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WEB DEVELOPER ROADMAP FULL GUIDE 2020

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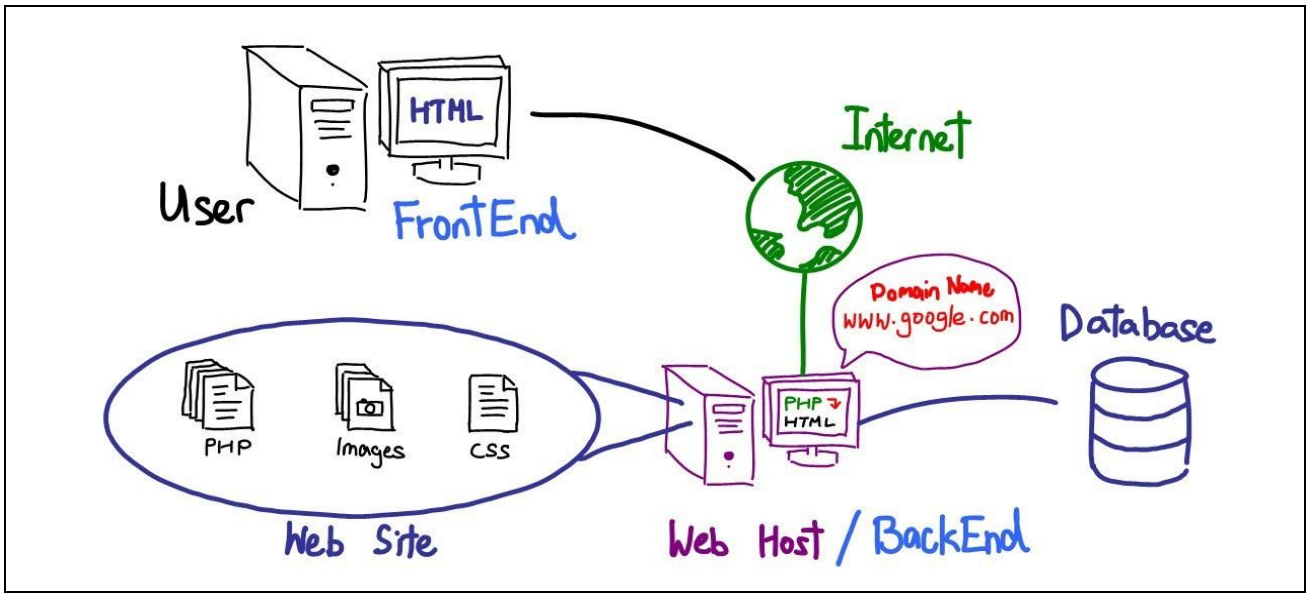
Web Developer Road Map



What is the role of a web developer?

A **Web Developer** is responsible for the coding, design and layout of a **website** according to its client requirement.

What Types Of Web Developers Are There?

Front-End Developer

A front-end developer is someone who takes a client or design team's website design and writes the code needed to implement it on the web. A decent front-end web developer will be fluent in at least three things– **HTML, CSS, and JavaScript.**

Back-End Developer

While it may seem like front-end developers have a difficult job making sure that a website looks great, works well, and contains the correct content, back-end developers have it much worse. While front-end developers are responsible for client-side programming, **back-end developers** have to deal with the **server-side.**

Full-Stack Developer

If you are looking for a quick, simple answer to the question "*What is a web developer?"*, then a **full-stack developer** is probably the closest thing that you're going to get. Full-stack developers understand both front and back-end strategies and processes, which means that they are perfectly positioned to oversee the entire process.

Who are Web Designer and Web Developer?

Web Designer:

The web designer is the person or group of people who are responsible for the creation of the website concept. They might decide that it needs to be a certain color, with certain content and pages. They may do things like creating infographics, logos, and videos, and they tell the developer where these things have to be put on the web page. However, they don't take part in the construction of the website or the underlying code.

Web Developer:

The web developer takes the designer's concepts and creates the code that is used to turn them into a website and bring them to people like you and me. It is important to realize that, although the web developer and the designer may be the same person – there is almost always some overlap between design and front-end development – the roles are different.

Recommended learning for either path

1. Git

One of the most popular version control system. It's just not possible to live without Git anymore. You can check out The Git Complete Guide on TeachMeBro.com to start with.

2. SSH (especially for backend developers)

It allows you to remote login to another host.

3. HTTP / HTTPS

The HTTP protocol is the backbone of web and a good knowledge of both HTTP and HTTPS is mandatory for a web developer

4. Basic Terminal Usage Linux Command line Basics

Not just a web developer but for any programmer, the Linux command line is very very important and I strongly recommend you to spend some time to learn them.

5. GitHub

There is no doubt that every programmer should know Git and Github as they are the standard in terms of version control and code repository. If you want to learn and master Git and Github, you can check these free Git course on TeachMebro.

How to Become a Frontend Developer

1. Learn the Basics of HTML, CSS, and Javascript

These are the nuts and bolts of all website development that you'll work with daily if you decide to build websites for a living**.**

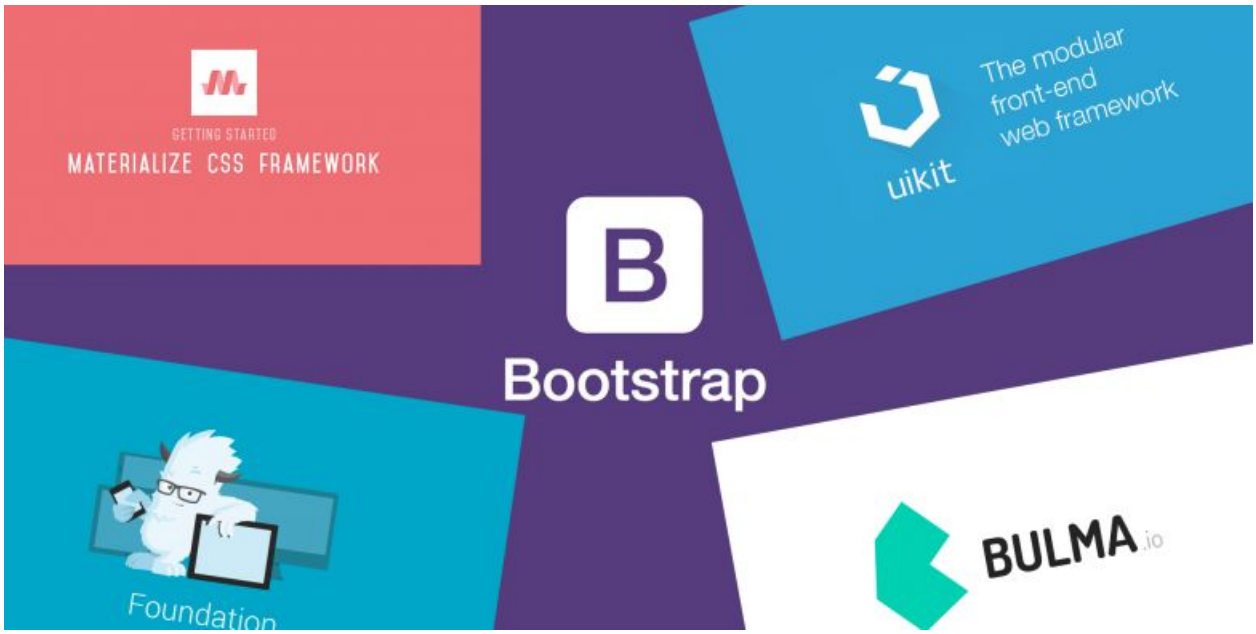
- HTML dictates the structure
- CSS will make it look pretty
- Javascript will make it function

HTML: HTML is the standard markup language for Web pages. With HTML you can create your own Website. HTML is easy to learn - You will enjoy it!

CSS: CSS is a language that describes the style of an HTML document. CSS describes how HTML elements should be displayed.

Javascript: JavaScript is the programming language of HTML and the Web. JavaScript is easy to learn.

Learn CSS Framework



How do CSS frameworks work?

CSS framework gives web developers a basic structure, which includes grid, interactive UI patterns, web typography, tooltips, buttons, form elements, icons. This structure helps web developers to start quickly and efficiently when they are designing a website or web applications.

That means developers can free themselves from starting everything from scratch. **CSS** framework will create a solid foundation for them. Besides, developers can also reuse code in all projects they work on.

1. Bootstrap - The most widely used free and open-source CSS framework

Bootstrap is one of the most popular CSS Frameworks. The current version of this framework is Bootstrap 4, which was released in 2018. Many significant features were introduced in this release, such as new color schemes, new modifiers, new utility classes, etc.

2. Foundation - The most advanced responsive front-end framework in the world

Foundation and **Bootstrap** are both the widely used CSS frameworks. But Foundation is a way more sophisticated framework. It is very flexible and easily customizable.

It is a useful tool to create responsive websites and web apps, especially for the enterprise. Facebook, eBay, Mozilla, Adobe, HP, Cisco, and Disney use Foundation in their products.

3. Bulma - A free, open-source CSS framework based on Flexbox

Bulma is a free and open-source CSS framework based on the Flexbox layout model. It is lightweight, responsive, pure-CSS, and mobile-first.

All these features made Bulma one of the most popular CSS frameworks along with Bootstrap and Foundation. Bulma has more than 150 000 users, more than the Foundation.

4. Materialize CSS - A modern responsive front-end framework based on Material Design

Materialize CSS is a responsive front-end framework created by Google in 2014. It's the right solution for anyone who wants to design websites or Android web apps because it comes with ready-to-use classes and components. You can quickly get started using its starter templates.

5. UI kit - A lightweight and modular front-end framework for creating fast and powerful web interfaces

UI Kit is a lightweight CSS and web UI design framework, which offers almost all the features of other frameworks.

You can create simple, clean, and modular web interfaces with its **SVG** icons set, many components, responsiveness, unified styles, and customization options. Besides, you can also design complex flexbox-based layouts with UI Kit using plain HTML.

Get to Know UI and UX

UI (User Interface) and UX (User Experience) are the basics of user experience design.

Most developers aren't design experts – these are two different realms. You won't need to be a design rockstar.

It's still important to note that by learning the fundamentals of user experience design, you can better understand how a website is supposed to work. That will keep more users on the site, help them find what they're looking for, and ultimately spend more money on that site.

Make Sure Your Site is Responsive

When you're creating your own website – **you should make sure your site is responsive.**

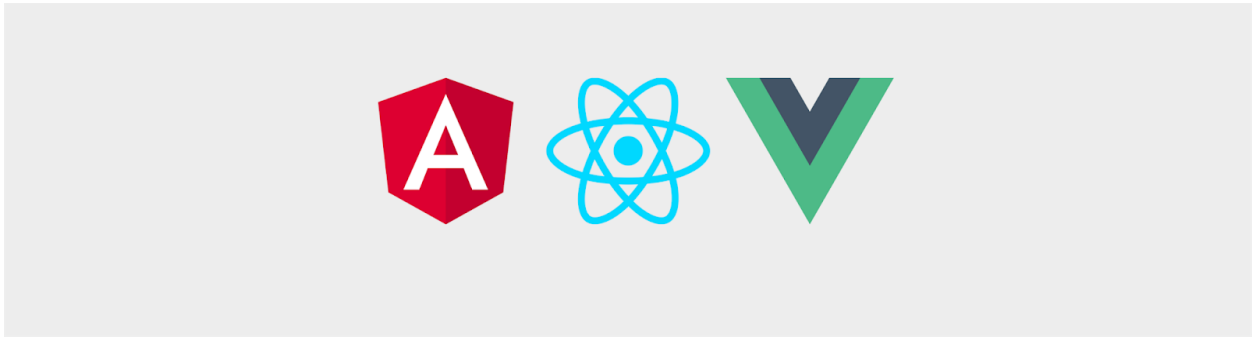
Responsive means that the elements of the website adjust according to the screen size. This means that your website will look good whether the visitor is on a laptop or mobile device.

JQuery:

Also along with HTML, CSS, JS also learn **JQuery**. jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers.

Learn Frontend Framework

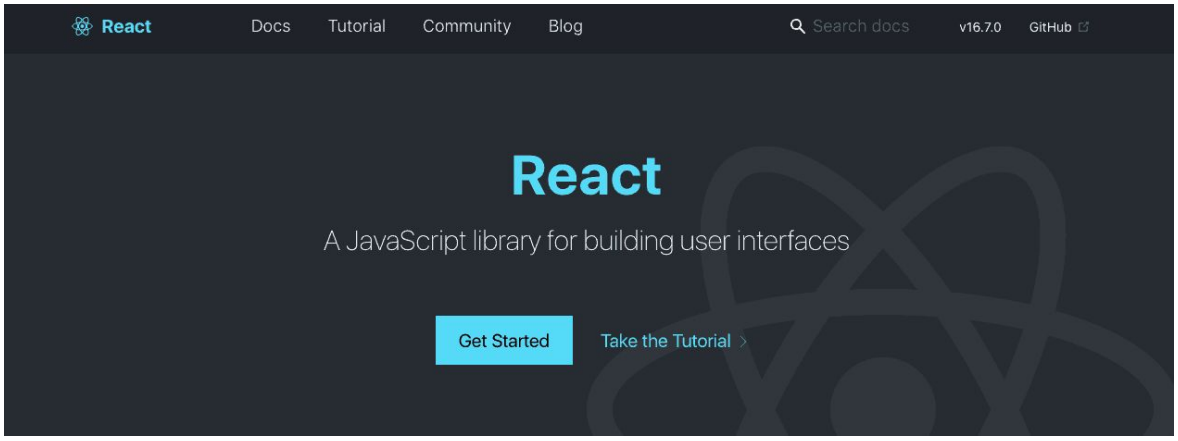
There are 3 top frameworks that makes our work very simple and easy but also comes with their headaches. **Angular**, **React** and **Vue** are the top 3 frameworks.



1. Angular

- Angular is developed and maintained by Google.
- Angular is a complete framework and has everything you might need for your project.
- Angular's created to be used alongside with Typescript.
- Companies that use Angular: Microsoft, Autodesk, MacDonald's, UPS, Cisco Solution Partner Program, AT&T, Apple, Adobe, GoPro, ProtonMail, Clarity Design System, Upwork, Freelancer, Udemy, YouTube, Paypal, Nike, Google, Telegram, Weather, iStockphoto, AWS, Crunchbase.

2. **React**



- React is a javascript library, which means it doesn't have all the functionalities or features Angular has, yet it's very powerful and does whatever Angular can do.
- Since React is a library, you might want to get to libraries or add-on packages whenever you need some new features.
- They do not have a state management, you need to get a third party state management tools such as Redux, Mobx, etc
- Easy to learn, thanks to its simple design, use of JSX (an HTML-like syntax) for templating, and highly detailed documentation.
- Developers spend more time writing modern JavaScript, and less time worrying about the framework-specific code.
- Extremely fast, courtesy of React's Virtual DOM implementation and various rendering optimizations.
- Great support for server-side rendering, making it a powerful framework for content-focused applications.
- Skills learned in React can be applied (often directly) to React Native development.
- **Companies that use React:** Facebook, Instagram, Netflix, New York Times, Yahoo, Khan Academy, Whatsapp, Codecademy, Dropbox, Airbnb, Asana, Atlassian, Intercom, Microsoft, Slack, Storybook, and many more.

3. Vue JS

- VueJS is a progressive javascript framework as stated on their website. It's not as powerful as Angular but has more features than React. Unlike React, VueJs has their own state management, Router and also has directives which helps to make Its usage simpler.

- **Empowered HTML.** This means that Vue.js has many similar characteristics with Angular and this can help to optimize HTML blocks handling with the use of different components.
- **Awesome integration.** Vue.js can be used for both building single-page applications and more difficult web interfaces of apps. The main thing is that smaller interactive parts can be easily integrated into the existing infrastructure with no negative effect on the entire system.
- **Large scaling.** Vue.js can help to develop pretty large reusable templates that can be made with no extra time allocated for that according to its simple structure.
- **Tiny size.** Vue.js can weigh around 20KB keeping its speed and flexibility that allows reaching much better performance in comparison to other frameworks.

Other Frameworks:

Backbone

Backbone.js is an open-source JavaScript library initially released in 2010. It's acknowledged remarkably lightweight as it ships at 7.5KB and depends only on two other JS libraries – Underscore.js and jQuery. It's licensed under MIT and everyone can contribute to its development.
As an intensive use of JavaScript makes the code difficult to organize and maintain, Backbone helps to overcome this problem by keeping business logic apart from the user interface and makes applications well-structured. In other words, it maintains the backbone of your application. Models, Views, Collections, Events, Routers, and Sync are the basic components of the framework. It abstracts the DOM into views, data into models and binds them using events.

Other fundamental features are:

- Key-value bindings for models.
- Model-view-presenter (MVP) design pattern.
- Real-time synchronization with the back-end of your app.
- A RESTful JSON interface for a server-client communication.

Ember

Your favorite Apple Music is built with Ember. Netflix, LinkedIn, and Microsoft and many other popular websites use Ember.
Ember.js is a free JavaScript client-side framework released in 2011.
Being designed for creating scalable SPAs, desktop, and mobile apps, it comes together with a set of tools that make up a complete development stack. With Ember's conventions and out-of-the-box features, developers can focus more on the functionality of their apps rather than sorting out how to configure them.

Here's the list of Ember.js strengths:

- Built on MVVM (Model–view–viewmodel) pattern.
- Compatible with Babel – a JavaScript transpiler.
- Beautiful templates which make the user interface of your application stand out. They are written with Handlebars – a comprehensible templating language.
- More than 5000 of awesome plugins available in Ember's plugin repository. You don't need to build from scratch an add-on – simply install it. One of the most popular is Ember-simple-auth for authentication and authorization management.
- Ember-CLI is another tool for enhancing productivity. It's a command line utility that supports CoffeeScript, LESS, Sass, Handlebars, and more.
- Rich ecosystem and vibrant community.
- Easy refactoring of templates into reusable components.

Knockout.js

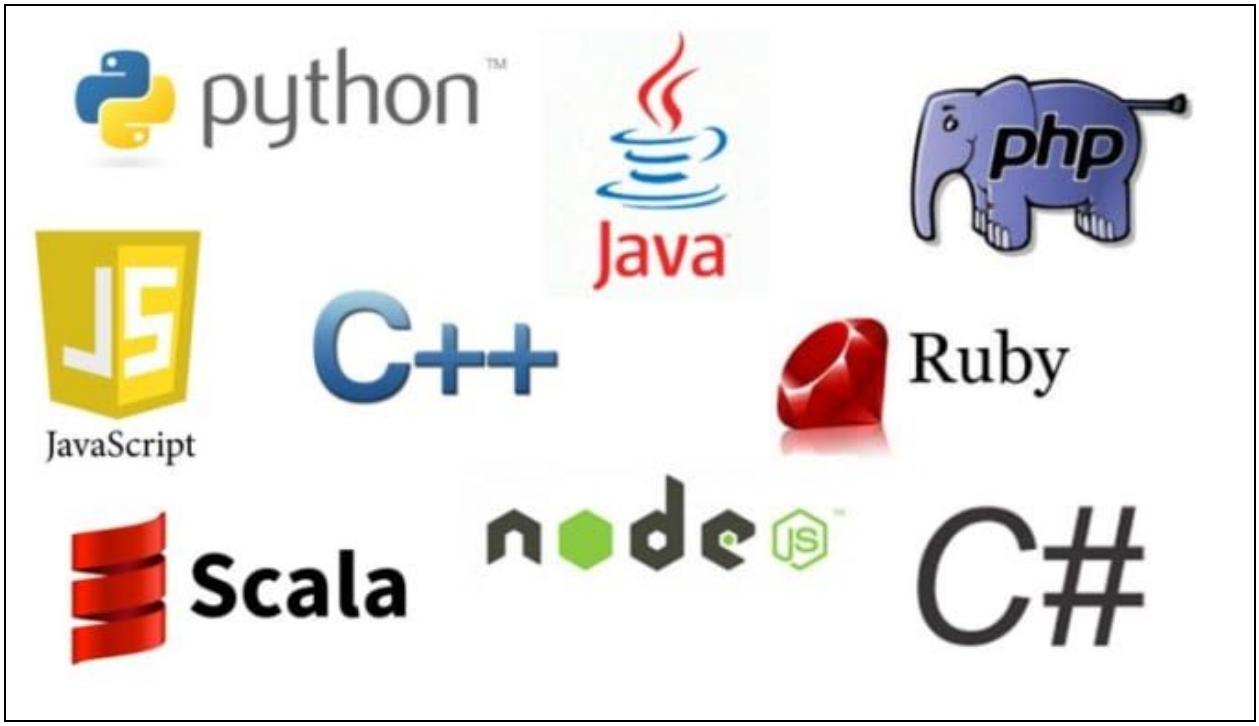
Knockout js (shortly called **KO**) is a very popular JavaScript library and increasing its popularity day by day. This library helps to create rich/responsive/interactive web applications. It works directly with the web application's underlying data model. Using KO with any web application is very simple, clean, and straightforward, it is very powerful in the context of dynamic UI creation.

If we use KO with web applications, we can get the following benefits:

- Anytime we can connect UI elements with a data model.
- Easily create complex dynamic data models.
- Automatically update UI when Data Model is changed, when UI is changed, then Data Model is changed automatically.
- Support event-driven programming model.
- Extend custom behavior very easily.
- All main-stream browsers are supported (Internet Explorer, FireFox, Chrome, Safari)

How to Become a Backend Developer

Learn A language



1. Python 3

PYTHON is an interpreted, object-oriented, high-level programming language. It was created by Guido van Rossum, and released in 1991. It is used for Web Development (server-side) example Django and Flask, for Game Development PyGame is used, for Desktop Applications Tkinter is used, for Data Science matplotlib and numpy are famous python libraries and it is also used in Machine Learning .

2. JavaScript:

JavaScript is a client scripting language which is used for creating web pages. It is a standalone language developed in Netscape. It is used when a webpage is to be made

dynamic and add special effects on pages like rollover, roll out and many types of graphics. Now it is also used as a server-side programming language.

3. Java

Java is a programming language and computing platform first released by Sun Microsystems in 1995. There are lots of applications and websites that will not work unless you have Java installed, and more are created every day. Java is fast, secure, and reliable. From laptops to datacenters, game consoles to scientific supercomputers, cell phones to the Internet, Java is everywhere!

4. PHP

PHP is an acronym for "PHP: Hypertext Preprocessor". PHP is a widely-used, open source scripting language. PHP scripts are executed on the server. PHP is free to download and use.

5. Ruby

Ruby is a dynamic, open source programming language with a focus on simplicity and productivity. It has an elegant syntax that is natural to read and easy to write.

6. Scala

Scala is a general-purpose programming language providing support for functional programming and a strong static type system. Designed to be concise, many of Scala's design decisions aimed to address criticisms of Java.

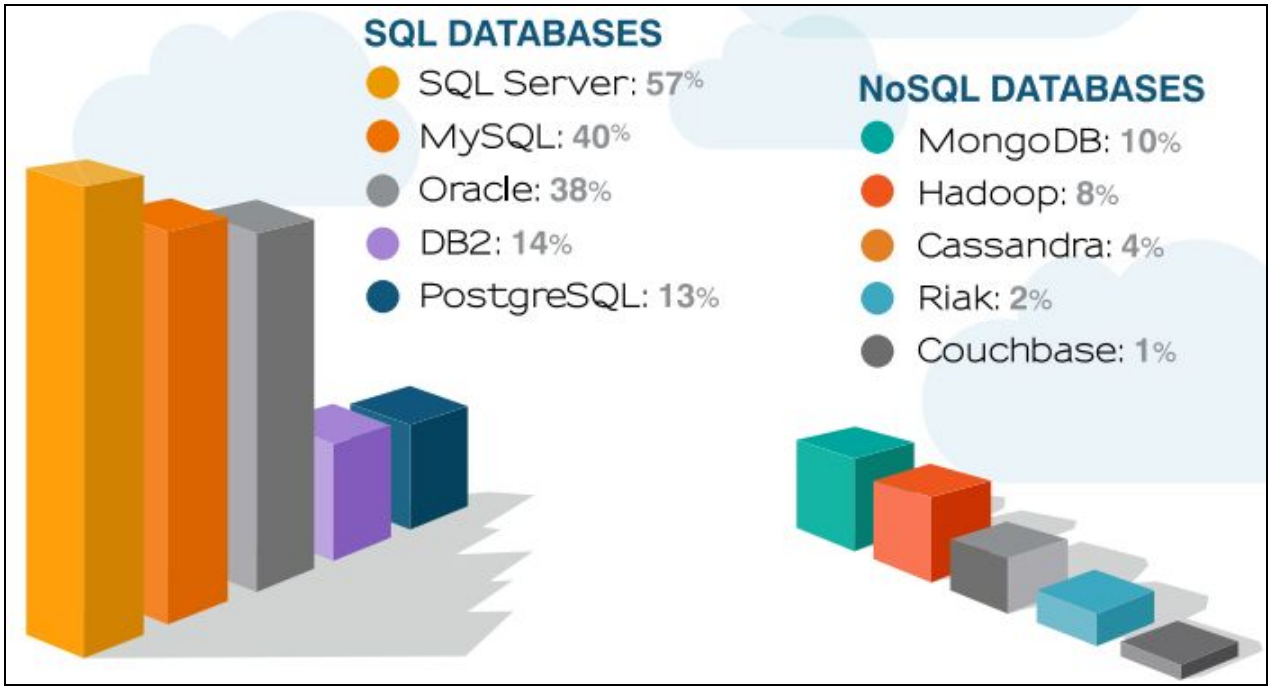
Learn A Database Management System

What is a Database?

A database is an organized collection of data, generally stored and accessed electronically from a computer system. Where databases are more complex they are often developed using formal design and modeling techniques.

Types of DataBase:

- **Relational Database(SQL):**
  A relational database is made up of a set of tables with data that fits into a predefined category.
- **NoSQL:**
  NoSQL, which stands for "not only SQL," is an alternative to traditional relational databases in which data is placed in tables and data schema is carefully designed before the database is built. NoSQL databases are especially useful for working with large sets of distributed data.



Some Popular Databases you can Get Started with

1. MySQL

MySQL is the most popular Open Source Relational SQL Database Management System. MySQL is one of the best RDBMS being used for developing various web-based software applications.

2. Oracle

Oracle tutorial provides basic and advanced concepts of Oracle. Our Oracle tutorial is designed for beginners and professionals. Oracle is a relational database management system. It is widely used in enterprise applications.

3. PostgreSQL

PostgreSQL is a general purpose and object-relational database management system, the most advanced open source database system.
PostgreSQL was designed to run on UNIX-like platforms. However, PostgreSQL was then also designed to be portable so that it could run on various platforms such as Mac OS X, Solaris, and Windows.
PostgreSQL is free and open source software. Its source code is available under PostgreSQL license, a liberal open source license. You are free to use, modify and distribute PostgreSQL in any form.

4. SQLite

SQLite is a software library that provides a relational database management system. The lite in SQLite means light weight in terms of setup, database administration, and required resource.
SQLite has the following noticeable features: self-contained, serverless, zero-configuration, transactional.

5. MongoDB

MongoDB is an open-source document database and leading NoSQL database. MongoDB is written in C++. This tutorial will give you great understanding on MongoDB concepts needed to create and deploy a highly scalable and performance-oriented database.

6. FireBase

Firebase is a technology that allows you to create web applications without server-side programming, making development faster and easier. It supports Web, iOS, OS X and Android clients. Apps that use Firebase can use and control data without thinking about how data is stored and synchronized across different instances of the application in real-time.

Finally Choose A Framework

What are Web frameworks?

A web framework or web application framework is a software framework that is designed to support the development of web applications including web services, web resources, and web APIs. Web frameworks provide a standard way to build and deploy web applications on the World Wide Web

1. **Ruby on Rails**

Ruby on Rails is an extremely productive web application framework written by David Heinemeier Hansson. One can develop an application at least ten times faster with Rails than a typical Java framework. Moreover, Rails includes everything needed to create a database-driven web application, using the Model-View-Controller pattern.

Language : Ruby
Websites using Rails : GroupOn , UrbanDictionary , AirBnb , Shopify , Github

2. **Django**

Django is another framework that helps in building quality web applications. It was invented to meet fast-moving newsroom deadlines, while satisfying the tough requirements of experienced Web developers. Django developers say the applications are ridiculously fast, secure, scalable and versatile.

Language : Python
Websites using Django : Disqus , Pinterest , Instagram , Quora

3. NodeJS

Node.js is a very powerful JavaScript-based platform built on Google Chrome's JavaScript V8 Engine. It is used to develop I/O intensive web applications like video streaming sites, single-page applications, and other web applications. Node.js is open source, completely free, and used by thousands of developers around the world.

Language : Javascript
Websites using NodeJs: Netflix, Linkedin, Uber, PayPal

4. ASP.NET

ASP.NET is a framework developed by Microsoft, which helps us to build robust web applications for PC, as well as mobile devices. It is a high performance and lightweight framework for building Web Applications using .NET. All in all, a framework with Power, Productivity and Speed.

Language : C#
Websites using ASP.NET : GettyImages , TacoBell , StackOverflow

5. Laravel

Laravel is a framework created by Taylor Otwell in 2011 and like all other modern frameworks, it also follows the MVC architectural pattern. Laravel values Elegance, Simplicity, and Readability. One can rightaway start learning and developing Laravel with Laracasts which has hundreds of tutorials in it.

Language : PHP
Websites using Laravel : Deltanet Travel , Neighbourhood Lender

6. Express

Express or Express.js is a minimal and flexible framework that provides a robust set of features for web and mobile applications. It is relatively minimal meaning many features are available as plugins. Express facilitates rapid development of Node.js based Web applications. Express is also one major component of the MEAN software bundle.

Language : JavaScript
Websites using Express : Storify , Myspace , LearnBoost

7. Spring

Spring, developed by Pivotal Software, is the most popular application development framework for enterprise Java. Myriads of developers around the globe use Spring to create high performance and robust Web apps. Spring helps in creating simple, portable, fast and flexible JVM-based systems and applications.

Language : Java
Websites using Spring : Mascus, Allocine

8. PLAY

Play is one of the modern web application framework written in Java and Scala. It follows the MVC architecture and aims to optimize developer productivity by using convention over configuration, hot code reloading and display of errors in the browser. Play quotes itself as “The High Velocity Web Framework”
Language : Scala and Java
Websites using PLAY : LinkedIn, Coursera, LendUp

9. CodeIgniter

CodeIgniter, developed by EllisLab, is a famous web application framework to build dynamic websites. It is loosely based on MVC architecture since Controller classes are necessary but models and views are optional. CodeIgnitor promises with exceptional performance, nearly zero configuration and no large-scale monolithic libraries.

Language : PHP
Websites using CodeIgnitor : Bufferapp, The Mail and Guardian

Learn To Build Rest Apis

What Is A REST API?

Let’s say you’re trying to find videos about Batman on Youtube. You open up Youtube, type “Batman” into a search field, hit enter, and you see a list of videos about Batman. A REST API works in a similar way. You search for something, and you get a list of results back from the service you’re requesting from.

An **API** is an **application programming interface.** It is a set of rules that allow programs to talk to each other. The developer creates the API on the server and allows the client to talk to it.

REST determines how the API looks like. It stands for “**Representational State Transfer”.** It is a set of rules that developers follow when they create their API. One of these rules states that you should be able to get a piece of data (called a resource) when you link to a specific URL.

Each URL is called a request while the data sent back to you is called a response.

Learn Json

JSON (JavaScript Object Notation) a common format for sending and requesting data through a REST API. The response that Github sends back to you is also formatted as JSON.

A **JSON** object looks like a JavaScript Object. In JSON, each property and value must be wrapped with double quotation marks, like this:

```
{

  "property1": "value1",

  "property2": "value2",

  "property3": "value3"

}
```

Learn AJAX

AJAX is a web development technique for creating interactive web applications. If you know JavaScript, HTML, CSS, and XML, then you need to spend just one hour to start with AJAX.

Why to Learn Ajax?

AJAX stands for Asynchronous JavaScript and XML. AJAX is a new technique for creating better, faster, and more interactive web applications with the help of XML, HTML, CSS, and JavaScript.

- Ajax uses XHTML for content, CSS for presentation, along with Document Object Model and JavaScript for dynamic content display.
- Conventional web applications transmit information to and from the server using synchronous requests. It means you fill out a form, hit submit, and get directed to a new page with new information from the server.

- With AJAX, when you hit submit, JavaScript will make a request to the server, interpret the results, and update the current screen. In the purest sense, the user would never know that anything was even transmitted to the server.
- XML is commonly used as the format for receiving server data, although any format, including plain text, can be used.
- AJAX is a web browser technology independent of web server software.
- A user can continue to use the application while the client program requests information from the server in the background.

Quick Start Guide for Web Development

1. Learn Basic Fundamentals of HTML, CSS, Javascript, Jquery

Resources:

HTML: https://www.w3schools.com/html/default.asp
CSS: https://www.w3schools.com/css/default.asp
Javascript: https://www.w3schools.com/js/default.asp
Jquery: https://www.w3schools.com/jquery/default.asp

2. Learn PHP and SQL

Resources:

PHP: https://www.w3schools.com/php/default.asp
SQL: https://www.w3schools.com/sql/default.asp

3. Build a Authentication System using PHP and Mysql or phpmyadmin

Resources:

https://www.youtube.com/watch?v=hx38tnlYGlA
https://www.youtube.com/watch?v=qjwc8ScTHnY

4. Build a complete Website in PHP for example E-commerce website.

5. Learn to Build Responsive Website Using Bootstrap
https://www.w3schools.com/bootstrap4/

6. Now Choose your path Frontend, Backend, Fullstack developer and choose your framework accordingly and start learning and implementing projects in those frameworks.

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https://t.me/officialteachmebro

https://www.teachmebro.com/

https://www.youtube.com/channel/UCTSIdPsYXRRp5ABnuw_-uOA/

https://www.instagram.com/teachmebro.official/

Thank You