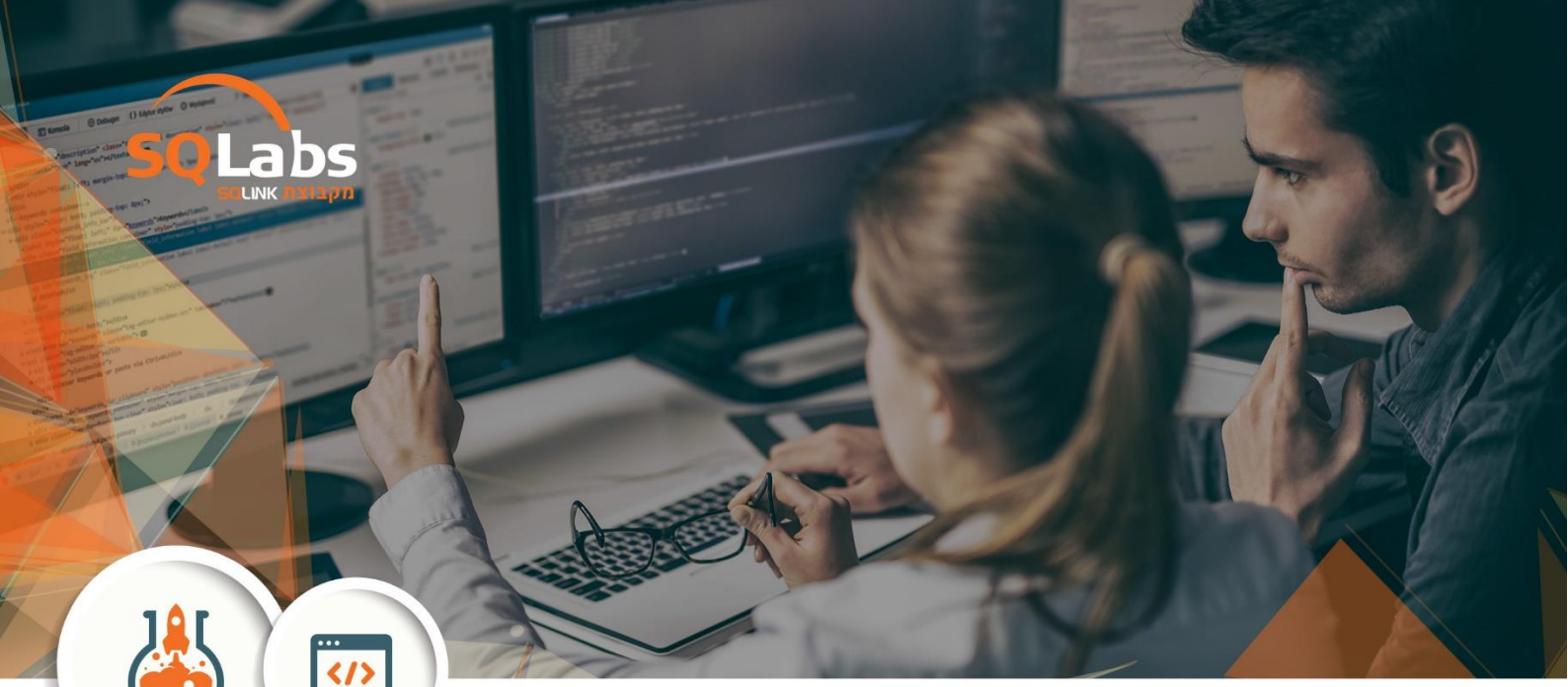

Node.js and Express– 40 Hours

Outline

Node.js is a Javascript runtime 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. In this course you'll learn the fundamentals of Node.js and how to use Node.js to build lightweight, real-time full stack web-applications with Node and the Express framework. Participants will also learn how to interface Node.js with back-end databases and discover how to use several of the leading external modules for Node.js.

Why learn Node.js

- Javascript is fast & scalable
- Node.js adoption by the world web development community is exponential extended with over **1.3 Million** code libraries to get any job done.
- Javascript is used in production by leading brands: PayPal, Linkedin, Apple, EBAY, Amazon, Sony, Yahoo, Yammer, Intel, Salesforce, IBM, Siemens, General Motors, Walmart, Goldman Sachs, Citigroup, B.M.W, The New York Times, Geeklist, Ghost, GoDaddy, Trello, Uber, Modulus, Zendesk, HBO, redhat, Netflix, Oracle, Mastercard and many many more.
- Ideal for creating API's on the fly, rapid web application development with many available front-end frameworks.

- **IoT** - Node.js plays well with the internet of things - increasing exponentially the number of connected devices like health monitors, sensors, tags, bots, thermostats, cars and all variety of “smart” devices that need to talk to disparate data and services both in real-time and offline.
- Plenty of demand for Node.js developers

Objectives

By the end of this course you will:

- Be able to create high performance scalable user facing Node.js servers
- Create REST API endpoints
- Learn to connect to data-sources and render view templates.
- Know how to Authenticate users
- Build real-time services

Target audience

This course is a good fit for web developers who recognize the opportunity Node.js offers to develop cross-platform JavaScript applications and want to master the leading framework and techniques available today.

Prerequisites

Good working knowledge and experience with JavaScript including ES6 / ES7

Installations

1. VS Code - The code editor we’ll use during the training.
2. Node.js - install the latest stable version.
3. Google Chrome browser - please set it to be the default browser and to be displayed in the English language. thanks!
4. Git - install using the default choices.
5. Postman - desktop app
6. Github active account
7. Npm active account

Course Contents

Introduction to Node.js

- What is Node and what it is not
- Node.js Features and internals.
- Project setup: Hello World
- Blocking vs. non-blocking I/O
- Spawning a web server in 5 lines of code
- Debugging node applications

Modular JavaScript with Node.js

- ES6 / ES7 line up - main features
- Node.js Core Modules
- Installing external code libraries
- Working with the file system
- Writing Modular JavaScript with Node.js
- Publishing packages

Writing Async code in Javascript

- Asynchronicity and callbacks
- Introducing the Async problem (callback hell)
- Promises to the rescue
- Collections & Flow Controllers
- Async / await

The Express Web Framework

- Overview
- Express project setup
- Application configuration
- Routing
- Views and Templating
- Persistence with Cookies, In-Memory Sessions and session-stores.
- Central Exception handling
- Reviewing other Node.js based frameworks overview like Sails.js, Koa & Meteor

Communicating with mongoDB

- Tooling up
- Data Modeling
- CRUD operations
- Pagination
- Data validation
- Authenticating users

Unit-Testing Node Applications

- Overview
- Mocha & Chai overview
- Jest
- Assertion
- Mocking
- Modular tests
- Testing Synchronous & Asynchronous code
- Code coverage

Real-time communication

- Introduction to real-time communication
- Web Sockets & sockets libraries
- Streams – streaming chunked data
- Build a live chat application
- Streams in general