

## Web Application Development by Using MEAN Stack

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**Abstract:** For the development of the modern web application MEAN Stack is used. MEAN is a full stack JavaScript platform and a NoSQL or document based Database technology. Java script is the most popular client-side programming language on the Web today and also the second fastest growing server-side programming language. MEAN is an acronym for MongoDB, ExpressJS, AngularJS and Node.js. This paper introduce basics of mean stack and components of MEAN stack. The most crucial part in a web development project is choice of the right combinations of front-end framework, back-end server, and database environment. This paper focuses on the benefits of the using the MEAN stack.

**Keywords:** Node.js, MongoDB, MEAN, Angular.js, Express.js.

### I. INTRODUCTION

Developers of dynamic web applications have been using the LAMP open-source tool stack [1] (consisting of the Linux Operating System, the Apache Web Server, MySQL as a database and PHP as the scripting language) for some time. However, a new tool stack for web-application development has emerged over the last few years — known as the MEAN Stack or just MEAN.

The term MEAN stack refers to a collection of JavaScript based technologies used to develop web applications. MEAN Stack is combination of four tools i.e Mongo DB, Express.js, Angular.js, Node.js. All four of these tools are based around the JavaScript language which although initially developed for client side web programming has entered into common usage for server-side programming, thanks in large part to environments such as Node.js[2]

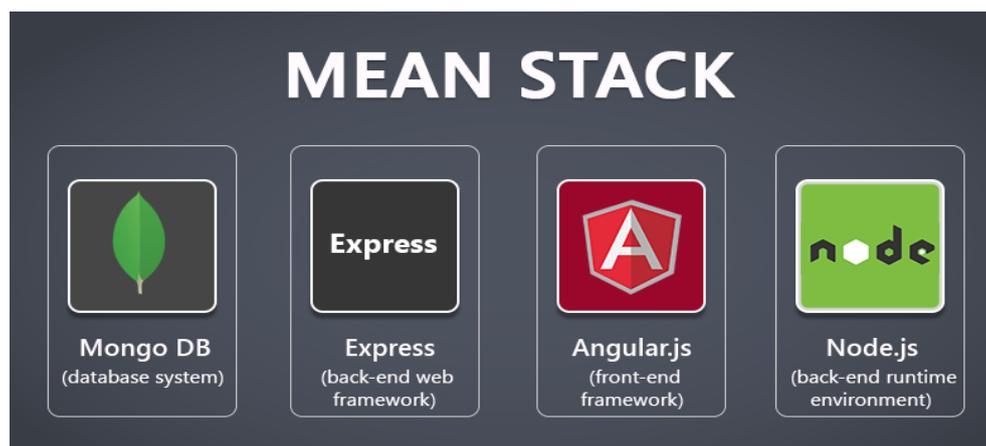


Fig. 1: Introduction MEAN Stack

1. **Node.js**:-It is a server side JavaScript execution environment. It's a platform built on Google Chrome's V8 JavaScript runtime. It helps

in building highly scalable and concurrent applications rapidly. Node.js is a next cross-platform, open-source runtime environment used for development of networking and server side applications. Applications in node.js are written using JavaScript language and can be run within the Node.js runtime environment. It also provides a collection of library with various JavaScript files Whether you're looking for consolidation of technologies or to leverage in-house JavaScript expertise, the MEAN stack can offer a lot to a flexibility for designing web applications [3].

2. **Express**:- It is lightweight framework used to build web applications in Node. It provides a number of robust features for building single and multi-page web application. Express is one the most latest and widely used web frameworks in Node.js environment. Express is a minimal web server built on Node.js which provides the entire main feature required for delivering web applications to the browser and mobile phone. Express is inspired by the popular Ruby framework, Sinatra.

3. **MongoDB**:-It is a schemaless NoSQL database system. MongoDB saves data in binary JSON format which makes it easier to pass data between client and server. The MongoDB is simple and is used for storing database. MongoDB is a cross-way document-oriented database with Nosql attributes. MongoDB defines as a database that stores data for the web based application. MongoDB have some exciting features for your application and its architecture that makes it very popular among other databases. The goal is to generate a new breed between traditional database features and very high performance of NoSQL stores.

4. **AngularJS**:-It is a JavaScript framework developed by Google. It provides some awesome features like the two-way data binding. It's a complete solution for rapid and awesome front end development. Angular JS is the next mean stack JavaScript framework used for web development. It is maintained by Google as open source web application framework. We can embed Angular JS into a HTML page with a <script> tag. Furthermore it extends HTML attributes with its own Directives, and then binds data to HTML with Expressions.

## II. PROBLEM DEFINITION

In order to drive high scalable website letting more than 50, lakh users spontaneously on server, it requires light weight components on the server which support caching and memory optimization techniques. LAMP setup is not primarily used for such large scale use case.

### ➤ SOLUTION

When the server is highly utilizing its RAM and inodes, the frequency of speed over bandwidth decreases as RAM freezes, MEAN stack is very light weight server ,and with asynchronous coding the working remains solid and can handle up to huge amount of clients spontaneously.

1. To Provide Cyclic approach in system.
2. To Overcome drawback of existing system.
3. Make advance system of LAMP.
4. To Reduce effort.
5. To Save time.

### ➤ DRAWBACK OF EXISTING SYSTEM

1. Existing System LAMP is not designed for high volume interactive web applications.
2. The server Apache is quite big for small sale purposes, and is overkill at times in small-scale security applications.
3. PHP is not a concurrent language, but support traits. This is good for small applications requiring more interactions, but for processes requiring high server mathematical purposes, php freezes at times.
4. MySQL is good for larger –and medium applications but somewhere the JSON interactions have been preferred in recent times.

## III PROPOSED SYSTEM

In an environment where clients want to surf e-commerce website, and 100000 clients surf website anonymously, we propose following server system:

- Intel Core i7 (3.4GHz).

- 16 GB RAM.
- Nginx Server (as load balancer).
- Node.js

Once the system server is up and running, MEAN stack can be used to power the website.

#### ➤ SYSTEM ARCHITECTURE

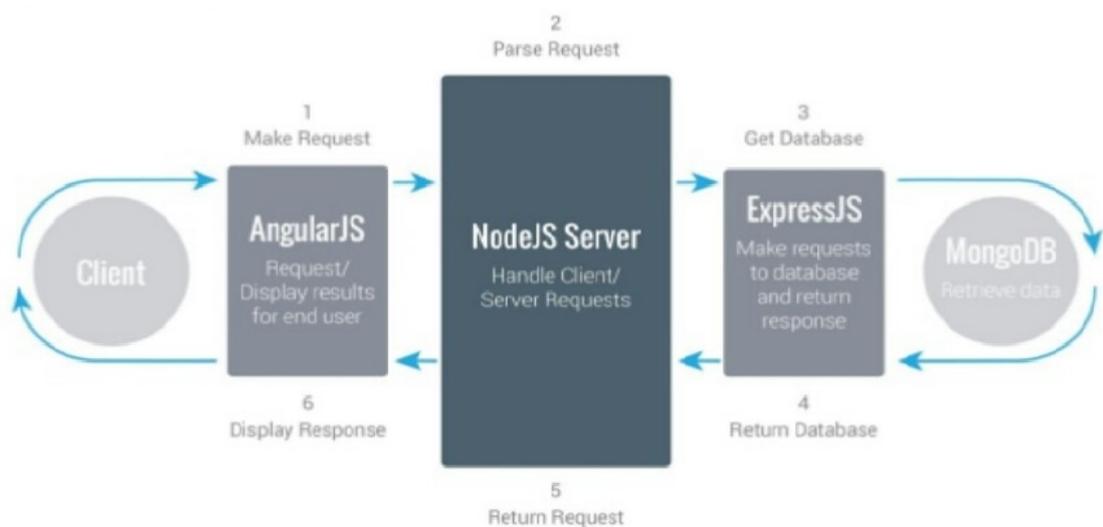


Fig 2.-System Architecture

MEAN Stack is a full-stack JavaScript solution that helps you build fast, robust and maintainable production web applications using MongoDB, Express, AngularJS, and Node.js. The MEAN stack is deployed in large scale server bandwidth requirement areas where parallel throughput is minimal. Implementation requires the area to project vision towards small packets rather than large packets.

#### SYSTEM REQUIERMENT SPECIFICATION

- Hardware:-
  - CPU: Intel Core 2 Duo E8200 2.66 GHZ / AMD Phenom X3 8750 2.4 GHZ or better.
  - RAM: 2 GB RAM.
  - HDD: 200 MB HDD space.
- Software
  - Front End
    - Brackets
    - Angular JS
  - Back End:
    - MongoDB
    - Node.Js

#### CONCLUSION

In this paper we discuss the MEAN stack and component of the MEAN stack. MEAN stack is new technology which overcome the drawbacks of the LAMP and used in the development of the web application. A MEAN stack web-service is also highly scalable and efficient. The paper has discussed about the use of mean stack for development along with its definition

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