

## MEAN STACK COURSE OUTLINES (70 Hour)

### Part 1: Node.js

#### 1- Foundation

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

#### 2- Node Projects

- The Node Package Manager
- Creating a project
- The package.json configuration file
- Global vs. local package installation
- Automating tasks with Grunt.

#### 3- HTTP

- The HTTP protocol
- Building an HTTP server
- Rendering a response
- Processing query strings
- Using Representational State Transfer
- Configuring TLS

#### 4- File System

- Synchronous vs. asynchronous I/O
- Path and directory operations
- dirname and filename
- Asynchronous file reads and writes



## 5- 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
- Configuring event handlers

## 6- Modules and Unit Testing

- Modularization
- The CommonJS and RequireJS specifications
- Defining modules with exports
- Modules are singletons
- Creating a package
- Module scope and construction
- Unit testing frameworks
- What to test and how to test it
- Building unit tests with Jasmine

# Part 2: Using Express

- The model-view-controller pattern
- Building a front-end controller
- Defining routes
- Creating actions
- Using REST
- Reading POST data
- Adding middleware

## 7- Data Sources

- How Node.js connects to databases
- RDBMS databases and NoSQL databases
- Connecting to RDBMS and NoSQL databases
- Performing CRUD operations
- Building client requests to web services

# Part3: MongoDB

## 1- Introduction

- The current SQL/NoSQL landscape
- Document-oriented vs. other types of storage
- Mongo's feature set
- Common use-cases
- Introduction to JSON

## 2- Documents and Collections

- Creating documents
- Managing documents in collections
- Iterating over documents

## 3- Simple Queries

- Field equality tests
- Operators available
- Projections
- Limiting results and paging



#### 4- Simple Updates and Deletes

- Field updates
- Field insertions and removal
- Document deletion

#### 5- More Complex Types of Queries

- Existential field values
- Aggregations and groups
- Aggregations and groups in hierarchical data

#### 6- Updates and Arrays

- Altering array field elements
- Insertion to array fields
- Removing from array fields

#### 7- Indexing

#### 8- Mongo RESTful API

- CRUD operations through REST
- Using Mongoose with Node.js

#### 9- MapReduce

- Explanation of MapReduce
- Types of logic that can be expressed as MapReduce declarations
- Mapping documents
- Reducing values



## 10-Mongo Security

- Authorization and securing collections, documents
- The limits of Mongo's authorization scheme
- Authentication
- Mongo in the enterprise

# Part4: Angular JS

## 1- Introduction to AngularJS

- What does AngularJS do for me?
- Who controls AngularJS?
- How can I get AngularJS?

## 2- Our first AngularJS application

- A basic application
- Using angular-seed
- The pieces of the puzzle
- How it fits together
- Model, View, Controller from the AngularJS Perspective

## 3- Models

## 4- Scopes

## 5- Controllers

- Where Controllers fit in, and what they do, from Angular's perspective
- Managing Scope
- Setting up Behavior
- Building a basic controller
- A more advanced controller



## 6- Expressions

- Expressions are lightweight code snippets
- Expression capabilities
- Limitations
- The border between expressions and \$eval

## 7- Filters

## 8- Angular Forms

- Angular forms vs HTML forms
- Angular form controls
- Form events
- The form controller
- Form validation
- Ajax, Data, and Angular
- Directives
- Testing in Angular

## 9- Single Page Applications & Routing

- What do we mean by Single Page Application?
- Creating Angular Modules
- Using Angular's Routing Service
- Creating a Skeleton Single Page Application

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