significance of the events, writing your own events because Node is event driven framework.

- EventEmitter class
- Returning event emitter
- Inhering events

Module 9:- Express.JS

In this chapter you will learn how to use express framework to create web applications. Express is the most popular framework to build efficient web applications with minimum coding.

- Configuring routes
- Working with express

Module 10:- Serving Static Resources

In this chapter you will learn how to serve static html pages to the browser, and serving other file formats and restricting certain files.

In this you will to serve static resources with built in middle ware.

- ❖ Serving static files
- ❖ Working with middle ware

Module 11:- Database connectivity

In this chapter you will learn how to connect to SQL Server and perform CRUD operations. It is like ADO.net for MS.NET applications and JDBC for java. We will use different Node JS modules to connect with database.

- ❖ Connection string
- ❖ Configuring
- ❖ Working with select command
- ❖ Updating records
- ❖ Deleting records

Module 12:- Template Engines

In this chapter you learn how use template engines to perform 2 way databinding and appending dynamic data to the webpage and different view engines and their sytax.

- ❖ Why Template Engine
- ❖ What is Jade
- ❖ What is vash
- ❖ Example

Real-time Project involving most of the above concepts with following will be provided

- Product Abstract Document
- Requirement Specification Document
- **Step-by-Step procedure for building the project from ground up**
- Complete Source Code
- Database Script with Sample data
- Instructions to Setup the Project on a Development box
- Instruction to Deploy the project on Production Box / Microsoft Azure

At the end of the course participants will be able to

1. develop a web application which involves database operations**.**