Bahasa Pemrograman dan Framework Pengembangan Aplikasi Web

Husni

The Evolution Of Computer Programming Languages

Hex   Assembler   C   Fortran   C++   Java   Ruby

Top 15 programming languages in 2015

- JavaScript
- Java
- Python
- CSS
- PHP
- Ruby
- C++
- C
- Shell
- C#
- Objective C
- R
- VimL
- Go
- Perl

Websites	Popularity (unique visitors per month)[1]	Front-end (Client-side)	Back-end (Server-side)	Database	Notes
Google.com[2]	1,200,000,000	JavaScript	C, C++, Go,[3] Java, Python	BigTable,[4] MariaDB[5]	The most used search engine in the world
YouTube.com	1,100,000,000	JavaScript	C/C++, Python, Java,[6] Go[7]	BigTable, MariaDB[5][8]	The most visited video sharing site
Facebook.com	900,000,000	JavaScript	Hack, PHP (HHVM), Python, C++, Java, Erlang, D,[9] Xhp,[10] Haskell[11]	MySQL,[12] HBase Cassandra[13]	The most visited social networking site
Yahoo	750,000,000	JavaScript	JavaScript,[14] PHP	MySQL, PostgreSQL[15]	Yahoo is presently[when?] transitioning to Node.js[14]
Amazon.com	500,000,000	JavaScript	Java, C++, Perl[16]	Oracle Database[17]	Popular internet shopping site
Wikipedia.org	475,000,000	JavaScript	PHP, Hack	MySQL[citation needed], MariaDB[18]	"MediaWiki" is programmed in PHP, runs on HHVM; free online encyclopedia
Twitter.com	290,000,000	JavaScript	C++, Java, Scala, Ruby on Rails[19]	MySQL[20]	140 characters social network
Bing	285,000,000	JavaScript	ASP.NET	Microsoft SQL Server	
eBay.com	285,000,000	JavaScript	Java,[21] JavaScript[22]	Oracle Database	Online auction house
MSN.com	280,000,000	JavaScript	ASP.NET	Microsoft SQL Server	An email client, for simple use. Mostly known as "messenger".
Microsoft	270,000,000	JavaScript	ASP.NET	Microsoft SQL Server	Software company
Linkedin.com	260,000,000	JavaScript	Java, JavaScript,[23] Scala	Voldemort[24]	World's largest professional network
Pinterest	250,000,000	JavaScript	Django[25] (a Python framework), Erlang	MySQL, Redis[26]	
Ask.com	245,000,000				
WordPress.com	240,000,000	JavaScript	PHP, JavaScript[27] (Node.js)	MySQL	

Back-end (Server-side) in most popular websites

Websites	ASP.NET	C	C++	D	Erlang	Go	Hack	Java	JavaScript	Perl	PHP	Python	Ruby	Scala	Xhp
Google.com	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	Yes	No	No	No
YouTube.com	No	Yes	Yes	No	No	Yes	No	Yes	No	No	No	Yes	No	No	No
Facebook.com	No	No	Yes	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes
Yahoo	No	No	No	No	No	No	No	No	Yes	No	Yes	No	No	No	No
Amazon.com	No	No	Yes	No	No	No	No	Yes	No	Yes	No	No	No	No	No
Wikipedia.org	No	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No
Twitter.com	No	No	Yes	No	No	No	No	Yes	No	No	No	No	Yes	Yes	No
Bing	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
eBay.com	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	No
MSN.com	Yes	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Microsoft															
Linkedin.com	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No
Pinterest											Yes				
Ask.com															
WordPress.com	No	No	No	No	No	No	No	No	Yes	No	Yes	No	No	No	No

Top 10 Programming Languages for Web Development

- **1: JavaScript**
- **2: Java**
- **3: [PHP](PHP)**
- **4: Python**
- **5: Ruby**

- **6: Perl**
- **7: [C](C)**
- **8: [C++](C++)**
- **9: [C#](C#)**
- **10: [SQL](SQL)**

Top 5 Programming Languages Used In Web Development

- 1. **HTML5**
- 2. **Javascript**
- 3. **PHP**
- 4. **Java**
- 5. **Python**

Programming Language vs High Traffic Websites

PHP	14.2
.NET	23.2
JAVA	83.3
JavaScript	69.4
Python and Others	37.6

Percentage of Websites with High Traffic
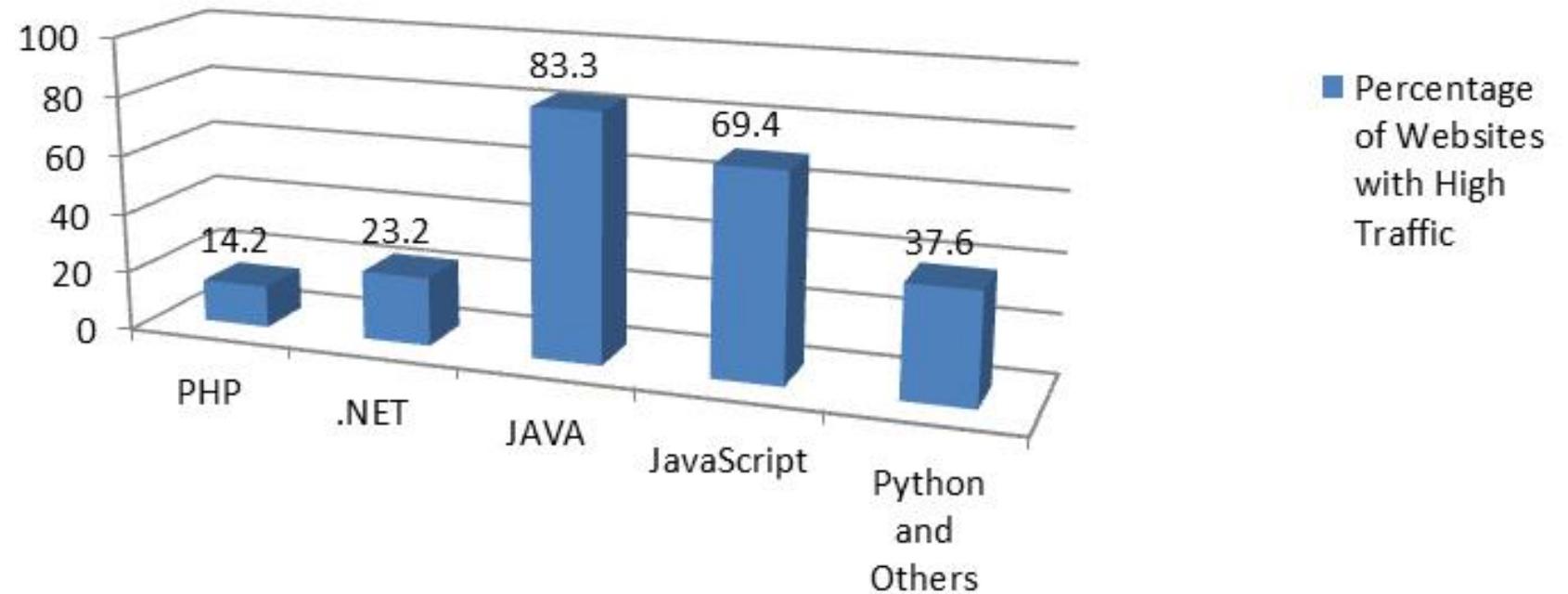
Languages ranked by number of programming jobs

Data from Indeed.com 2016

Language	Jobs
SQL	~50,000
JAVA	~43,000
JAVASCRIPT	~40,000
C#	~24,000
PYTHON	~14,000
C++	~13,000
PHP	~9,000
IOS	~8,000
RUBY/RAILS	~3,000

0   10,000   20,000   30,000   40,000   50,000   60,000
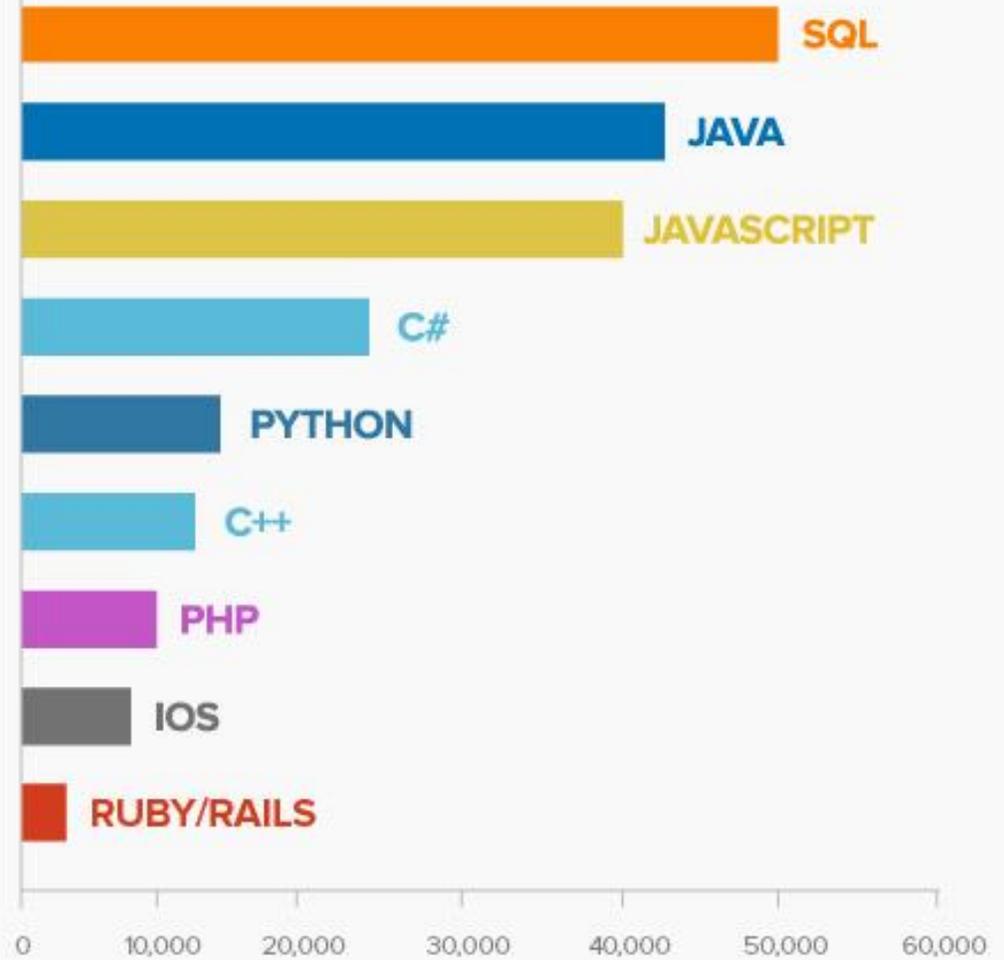
10 trends and predictions for the web development world in 2015

1. Motion UI
2. New challenges for responsive design
3. Foundation for Apps
4. The rise of Node.js
5. Web UI components
6. New JavaScript features
7. Web API
8. Single page applications
9. The rise of Instagram
10. The Internet of Things

Framework?

JavaScript Frameworks for Web Developers 2016

- ECMAScript 6 was finally standardized and published, and most popular compilers and web browsers are working hard to adapt to all the new changes and regulations

- JavaScript is growing fast, it's becoming more native, but most importantly — it's becoming more stable.

  - **Reactive web development** is all about responsiveness, resilience, scalability and accuracy. We want to build applications and software that is responsive to the real-time demands that are being imposed on it, we also want our systems to be resilient against peak performance, or the kind of demands that come from unknown sources, and we want our projects to be scalable so that when the time comes, we can easily upgrade or downgrade our software for optimal performance

  - **MVC** is a software approach that separates application logic from presentation. In practice, it permits your web pages to contain minimal scripting since the presentation is separate from the PHP scripting. MVC frameworks that we will be taking a look at in a moment have progressed extensively over the years, and majority provide features that enable seamless mobile application development as well.

Reactive JavaScript Frameworks

1. Mobservable
2. Omniscient
3. Ractive.js
4. Mercury
5. WebRx
6. Deku
7. Riot.js
8. Mithril
9. Vue.js

MVC JavaScript Frameworks

1. Angular.js
2. jQuery
3. React
4. Socket
5. Polymer
6. Node.js
7. Meteor

8. D3.js
9. Ember
10. Aurelia
11. Knockout
12. Keystone
13. Backbone
14. Stapes

CSS3 Frameworks for Web Development 2016

- Cascading Style Sheets (CSS) is what gives the web its cozy looks. Writing plain HTML is a thing of a very distant past, and the language itself (CSS) has advanced so much in the recent years that it's impossible to imagine what the web would look like without it. In the early days, much of webs styling could be achieved through HTML usage, while nowadays both HTML5 and CSS3 work closely together to achieve startling results in web design, application design, and in some cases even software design.

CSS3 Frameworks for Web Development 2016

1. Material Framework
2. Leaf
3. Materialize
4. Essence
5. Bootstrap
6. Semantic UI
7. Foundation
8. Cascade
9. Baseguide
10. Siimple
11. Responsive Cat
12. Sculpt
13. Turret
14. Concise CSS
15. Blueprint
16. Uikit
17. Modest Grid
18. Schema
19. Metro UI
20. Responsive Grid System
21. YAML

Choosing the Right CSS Framework for Your Project

- CSS is an evolving language, and keeping up to date with the latest revelations can sometimes prove to be rather difficult. A framework helps to bridge the gap between having to write each and every single query yourself, and having a library to do it for you. CSS frameworks fall under many categories (as you saw in the post itself), such as typography, CSS reset, UI elements, global styles, and responsive grids. All of which can be used separately or combined for a rapid website building environment, or prototyping if you prefer.

- CSS frameworks are also great at solving problems between cross-browser and cross-device compatibility; ensuring that your websites will look equally good (as well as function equally good) on any kind of device that's trying to access it. Most if not all of today's newly built CSS frameworks guarantee an inclusion of responsive design patterns for rapid development, and when it comes to developing within a team environment — CSS frameworks allow a number of developers to work on a project together, at a much quicker pace; which then allows to save up some development time, and ultimately save budget as well.

- Building your own CSS framework is also a possibility, not only will that propel your learning experience with the language, you will have a much more clear idea how other frameworks are being built and structured.

PHP Frameworks for 2016 To Become a Master Developer

- Top and most common reasons why a developer like a PHP framework. and why PHP framework is the easiest way.
  - Less code and faster development
  - Great Community support
  - Performance Tools
  - Suitable for teamwork
  - MVC pattern
  - Utilities and libraries
  - proper code and file organization
  - Form validation
  - Database abstraction
  - Email, Calender and pagination

1. PhalconPHP

- PhalconPHP is the fastest framework & become a master developer., Full-stack framework for PHP written as a C-extension, optimized for high performance. You do not need to learn c because is exposed as PHP classes ready for you to use.

- Suited for Intermediates

- Features
    - Learning curve is so easy
    - Easy to use of ORM in PhalconPHP
    - Direct Injection that facilitates easy-to-create software which tests end to end applications.
    - Neat and clean intuitive API with solid code written on powerful design patterns

2. Laravel

- Laravel is the best among the PHP frameworks, You can see the some of the best features of Laravel that increase your projects skills. The Projects which needs to be developed fast and with ease with very flexibility – I would go for Laravel.

- Most Suited for Experts

- Features
  - Laravel features including RESTful routing, native PHP or light weight tempting engine and many more features.
  - Inherent Database Version control
  - Built-in unit testing and simply readable impressive syntax
  - Larger Community catering to thousands of programming geeks and application developers
  - Required Skills for LARAVEl – PHP and OOP knowledge Latest Stable Version – 4.1

3. Symfony

- Symfony is Amazing PHP framework for creating a websites and web applications and most suited framework for intermediate. It has been built on tops of Symfony components such as Drupal, EZ Publish, and phpBB. With over 300,000 developers on board.

- Features.
  - Stable, sustainable and flexible 3 in 1 framework that is quickly adaptable to all your needs
  - Symfony is a set of reusable PHP components
  - Open Source PHP framework for developing web applications.
  - Easy to install and configure on most platforms
  - Database engine-independent
  - Simple to use, in most cases, but still flexible enough to adapt to complex cases
  - Based on the premise of convention over configuration–the developer needs to configure only the unconventional
  - Compliant with most web best practices and design patterns
  - Enterprise-ready–adaptable to existing information technology
  - Stable enough for long term projects
  - Very easy code, with phpDocumentor comments
  - Allowing for integration for other vendor libraries

4. Yii Framework

- Yii is a modern PHP framework best for creating web developing and APIs. Yii is a free, open-source Web application development framework so easy to use. It's written in PHP5 that promotes clean, DRY design and encourages rapid development. IT helps to the developer to ensure an extremely efficient, extensible, and maintainable end product.

- Features
  - Yii adopts the proven MVC architecture, which allows for clean separation of concerns
  - Yii allows developers to model database data in terms of objects and avoid the tedium and complexity of writing repetitive SQL statements
  - With the help of Yii, collecting input extremely easy and safe
  - Zero configuration required to let the task easier for you
  - Thorough maintenance

5. CakePHP

- If you're a web developer who's in need of a simple and an elegant toolkit for creating feature-loaded and visually impressive web applications, then CakePHP is the framework for you.

- Most Suited for – Beginners

- Features
  - MVC Pattern – Model support data handling, with the model class you can insert, update, delete or read the data from the database.
  - ORM features, converting data between incompatible type systems in databases and object-oriented programming languages
  - Perfectly suited for commercial applications
  - Proper class inheritance
  - Easily extend with Components, Helpers, Behaviours, and Plug-ins

Python Frameworks for Web Development

- Python is a dynamic, object-oriented language.

- It is originally designed as an object-oriented language and is added some more advanced features in the

- later. In addition to the design purpose of language itself, the Python standard library is worth praising, and it even brings its own server.

- In other aspects, Python has enough free data library, free Web page template system, and the library interacting with the Web server, which can be designed to your Web application.

Python Frameworks for Web Development

1. CubicWeb
2. Zope2
3. Web2py
4. TurboGears
5. Pylons
6. Grok
7. Web.py
8. Pyramid
9. CherryPy
10. Flask
11. dJango

The Languages & Frameworks You Should Learn In 2016 (Penjelasan Jawaban UTS)

- A lot happened in the software development world in 2015.

- There were new releases of popular programming languages, new versions of important frameworks and new tools.

- You will find a short list of the new releases that we think are the most important below, together with suggestions for the things we believe would be a great investment of your time to learn in 2016.

The Trends

- **Shift from the backend to the frontend**
  - In the last few years, there has been a trend towards shifting the business logic of web apps from the backend to the frontend, with the backend being delegated to a simple API. This makes the choice of a frontend framework that much more important.
- **Quick browsers releases**
  - Another significant advancement for the web as a platform in 2015 was the release of the Edge web browser. This is the successor of Internet Explorer which has an updated interface and faster performance. What sets it apart from IE is that it adopts the same quick release schedule that Firefox and Chrome follow. This is going to move the JavaScript community forward as updates to JavaScript and web standards will be available in weeks rather than years everywhere.
- **The death of Flash**
  - It has finally happened! YouTube [switched to HTML5](#) this year, ditching their legacy Flash player. Firefox started blocking the Flash plugin by default. Even the powerful Adobe Flash creation suite was renamed to Adobe Animate and defaults to HTML5 exports. This leaves the doors wide open for the web platform to shine.

Languages & Platforms

- **Python 3.5** was released this year with a lot of [new features](#) like Asyncio, which gives you a node.js-like event loop, and type hints. As a whole Python 3 is finally gaining popularity and we heavily recommend it over the older Python 2. Nearly all libraries are available for Python 3 and now is a good time to upgrade your legacy code base.

- **PHP 7** is a major new version that fixes a number of issues and brings new features and speed (see an [overview here](#)). PHP 7 is around twice as fast as PHP 5.6, which will have a big impact on large codebases and CMS systems like WordPress and Drupal. We recommend [PHP The Right Way](#), which was updated for version 7. And if you need even more speed and don't mind switching to an alternative runtime, check out [HHVM](#), which Facebook uses and develops to run their website.

- **JavaScript** also saw updates in the form of the ES2015 standard (used to be known as ES6). It brings us exciting new [features and additions to the language](#). Thanks to most browsers adopting quick release schedules, support for ES2015 is great, and there is [Babel.js](#) which will help you bring your code to older browsers.

- Node.js saw a lot of changes this year, with the community splitting between Node.js and io.js, and then joining forces again. As a result we now have an actively maintained project with lots of contributors and two versions of Node – a solid LTS (long term support) release, which gives stability for long lived projects and large companies, and a non-lts version which is quick to add new JavaScript features.

- Swift 2 was released earlier this year. This is Apple's vision for a modern programming language that eases the development of apps on iOS and OS X. Swift is open source and has already been ported on Linux. So, we are possible to build backends and server side software with it.

- Go 1.5 was released a few months ago, and brough major architectural changes. In 2015 it has grown in popularity and has been adopted in leading startups and open source projects. The language itself is relatively simple, so learning it will be a weekend well spent.

- TypeScript is a staticly typed language which compiles to JavaScript. It is developed by Microsoft and has perfect integration with Visual Studio and the open source Visual Studio Code editors. It will soon be quite popular, as the upcoming Angular 2 is written in it.

Learn these: Python 3, PHP 7, ES2015(JavaScript), Node.js

- For the adventurous, you can try out one the functional languages like [Haskell](#) or [Clojure](#). There are also interesting high performance languages like [Rust](#) and [Elixir](#). If you are looking for a programming job, career languages like Java (which has some [nice features](#) in its 8th version) and C# (which thanks to [Visual Studio Code](#) and [.net core](#) can be run and developed cross platform) would be a good investment of your time in 2016.

JavaScript Frameworks

- JavaScript is a very important piece of the web development stack. There were two new standards this year – Service Workers and Web Assembly, which shape how web apps are developed from now on

- Angular.js has become the go-to JavaScript framework for enterprises and large companies

- React. Facebook also released React Native which is a framework for building mobile apps for Android and iOS, which combines a native frontend with React running in a background JavaScript thread

- Polymer is based around Web Components, which is a standard for packaging HTML, JS and CSS into isolated widgets that can be imported into your web apps. Web Components are only supported in Chrome and Opera at the moment, but Polymer makes them available everywhere.

- Ember 2 brings modularity and removes deprecated features and optimizes the codebase. Ember follows semantic versioning and maintainers of the framework are careful to make updating as easy as possible. If you need a framework with stability and easy migration to new versions, you can give Ember a try.

- Vue.js is a new library that offers reactive components for building user interfaces. It supports data binding, modular components and composition. It is similar to React, but doesn't use a virtual DOM and works only in the browser. In the short time that it has existed, Vue has gathered a very active community around it and is establishing itself as a pragmatic tool for building web interfaces.

- **Learn one of these:** Angular 2, React, Ember.js, Vue.js, Polymer, Web Components, Service Workers

Frontend

- Bootstrap has become even more popular in the last year and is turning into a web development standard. Version 4 will come out in the next few months, which brings flexbox support and integrates SASS. It promises a smooth transition from V3 (unlike what we saw with v2 to v3 a couple of years ago), so you can feel confident that what you learn about Bootstrap 3 will be applicable to version 4.

- Foundation is another frontend framework that is an alternative to Bootstrap. Version 6 was released earlier this year, which focuses on modularity so that you can include only the pieces that you need for a faster load time.

- MDL is an official framework by Google for building material design web apps. It was released earlier this year and has a similar goal to Google's other framework – Polymer, but is much easier to get started with. We have a wonderful overview which compares MDL with Bootstrap.

- CSS preprocessors continue improving. Less and SASS are the two most popular at the moment, with mostly comparable feature sets. However, the news that Bootstrap 4 is migrating over to SASS gives it a slight edge over Less as the preprocessor to learn in 2016. Also, there is the newer PostCSS tool that is gaining mind share, but we recommend it only for devs which already have experience with preprocessors.

- **Learn one or more of these:** Bootstrap, MDL, Foundation, SASS, LESS, PostCSS

Backend

- There has been a clear trend in web development over the last few years. More and more of our apps' logic is shifted to the frontend, and the backend is only treated as an API. However there is still room for classic HTML-generating web apps, which is why we think that learning a classic full stack framework is still important.

- **Depending on which language you prefer, you have plenty of choice. For PHP you have Symfony, Zend,Laravel (and Lumen, its new lightweight alternative for APIs), Slim and more. For Python – Django and Flask. For Ruby – Rails and Sinatra. For Java – Play and Spark. For Node.js you have Express, Hapi and Sails.js, and for Go you have Revel.**

- AWS Lambda was released last year, but the concept is now established and ready for production. This is a service which eliminates backend servers entirely and is infinitely scaleable. You can define functions which are called on specific conditions or when routes of your API are visited. This means that you can have an entirely serverless backend which you don't have to think about.

- Another trend are static site generators like Jekyll and Octopress (see a complete list here). These tools take a number of source files like text and images, and create an entire website with prerendered HTML pages. Developers, who would normally set up a WordPress blog with a database and an admin area, now prefer to generate their HTML pages ahead of time and only upload a static version of their site. This has the benefits of increased security (no backend to hack and database to manage) and fantastic performance. Combined with CDNs like MaxCDN and CloudFlare clients can request a page of the website and receive it from a server nearby, greatly reducing latency.

- **Learn one of these:** A full stack backend framework, AWS Lambda, A static site generator.

CMS

- We've included two of the most popular CMS systems here. Both are written in PHP and are easy to deploy and get started with. They enjoy big speedups from the new PHP 7 release.

- In recent years [WordPress](#) has become much more than a simple blogging platform. It is a fully fledged CMS/Framework with plugins that make it possible to run any kind of website. High quality WordPress themes are a big market, and lots of freelancers make their living by developing for WordPress. With projects like [WP-API](#) you can use WordPress as a REST API backend.

- [Drupal 8](#) was released this year. It is a full rewrite that focuses on modern development practices. It makes use of Symfony 2 components and Composer packages and the Twig templating engine. Millions of websites run Drupal, and it is a good choice for content heavy portals.

Databases

- This year the web development community lost some of its enthusiasm for NoSQL databases, and instead returned to relational databases like Postgres and MySQL. Notable exceptions to this trend are RethinkDBand Redis which gained mind share, and we recommend that you try them out in 2016.

- Postgres is a popular relational database engine which sees a lot of development activity and is constantly improved with new features. Version 9.5 is expected soon. It will bring better support for JSONB columns for holding schema-less data (replacing any need for a separate NoSQL database) and the long awaited upsert operation, which simplifies INSERT-or-UPDATE queries. You might want to look into it, once it is released in 2016.

- MySQL is the the most popular open source database system and is installed on most hosting providers out there. With version 5.7, MySQL also offers JSON columns for storing schema-less data. If you are just starting out with backend development, you will most likely be looking at connecting to a MySQL database that your hosting provider has set up for you. It is probably going to be an older version, so you might not be able to try out the JSON type. MySQL is included in popular packages like XAMPP and MAMP so it is easy to get started with.

- **Learn one of these:** Redis, RethinkDB, MySQL/MariaDB, PostgreSQL

Mobile Apps

- Mobile platforms are always evolving and smartphone hardware now rivals low end laptops in performance. This is great news for hybrid mobile frameworks, as mobile apps built using web technologies can now offer a smooth, native-like experience.

- We have a nice [overview of hybrid mobile frameworks](#) that you might want to check out. You have the popular [Ionic framework](#) and [Meteor](#) which recently had its 1.0 version and is also suitable for mobile app development. Facebook launched [React Native](#), which runs React components in a background JavaScript thread and updates a native UI, allowing you to have mostly identical code for both iOS and Android.

- **Learn one of these:** Ionic, React Native, Meteor

Editors and Tools

- The Atom editor reached version 1.0 this year. It is a free and powerful code editor that is built using web technologies. It has lots of packages available for it and a large community. It offers smart autocompletion and integrates with plugins for code refactoring and linting. Not to mention that it has lots of beautiful themes to chose from, and you can customize it by writing CoffeeScript and CSS. Facebook has used this extensibility and launched the Nuclide editor.

- Microsoft surprised everybody when they released their Visual Studio Code editor earlier this year. It is a lightweight IDE that supports a number of languages and runs on Windows, Linux and OS X. It offers the powerful IntelliSense code inspection feature and integrates a debugger for ASP.Net and Node.js.

- NPM, the package manager of Node.js, has exploded in popularity and has become the packaging standard for frontend and node developers. This is the easiest way to manage the JavaScript dependencies for your project and getting started with it is easy.

- Even for a solo developer Git is a necessity these days. Its serverless model allows you to turn any folder into a version controlled repository, which you can then push to Bitbucket or Github, and sync across computers. If you haven't used Git yet, we recommend that you add it to your list of things to learn in 2016.

- **Learn one of these:** Atom, Visual Studio Code, NPM, Git

Questions?