

A guided tour to the MEAN stack

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Introduction

This document guides you through the MEAN stack: MongoDB, Express, AngularJS, and Node.js (*not in this sequence, for pedagogical reasons*).

It is structured as a step-by-step guide. It is best that you follow it in the intended sequence.

Part 1- AngularJS

We shall start with AngularJS, a very popular JavaScript MV* framework. We will learn how to build rich client-side apps using JavaScript and AngularJS.

1. Learn about the motivation and history behind JavaScript MV* frameworks for client-side development, including the possible meanings for the *, such as: C (controller), P (presenter), or VM (viewmodel): <https://www.smashingmagazine.com/2012/07/journey-through-the-javascript-mvc-jungle/>
2. Briefly explore the <http://todomvc.com/> website to get an idea about the number of competing MV* frameworks (including AngularJS).
3. To get a first taste of a simple app built with AngularJS, go to <https://angularjs.org/>, scroll down to "**The basics**" and:
 - Interact with the app by typing your name and watching the customized greeting message appear on the screen.
 - Look at the index.html file and the items highlighted in blue.
 - Watch the 12-min video that explains how they built the app (also available at <https://youtu.be/uFTFsKmkQnQ>)
 - Reproduce the steps of building the app using AngularJS (i.e., neglect the steps that use jQuery as an alternative) on your computer.
 - Test your app on your browser.**Congratulations! You've just built your first AngularJS app!**
4. Let's move on to a slightly more involved example, a simple to-do list. Go to <https://angularjs.org/>, scroll down to "**Add Some Control**" and:
 - Interact with the app by adding, checking, unchecking, and deleting (archiving) items in the list.
 - Watch the 12-min video that explains how they built the app (also available at https://youtu.be/WuiHuZq_cg4)
 - Reproduce the steps of building the app using AngularJS (i.e., neglect the steps that use jQuery as an alternative) on your computer.
 - Test your app on your browser.**Congratulations! You've just built your second AngularJS app!**

5. By now, you might need to reinforce your conceptual understanding of key AngularJS terms, such as: controller, data binding, templates, views, and routing. For that sake:
 - Read the short tutorial at <http://www.sitepoint.com/anatomy-javascript-mv-framework/> (focus on AngularJS examples)
 - Read the introduction to AngularJS short doc at: <https://docs.angularjs.org/guide/introduction>
 - Read the explanations (and try the examples) at: <https://docs.angularjs.org/guide/concepts>
6. (OPTIONAL, but recommended) Take the “AngularJS” tutorial at W3 Schools: <http://www.w3schools.com/angular/>
7. (OPTIONAL, but highly recommended) Watch the "AngularJS Fundamentals In 60-ish Minutes" tutorial
 - video: <https://youtu.be/i9MHigUZKEM>
 - transcript (in e-book format): http://fastandfluid.com/publicdownloads/AngularJSIn60MinutesIsh_DanWahlin_May2013.pdf
 - source code: <http://tinyurl.com/AngularJSDemos>
8. Take the “Shaping Up with AngularJS” course at CodeSchool: <https://www.codeschool.com/courses/shaping-up-with-angular-js>
9. (OPTIONAL) Build and test the PhoneCat Tutorial App, following the instructions at: <https://docs.angularjs.org/tutorial/>
10. Explore the TODO list app with AngularJS at <http://todomvc.com/examples/angularjs/#/>
11. (OPTIONAL, but highly recommended) One of the best ways of learning any new concept, language, tool, framework, or technology is to look at many examples (and try modifying some of them).
For that sake, try the "Introduction to Angular.js in 50 Examples" videos
(Part 1: <https://youtu.be/TRrL5j3Mlvo> and Part 2: <https://youtu.be/6J08m1H2BME>)
and excellent companion resources (source code and much more!) at:
<https://github.com/curran/screencasts/tree/gh-pages/introToAngular>
12. (OPTIONAL) If you want to learn how to add server-side functionality to an AngularJS app using Firebase, go to: <https://www.firebase.com/tutorial/#tutorial/angular/0> and follow the step-by-step instructions.

Part 2- Node.js

In this part we will learn how to use JavaScript, Node.js, and a few selected packages to build server-side solutions and deepen our knowledge of HTTP, (synchronous and asynchronous) I/O, and JSON.

13. For an overview of the basic concepts behind Node.js, watch the "Node.js Fundamentals" video at: <https://youtu.be/FVdH9YcB3Dg>
14. (OPTIONAL, but highly recommended) Read Chapters 1 through 11 of the (free) e-book "Mixu's Node book: a book about using Node.js" (<http://book.mixu.net/node/>)
15. (OPTIONAL) Read the **Node.js** chapter of the "Eloquent JavaScript" book (http://eloquentjavascript.net/20_node.html).
16. Take the (free) "Real Time Web with Node.js" course at CodeSchool.
<http://campus.codeschool.com/courses/real-time-web-with-node-js/level/1/video/1>
17. (OPTIONAL, but highly recommended) Take the (free, interactive, command line-based) course "Learn You The Node.js For Much Win!": <https://github.com/workshopper/learnyounode>

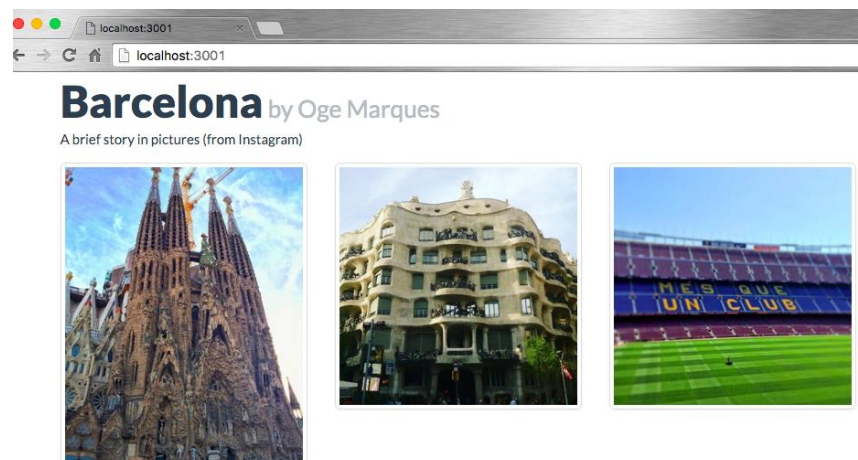
Part 3- Express.js

In this part we look at the Express framework for Node.js.

18. Install Express.js following the simple steps at <http://expressjs.com/en/starter/installing.html>
19. Create your first Express application ("Hello World") following the steps at <http://expressjs.com/en/starter/hello-world.html>
20. Get the Postman Chrome extension (and/or app) from <http://www.getpostman.com/>
21. Download the "Express demo" code from <https://github.com/subfuzion/express-demo>
22. Watch the "Express.js Crash Course" 36-min tutorial (and try the examples from lessons 1 through lesson 9, downloaded in the previous step): <https://youtu.be/aHqnFWLP7wA>
23. (OPTIONAL) Watch the "Express.js Tutorial - Build Apps with Node.js" 50-min tutorial at: <https://youtu.be/OlapNW9Jc8s>
24. Build an Instagram gallery (via Storify) using Express, following the steps at: <http://expressjsguide.com/#leanpub-auto-instagram-gallery>
 - a. You will need to request an API key: <http://dev.storify.com/request>
 - b. Change lines 16-17 in index.js to read:

```
var user = 'ogemarques';  
var story_slug = 'barcelona';
```

If everything works as planned, once you run the app and open your browser at <http://localhost:3001/> you should see:



Part 4- MongoDB

In this part we look at the database portion of a client-server app using the MEAN stack.

25. Learn the basics of NoSQL. More specifically:
 - Watch the 55-min "Introduction to NoSQL" talk by Martin Fowler:
https://youtu.be/qI_g07C_Q5I
 - Read the text "What is NoSQL?": <https://www.mongodb.com/nosql-explained>
 - (OPTIONAL) Read the introductory text "Up Close and Personal with NoSQL":
<http://opensourceforu.com/2011/02/up-close-and-personal-with-nosql/>
 - (OPTIONAL) Watch the 9-min NoSQL Introduction lecture by Bill Howe (University of Washington): <https://class.coursera.org/datasci-001/lecture/99>
26. (OPTIONAL) Take the MongoDB tutorial at: <http://www.tutorialspoint.com/mongodb/index.htm>
27. Download the 29-page "The Little MongoDB book" (<http://openmymind.net/mongodb.pdf>) and read it.
28. Take the interactive 15-min hands-on tutorial based on the book from the previous step:
<http://mongly.openmymind.net/tutorial/index>
29. (OPTIONAL) Watch the (4h 24min) video "Explore MEAN Stack at 2015" (Microsoft Virtual Academy): https://youtu.be/Jh0er2pRcq8?list=PLRhpy7_SzbDdRQdAfUw5Otqzf72CKkvgi
Note: The first two hours are mostly a review of AngularJS, Node.js, and Express.
The next two hours are the most important and focus on MongoDB.
30. Watch the 50-min webinar "Get Started with the MEAN Stack":
<https://www.mongodb.com/presentations/webinar-get-started-with-the-mean-stack>
31. Take (**Parts 1 through 4** of) the online course "**Introduction to MongoDB using the MEAN Stack**" (edX) (FREE) and work on its assignments.
<https://www.edx.org/course/introduction-mongodb-using-mean-stack-mongodb-m101x>

THE END
