**Topic Analysis: MEAN stack development**

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# Overview

MEAN stack development has recently become one of the most popular and sought after development stacks. MEAN stands for MongoDB, Express, Angular, and Node.js.

# MongoDB

MongoDB is a NoSQL (not only SQL) database that allows developers to store both relational and non-relational data as JSON objects. NoSQL gives the developer the freedom to create a database with no relational schema; the data may exist as relationships in the code, not necessarily in the database.

# Node.js

Node.js is a simple, lightweight server that runs on Google chromes v8 JavaScript engine. Node servers usually only call upon resources the developer requires, keeping the server lightweight. In addition, Node.js servers use what is called non-blocking code. Non-blocking is essentially the ability for a program to process requests before other requests have finished transmitting. This attributes to the speed of a server in that the server can process a request that requires little computation (like serving a static web page) while another, larger request like accessing a database is running in the background. Non-blocking allows for multiple function calls to be performed without halting the execution of the program (Souza).

# Express

Express is a framework that sits on top of a Node server and provides some additional functionality to the otherwise bare-bone structure that Node offers by default. Express does some of the leg work in creating a basic file structure for files as well as a JSON file listing the dependencies of a project. One of the more significant features that express adds to Node.js is routing. Routing refers to the definition of application endpoints (URIs) and how they respond to client requests (Express Routing). Routing provides URIs which improves search engine optimization, and makes request handling easy. A route simply specifies the request type, then provides a path to file or data, as well as a callback function to process the request.

# Angular

Angular.js is a tool that allows the developer to declare dynamic views in web applications, as well as perform routing. Angular also offers a way to bootstrap the Node.js backend to the front end. Angular also offers some processing of data before moving it to the front end. Angular can perform tasks such as looping the output of div elements onto a page, inserting data, and actively updating a page without reload. These are all favorable characteristics when developing a single page application.

# Conclusion

The main feature that distinguishes this development stack is that all of its components are based upon JavaScript. This creates a seamless unification between the technologies. Passing between these technologies could not be simpler. MongoDB uses JSON objects to store its data, and Node.js uses JSON objects for processing. The data never has to be parsed, it just works. Another advantage to using all JavaScript is the application is equally performant across all of its parts. A MEAN stack application will not bottleneck due to the inefficiency of a single part. The all JavaScript aspect also creates equal scalability across the entire application. By extension, all of the parts of the MEAN stack use JSON for objects. This removes parsing as a layer of processing, increasing the speed even more.