BCDV1006 - Lecture 1

Intro to Full Stack Web Development

Professor

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- Senior UI/Full Stack Developer
- 14 Years experience building web applications
- Specialization in Microsoft .NET and JavaScript Frameworks
- 2018/2020 Professor - COM3123/COM3133
- 2020 Professor - Block Chain FS III & IV

Remote Session Structure

- We will use a block schedule for the online class session. New learning the first block and then alternating between “hands on” work and lecture.
- A short Quiz will be given at the end to help with retention of the topics covered.

6-6:45 pm
Lecture

6:45-7:30 pm
Lab Work

7:30-8:15 pm
Lecture/Demo

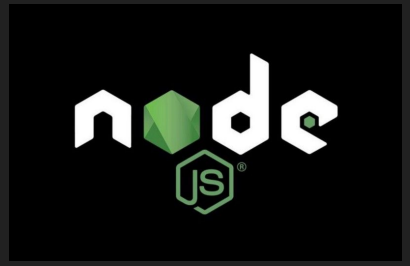
8:15-9 pm
Lab Work

9-9:30 pm
Quiz/Questions

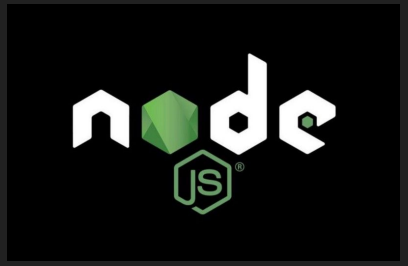
Full Stack I - IV

Full Stack Dev I

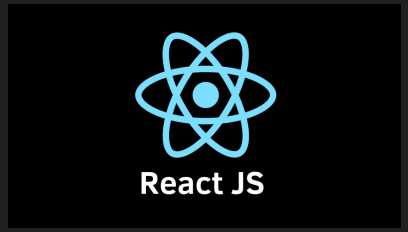
Full Stack Dev II



Full Stack Dev III



Full Stack Dev IV



Topics

- Technology Stack vs Application Stack
- What is Full Stack?
- MERN Stack

Technology Stack

What is a Stack?

- A “stack” refers to any combination of programming languages and technologies or a combination of software products.

- Technically there are two types of development stacks:
  - Technology stack
  - Application stack.

What is a Technology Stack?

- In simple terms, the technology stack is a more cross-disciplinary term in any software development process.

Blockchain

Quality

Back-End

Database

Mobile

Front-End

Environnement

Web Development

What is a Web Developer

- A web developer is at heart an interactive artist. They're someone driven by a deep desire to create things. A web developer's canvas is a user's web browser.
- A web developer's job is to use the basic building blocks of the web (like HTML, CSS and JavaScript) to create something complex like a webpage.
- It is also the web developer's job to diagnose problems in a website's functionality, to understand how something works by reading the code behind it, and to make changes to fix any issues.

Types of Web Developer

There are different types of web developers who focus on different areas. These include:

- Frontend developers: Frontend developers implement web page designs using HTML and CSS. They make sure the website looks pretty on different devices, and that the forms and buttons work.
- Backend developers: Backend developers create the backbone of the web application. They write code logic that handles a user's input (for example, what should happen when you click the signup button after filling in a form).
- Full stack developers: Full stack developers do bits of both backend and frontend. Depending on the problem at hand, they can switch cape   and move stacks.

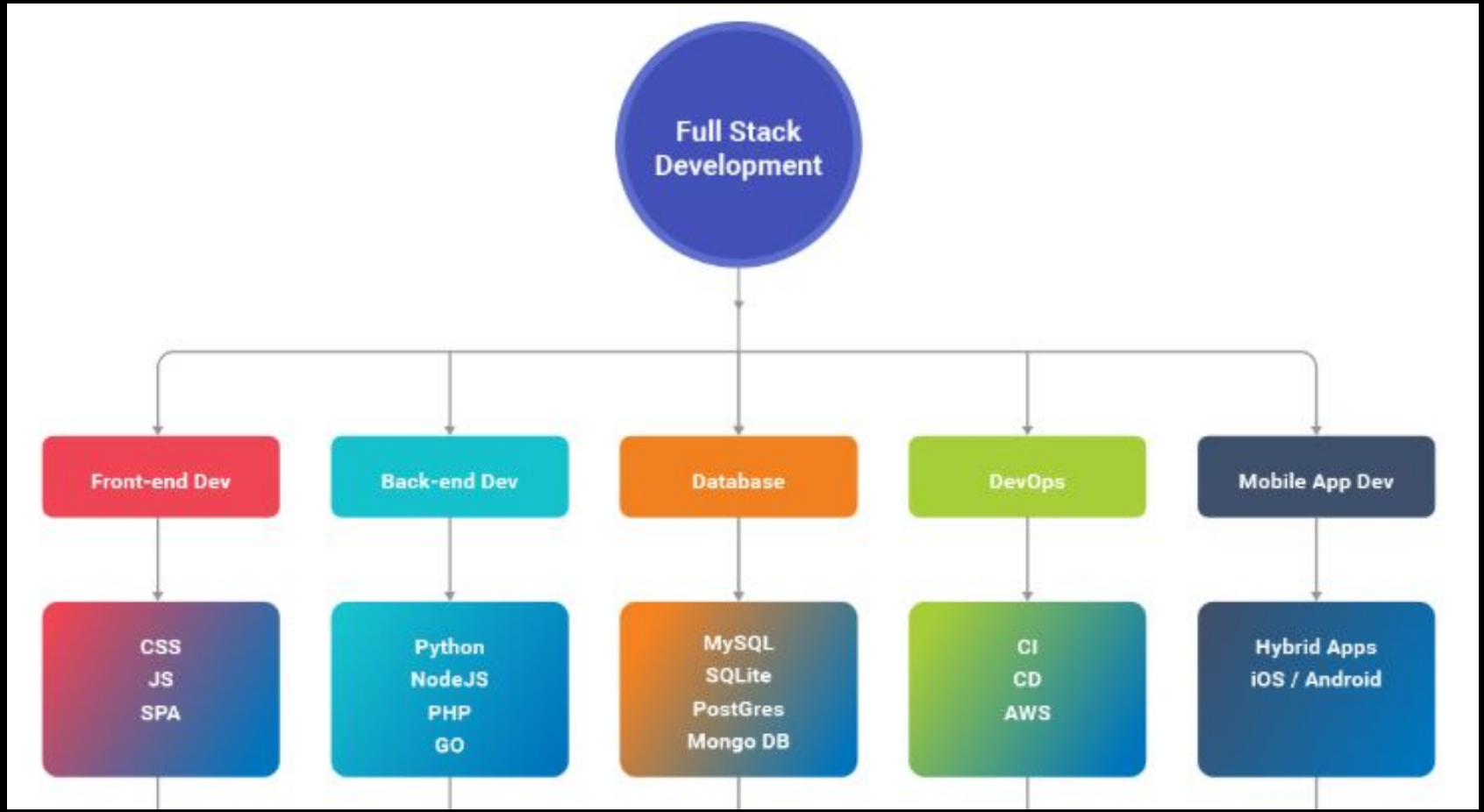
Full Stack

Full Stack Developer

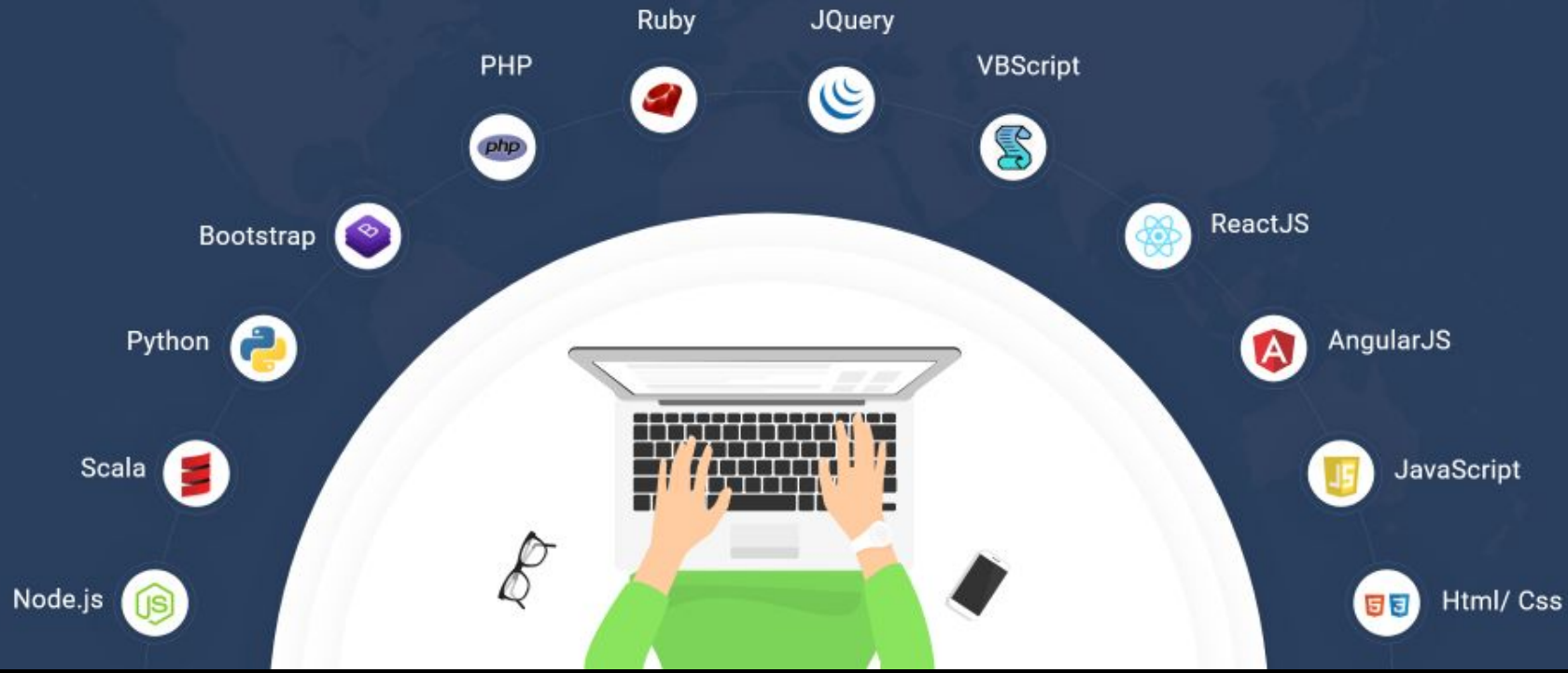
- Skilled developers come from various streams; to be specific, there is Frontend, Backend, Database, Mobile App

- Generalization and Specification? Full Stack developers are seen as generalist, who are 'Jack of all trades' and 'Master of none'

- Companies are now rigorously trying to hire full stack developers, who can build the complete web or app from scratch, without any discontinuation in the process.


Full Stack Development
Front-end Dev
Back-end Dev
Database
DevOps
Mobile App Dev
CSS
JS
SPA
Python
NodeJS
PHP
GO
MySQL
SQLite
PostGres
Mongo DB
CI
CD
AWS
Hybrid Apps
iOS / Android

Full Stack Web Development

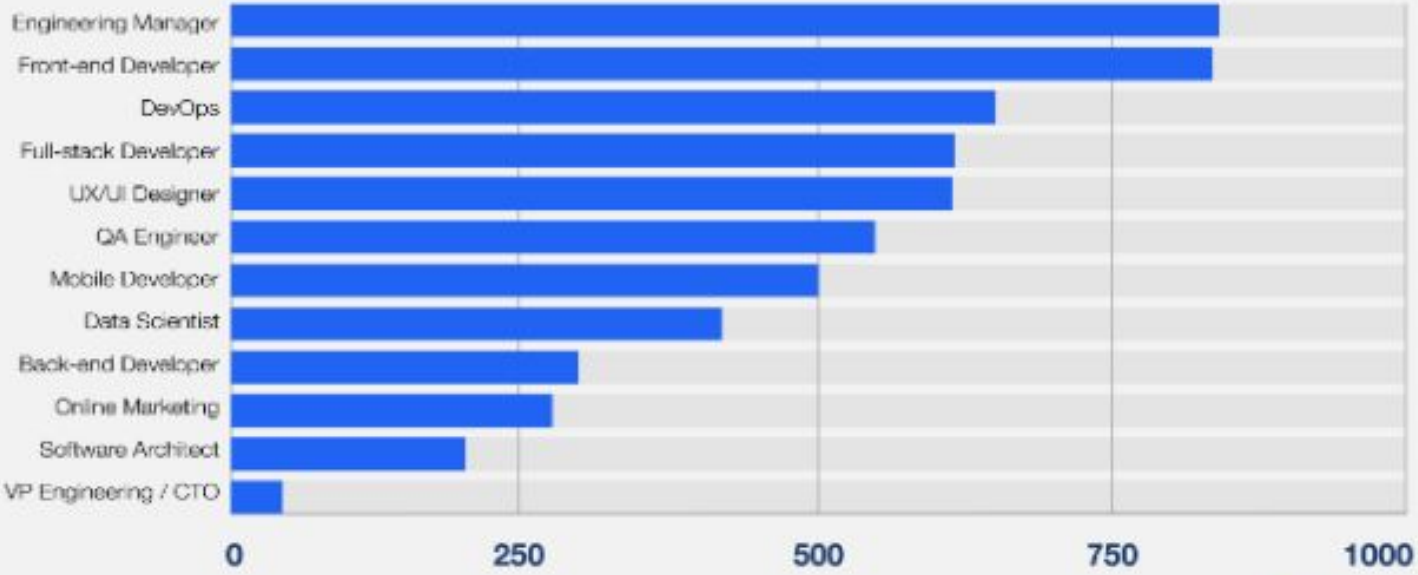


Benefits of Full Stack Developer

- Knowledge of both front-end and backend technologies.
- Can easily take charge of Project Responsibility
- Cost-effective for Company to hire because of the versatility
- Full stack development is one of the most in-demand jobs in the past years.
- This wasn’t always the case, in the 1970’s programming and development wasn’t multilayered ie. Assembly, COBOL

Tech Roles Ranked By Employer Demand

Number of postings for each role per million job postings



Source: Indeed

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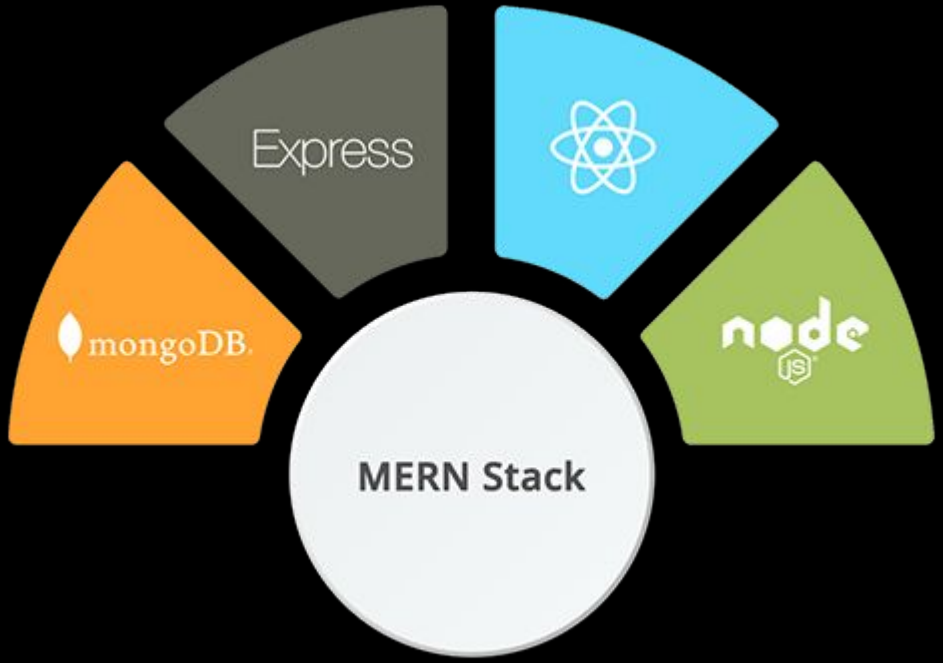
MERN STACK

MERN Stack

- MERN Stack comprises of the following technologies. MongoDb, Express, React, Node.js



Benefits of MERN Stack

- The main advantage for developers using the MERN stack is that every line of code is written in JavaScript.

- This is a programming language that's used everywhere, on all layers, both for client-side code and server-side code.

- With one language across tiers, there's no need for context switching. All developers “speak” the same language.

Developer Tools

What tools do the professionals use?

- **A computer**. Maybe that sounds obvious to some people, but some of you are reading this article on your phone or a library computer. For serious web development, it's better to invest in a desktop or laptop computer running Windows, macOS or Linux.

- **A text editor**, to write code in. This could be a text editor (e.g. Visual Studio Code, Notepad++, Sublime Text, Atom, GNU Emacs, or VIM), or a hybrid editor (e.g. Dreamweaver or WebStorm). Office document editors are not suitable for this use, as they rely on hidden elements that interfere with the rendering engines used by web browsers.

- **Web browsers**, to test code in. Currently, the most-used browsers are Firefox, Chrome, Opera, Safari, Internet Explorer and Microsoft Edge. You should also test how your site performs on mobile devices and on any old browsers your target audience may still be using (such as IE 8–10.)

What tools do the professionals use? (cont..)

- **A graphics editor**, like GIMP, Figma, Paint.NET, Photoshop, or XD, to make images or graphics for your web pages.

- **A version control system**, to manage files on servers, collaborate on a project with a team, share code and assets and avoid editing conflicts. Right now, Git is the most popular version control system along with the GitHub or GitLab hosting service.

- **An FTP program**, used on older web hosting accounts to manage files on servers (Git is increasingly replacing FTP for this purpose). There are loads of (S)FTP programs available including Cyberduck, Fetch and FileZilla.
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What tools do the professionals use? (cont..)

- An automation system, like Webpack, Grunt, or Gulp to automatically perform repetitive tasks, such as minifying code and running tests.

- Libraries, frameworks, etc., to speed up writing common functionality. A library tends to be an existing JavaScript or CSS file that provides ready-rolled functionality for you to make use of in your code. A framework tend to take this idea further, offering a complete system with some custom syntaxes for you to write a web app on top of.

Visual Studio Code

Visual Studio Code

- Visual Studio Code is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux. It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity).