Software Engineering

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Plan

- Road Map
- MEAN Stack
  - Angular
  - MongoDB
  - Node.js
  - Express
  - Connecting Frontend with Backend
- CRUD

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1 Road Map

Web Developer Technologies

Browsers

Browsers are the interpreters of the web.

HTML

It provides the structure of a website so that web browsers know what to show.

CSS

It let's web designers change colors, fonts, animations, and transitions on the web. They make the web look good.

Programming Languages

Programming languages are ways to communicate to computers and tell them what to do.

- Javascript
- PHP
- Ruby

Frameworks

Frameworks are built to make building and working with programming languages easier.

- Node.js
- Ruby on Rails
- .NET

Databases

Databases are where all your data is stored.

- MongoDB
- MySQL
- PostgreSQL

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Required for any path

- Git - Version Control
- SSH
- HTTP/HTTPS and APIs
- Basic Terminal Usage
- Learn to Research
- Data Structures & Algorithms
- Character Encodings
- Design Patterns
- GitHub

Create a profile. Explore relevant open source projects. Make a habit of looking under the hood of projects you like. Create and contribute to open source projects.

Web Developer in 2018

Choose your path

- Front-end
- Back-end
- DevOps

Legends

- Personal Recommendation!
- Possibilities
- Pick any!
- Now build something

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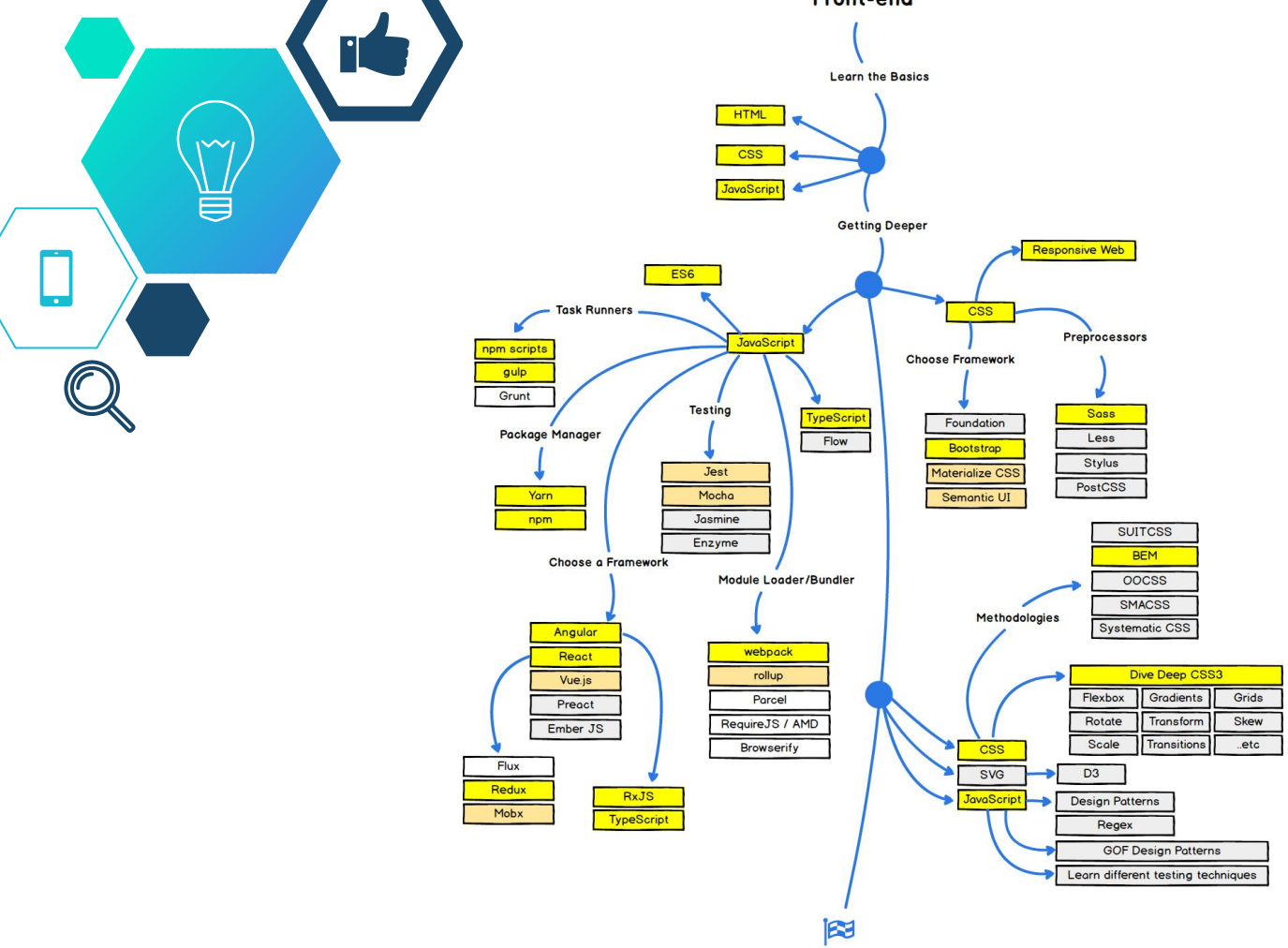
Front-end
Learn the Basics
HTML
CSS
JavaScript
Getting Deeper
ES6
Task Runners
npm scripts
gulp
Grunt
JavaScript
Package Manager
Yarn
npm
Testing
Jest
Mocha
Jasmine
Enzyme
TypeScript
Flow
Choose a Framework
Angular
React
Vue.js
Preact
Ember JS
Flux
Redux
Mobx
RxJS
TypeScript
Module Loader/Bundler
webpack
rollup
Parcel
RequireJS / AMD
Browserify
Responsive Web
CSS
Choose Framework
Foundation
Bootstrap
Materialize CSS
Semantic UI
Preprocessors
Sass
Less
Stylus
PostCSS
Methodologies
SUITCSS
BEM
OOCSS
SMACSS
Systematic CSS
CSS
Dive Deep CSS3
Flexbox
Gradients
Grids
Rotate
Transform
Skew
Scale
Transitions
..etc
SVG
D3
JavaScript
Design Patterns
Regex
GOF Design Patterns
Learn different testing techniques

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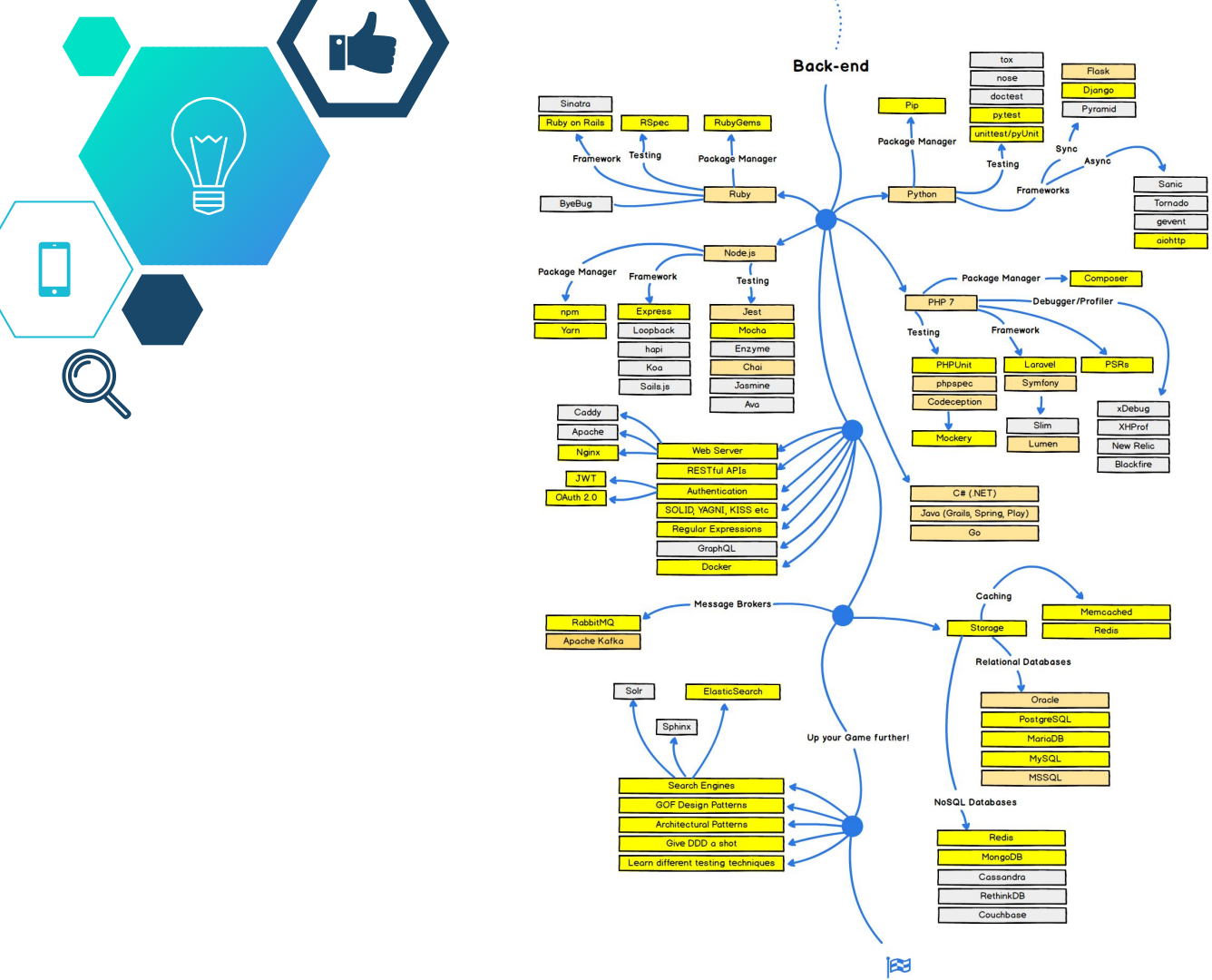
Back-end
Sinatra
Ruby on Rails
RSpec
RubyGems
Framework
Testing
Package Manager
ByeBug
Ruby
Pip
Package Manager
tox
nose
doctest
pytest
unittest/pyUnit
Testing
Flask
Django
Pyramid
Sync
Async
Frameworks
Python
Sanic
Tornado
gevent
aiohttp
Node.js
Package Manager
Framework
Testing
npm
Yarn
Express
Loopback
hapi
Koa
Sails.js
Jest
Mocha
Enzyme
Chai
Jasmine
Ava
Package Manager
Composer
PHP 7
Debugger/Profiler
Testing
Framework
PHPUnit
phpspec
Codeception
Mockery
Laravel
Symfony
Slim
Lumen
PSRs
xDebug
XHProf
New Relic
Blackfire
Caddy
Apache
Nginx
Web Server
RESTful APIs
JWT
OAuth 2.0
Authentication
SOLID, YAGNI, KISS etc
Regular Expressions
GraphQL
Docker
C# (.NET)
Java (Grails, Spring, Play)
Go
Message Brokers
RabbitMQ
Apache Kafka
Caching
Storage
Memcached
Redis
Relational Databases
Oracle
PostgreSQL
MariaDB
MySQL
MSSQL
NoSQL Databases
Redis
MongoDB
Cassandra
RethinkDB
Couchbase
Solr
ElasticSearch
Sphinx
Search Engines
Up your Game further!
GOF Design Patterns
Architectural Patterns
Give DDD a shot
Learn different testing techniques

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MEAN Stack

“MEAN is an acronym for MongoDB, ExpressJS, AngularJS and Node.js.

MEAN is a user-friendly full-stack JavaScript framework ideal for building dynamic websites and applications”

MEAN Stack

MONGO DB

{name: mongo, type: DB}

EXPRESS JS

Web dev framework for Node JS

ANGULAR JS

Super Heroic Frontend Framework

NODE JS

Event based Concurrency Environment

MEAN Stack

MongoDB

MongoDB is an open source, document-oriented database designed with both scalability and developer agility in mind.

ExpressJS

Express.js is a Node.js web application server framework, designed for building single-page, multi-page, and hybrid web applications.

Angular

Angular is a structural framework for dynamic web apps.

NodeJS

Node.js is an open-source, cross-platform runtime environment for developing server-side web applications.

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2.1

Angular

ANGULARJS by Google

Client (Browser)

HTML

CSS

JavaScript

Angular

Single Page

Updates DOM

Handles Routing

Reactive user experience

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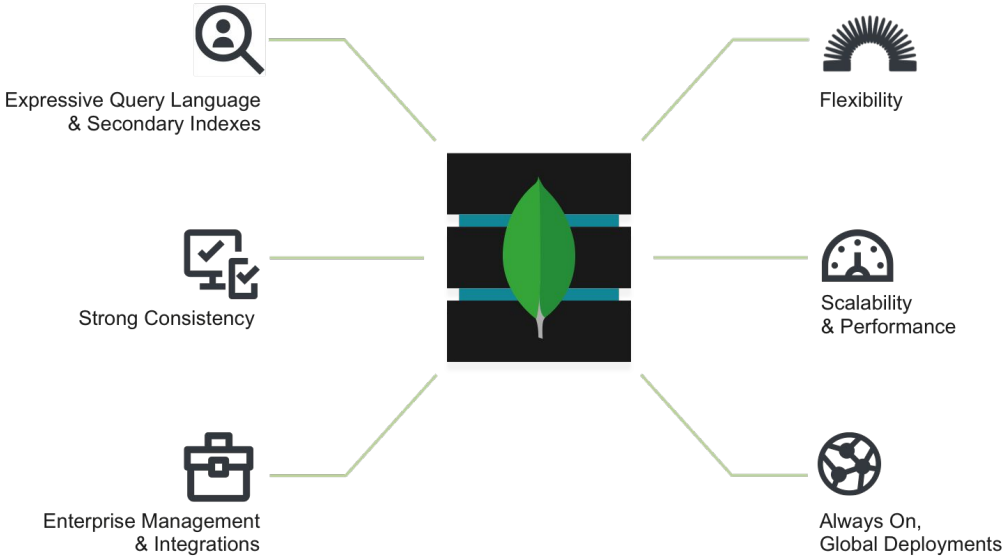
MongoDB

mongoDB®

- Flexible Schema Design.
- JSON Document Model.
- Aggregation Framework & MapReduce.
- Auto-Sharing for Horizontal Scalability.
- Full, Flexible Index Support & Rich Queries.



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mongoDB®

Launch server

Allows database operations

Launch client

Allows interacting with database

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MongoDB Terminology

MongoDB	***Relational DB***
Collection	Table
Document	Row
Index	Index
Embedded Document	Join
Reference	Foreign Key

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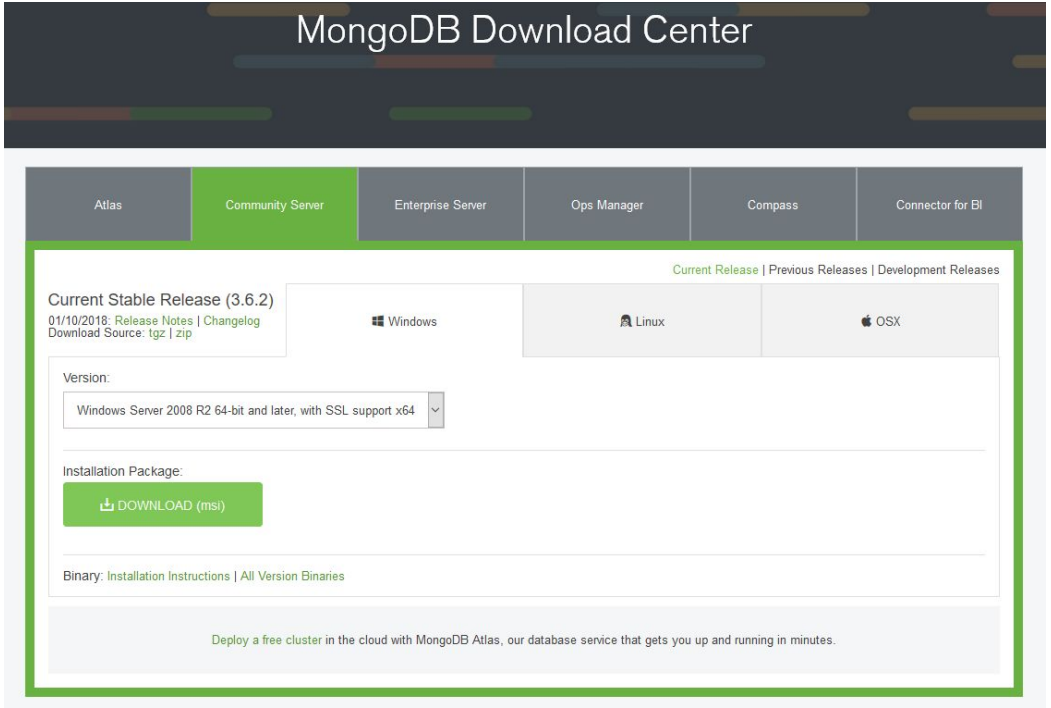
MongoDB Setup

MongoDB Community Server:

https://www.mongodb.com/download-center?jmp=nav#community

Documentation:

https://docs.mongodb.com/manual/installation/



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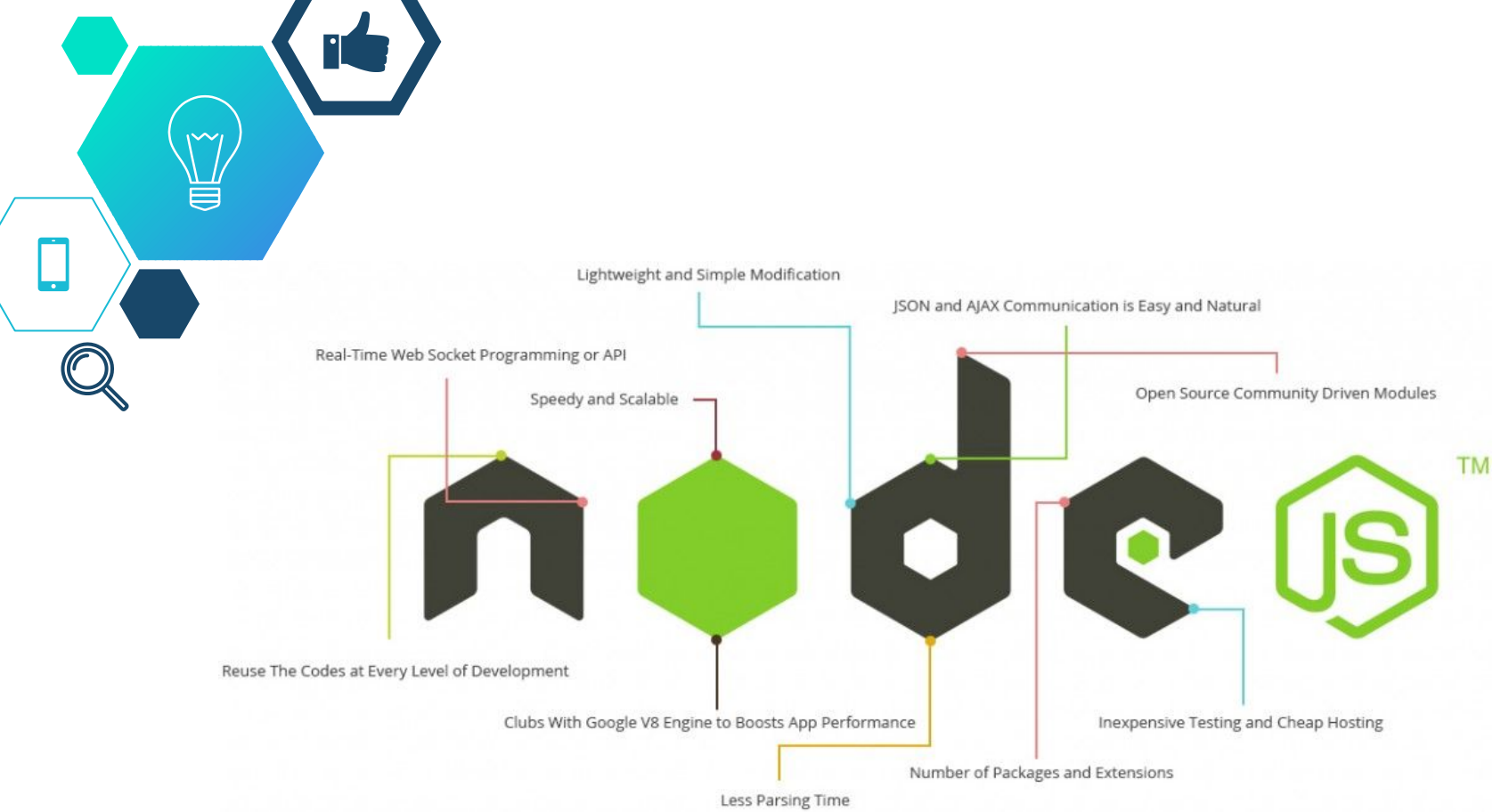
Node.js


Lightweight and Simple Modification
JSON and AJAX Communication is Easy and Natural
Real-Time Web Socket Programming or API
Open Source Community Driven Modules
Speedy and Scalable
TM
Reuse The Codes at Every Level of Development
Clubs With Google V8 Engine to Boosts App Performance
Inexpensive Testing and Cheap Hosting
Number of Packages and Extensions
Less Parsing Time

Client (Browser)

HTML

CSS

JavaScript

Server

JavaScript
NodeJS

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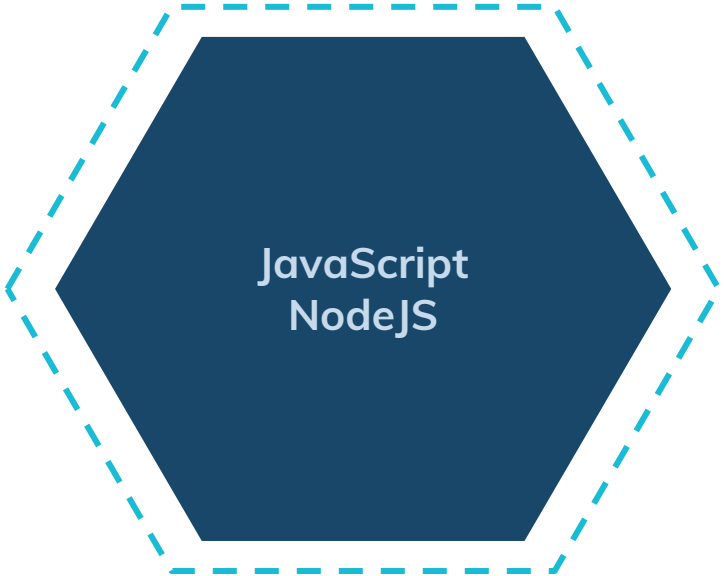
Server

- Handle Requests
- Parse Data
- Generate & Send Responses
- File Operations



NodeJS Setup

NodeJS current:

https://nodejs.org/en/

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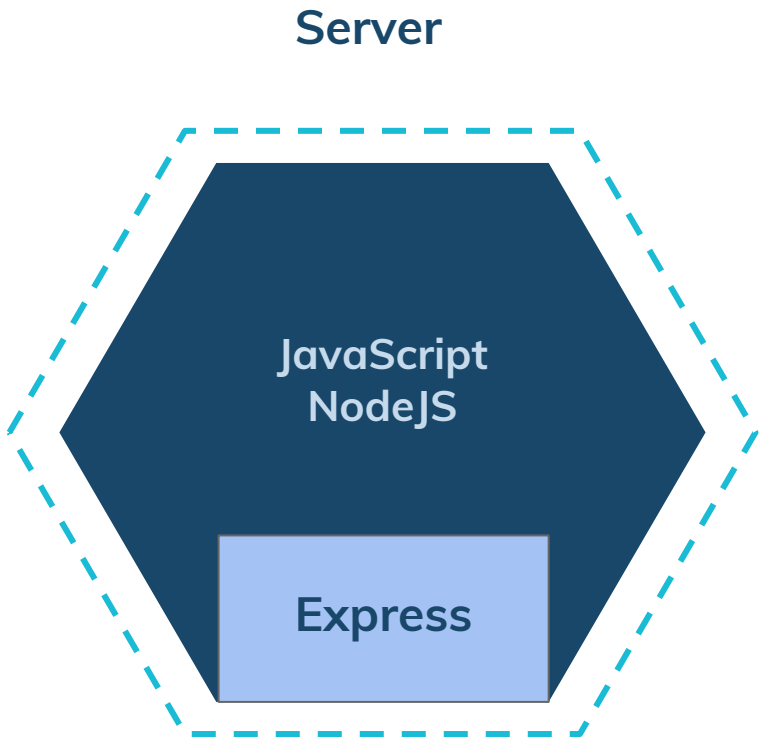
Express

Express JS

Express is a web application framework for Node.js. It is designed for building web applications and APIs.

- Handle Requests
- Parse Data
- Generate & Send Responses
- File Operations

Express makes things easier



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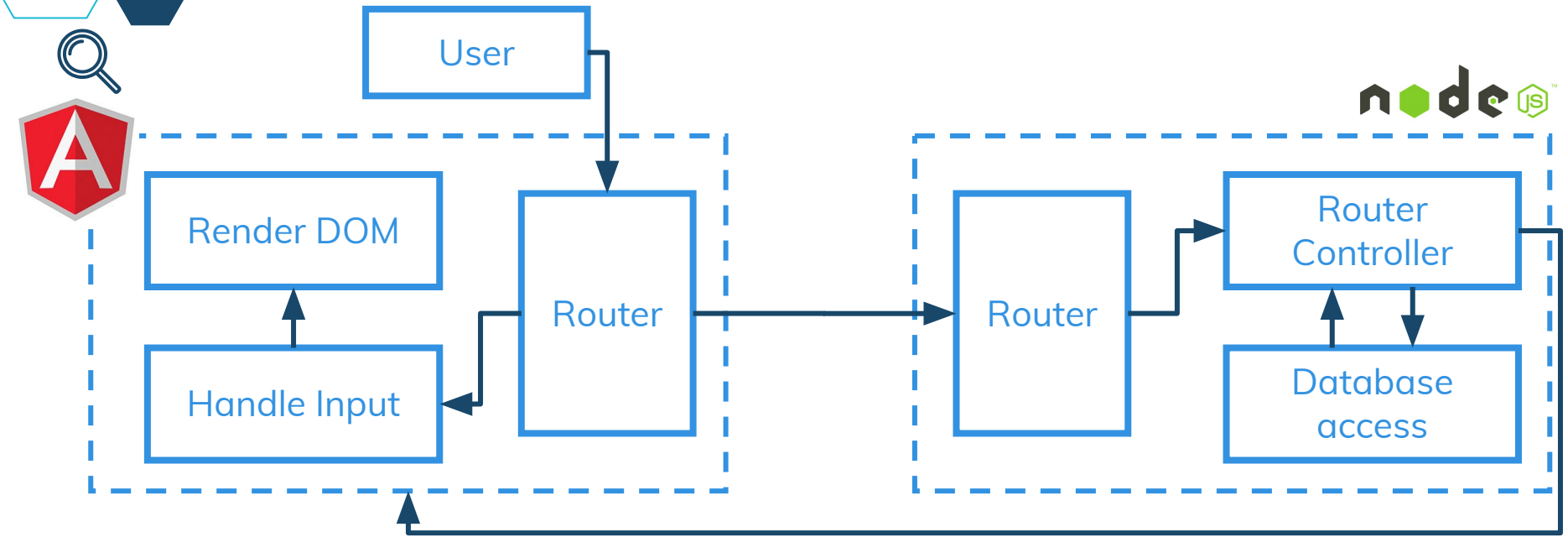
Connecting Frontend with Backend

Connection of Frontend with Backend



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CRUD

C R U D

Create

Read

Update

Delete

Post

Get

Put

Delete

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Thanks!

Any questions?

You can find me at:

- Github: https://github.com/MoAgamia/SE-Boot-Camp

References

- https://www.codeproject.com/Articles/1052703/MEAN-Stack-Beginner-Tutorial
- https://www.udemy.com/angular-2-and-nodejs-the-practical-guide
- https://expressjs.com/
- https://nodejs.org/en/
- https://www.youtube.com/watch?v=PH_5lXxSpww
- https://www.youtube.com/watch?v=wtlvu085uU0
- https://github.com/kamranahmedse/developer-roadmap