

# Developing Node.js Microservices with Nest

Course 3386 | 40 Hours



**JOHN BRYCE**

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## Overview

Node.js is a software system designed for writing highly scalable Internet applications, notably web servers. Programs are written in JavaScript, using event driven, asynchronous I/O to minimize overhead and maximize scalability. Unlike most JavaScript programs, it is not executed in a web browser, but is instead a server-side JavaScript application.

Node.js consists of Google's V8 JavaScript engine plus several built-in libraries. As part of the course, we will learn how to scale and architect a microservices by using Nest framework.

## On Completion Delegates will be able to

- Use Node.js to build lightweight real-time microservices with the Nest Framework and Typescript
- Interface Node.js with back-end databases and discover how to use some of the leading external modules for Node.js
- Gain a better understanding of concurrency problem solving and traffic load balancing when building microservices web applications
- Get to know best practices with the advanced framework for building microservices - Nest

## Who Should Attend?

This course is for web developers experienced in JavaScript, who want to increase their knowledge in Node.js, Typescript and learn how to architect microservices applications.

## Prerequisites

- JavaScript – Good Knowledge
- Typescript – Basic Knowledge
- Node.js – Basic Knowledge
- MySQL – Good Knowledge
- MongoDB – Good Knowledge
- RabbitMQ – Basic Knowledge

## Course Contents

- **Node.js Best practices and limitations**
  - What is Node and what is it not
  - Node.js Features
  - Hello Server: Building a web server in Node.js
  - Debugging node applications
- **Building your Stack**
  - Pulling in other libraries
  - Docker
  - Building custom libraries
  - Async programming and callbacks
  - Blocking vs. non-blocking I/O
  - Working within the event loop
  - Creating development apps – MySQL & MongoDB with docker
- **Microservices pattern**
  - Overview
  - Data in Microservices
  - Async vs sync communication
  - Pros & Cons
- **Building Microservice phase 1 – Nest**
  - Creating the microservices
  - Using @nestjs/microservices
  - Message & Event patterns
  - Decorators
  - Observables
  - grpc
  - Connecting to MySQL
  - Running the service on docker
- **Gateway**
  - Create applicative gateway using Nest
  - Infra gateway – AWS service / nginx

- Gateway and MS communications (http, message queue)
- **Building Microservice phase 2 - Nest**
  - Creating the microservices
  - Communicate with gateway.
  - Connecting to MongoDB.
  - Open AI integration.
  - Running the service on docker
- **Dockerizing our ecosystem**
  - Running the microservices using docker
  - Running few instances from a specific microservice
- **Integration Tests Node Applications**
  - Introduction to unit testing
  - Testing with Mocha and Should
  - Suits, specs & Reporters
  - Testing Synchronous code
  - Testing Asynchronous code
- **Secured Gateway**
  - Application configuration
  - Routing
  - Authentication
  - Input validation

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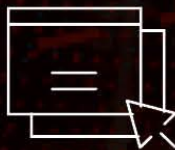
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