# MERN STACK

## NodeJS and ExpressJS Crash Course

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# Overview

This Node.js and Express.js crash course enables you to build network applications quickly and efficiently using JavaScript. The course also helps developers understand and build web applications with JavaScript

## NodeJS

NodeJS is an open source, cross-platform runtime environment for executing JavaScript code. node is used extensively for server-side programming, making it possible for developers to use JavaScript for client-side and server-side code without needing to learn an additional language.

## ExpressJS

Express is a commonly-used web framework that is useful for creating HTTP APIs (Request and Response Handling) and also for Parsing and Storing User Input.

## Features

- Master Node.js, Socket.io, Express.js with MongoDB
- Quizzes at the end of chapters
- Real-life, industry-based projects

## Prerequisites

- basic JavaScript
- basic HTML

## Key Learning Outcomes

By the end of this interactive training, you will be able to:

- Install Node.js and execute scripts
- Build and implement HTTP server using APIs
- Use buffers for binary data and streaming I/O from files and other resources
- To work on Express.js with MongoDB and other packages

# Course Curriculum

## Lesson 01 - Introduction and Foundation

- *Introduction*
- *The Node.js framework*
- *Installing Node.js*
- *Using Node.js to execute scripts*

## Lesson 02 - Node Projects

- *The Node Package Manager*
- *Creating a small project*
- *The package.json configuration file*
- *Global vs. local package installation*

## Lesson 03 - Working with asynchronous programming

- *Asynchronous basics*
- *Callback functions*
- *Working with Promises*
- *Advance promises*
- *Using Request module to make api calls*
- *Asynchronous Commands*

## Lesson 04 - Building a HTTP Server with NodeJS using HTTP APIs

- *The HTTP protocol*
- *Building an HTTP server*

- *Rendering a response*
- *Processing query strings*
- *Processing posted data*
- *Building a HTTP Server with Node.JS using HTTP APIs*

## Lesson 05 - File System

- *Synchronous vs. asynchronous I/O*
- *Path and directory operations*
- *__dirname and __filename*
- *Asynchronous file reads and writes*
- *File System & Security*

## Lesson 06 - Buffers, Streams, and Events

- *Using buffers for binary data*
- *Flowing vs. non-flowing streams*
- *Streaming I/O from files and other sources*
- *Processing streams asynchronously*
- *File System and Security*

## Lesson 07 - Multi-Processing in NodeJS

- *Working with Child Process API*
- *Working with Cluster API for multi-core servers*
- *Multi-Processing*

## Lesson 08 - ExpressJS

- *The model-view-controller pattern - MVC*

- *Defining Jade templates*
- *Configuring Express*
- *Postman configuration*
- *Using REST*
- *JSON Data*
- *Reading POST data*
- *CRUD operations*
- *Adding middleware*
- *Expressjs*

## Lesson 09 - Building a HTTP Server with NodeJS using

- *HTTP APIs*
- *How Node.js connects to databases*
- *RDBMS databases and NoSQL databases*
- *Connecting to RDBMS and Mongodb databases*
- *Performing CRUD operations*
- *Express JS-CRUD*

## Lesson 10 - Socket.io, The Front-end, and A Chat App

- *Getting Started*
- *Adding Socket.io To Your App*
- *Exploring The Front-end*
- *Sending Live Data Back & Forth*
- *Creating The Front-end UI*

- *Showing Messages In App*
- *Working With Time*
- *Timestamps*
- *Show Message Time In Chat App*
- *Chat application Project*
- *SocketIO-Chat*

## Lesson 11 - Introduction to Task Managers with unit testing

- *Working with gulp*
- *Working with grunt*
- *Working with unit and E2E testing*
- *gulp-grunt*
- *Unit-testing-Jest*