# Node & Express - Advanced

## Course - 32 hours

### **Overview**

Rather we are building a web application, smartphone app, or desktop application, in most cases we will also need to build a backend server application. Our app will communicate with the server by sending requests which the server will process and send responses. Usually our server will be connected to a database and the response can vary depending on the user requesting the data.

The app we built has grown in popularity and now millions of users are using our app, our server is working overtime sending responses to millions of active users.

Our server application has to work fast, we have to develop it fast and make it scale as our application grows larger.

We would like to have all those benefits to our server while preferably having an easy learning curve and getting to know the technology and the programming language very quickly.

Built on top of Chrome V8 JS engine and use Javascript as a programming language, we can now use node to write js applications that will run on our server.

The async nature of JS and the fact that the majority of threads is now managed by Node and not by us, along with the fact that we already know Javascript, makes node a fast choice with the easiest learning curve among all the other backend technologies.

Combining node with express which is a server side application framework, our task of developing a backend application becomes even easier.

In this course we will learn how to build a backend application that is connected to a database, using node and express.js.

### **On completion students will be able to:**

* + Understand advanced JS
  + Write node applications
  + Write express server application
  + Interact with database and express application

### **Who should attend the course**

* + Software Developers

### **Prerequisites**

* + Experience with JS
  + Some experience with Express

### **Syllabus**

**Module 1 - Advanced Javascript**

* prototype
* oop
* lambda functions
* destructuring
* spread operator

**Module 2 - Async Javascript**

* Promise
* async-await
* Event emitter
* Error first callback
* promisify

**Module 3 - Error handling**

* Error
* Exceptions
* How node treats exception
* Dealing with async errors
* error handling with express
* running in production

**Module 4 - Express recap**

* application
* req, res
* middleware
* error middleware
* Router

**Module 5 - Advanced Express**

* Cookies
* Session
* Cors
* Authentication - Passport
* JWT

**Module 6 - REST and GraphQL**

* Building a REST server
* about Graphql
* Building a graphql server with apollo-server-express

**Module 7 - Mongoose and mongodb**

* About Mongo
* talking to mongo with mongoose
* Schema
* Models
* Validation
* db associations
* db index
* building a REST/Graphql server with a database

**Module 8 - Testiing**

* Mocha
* Chai
* Sinon
* Testing best practices