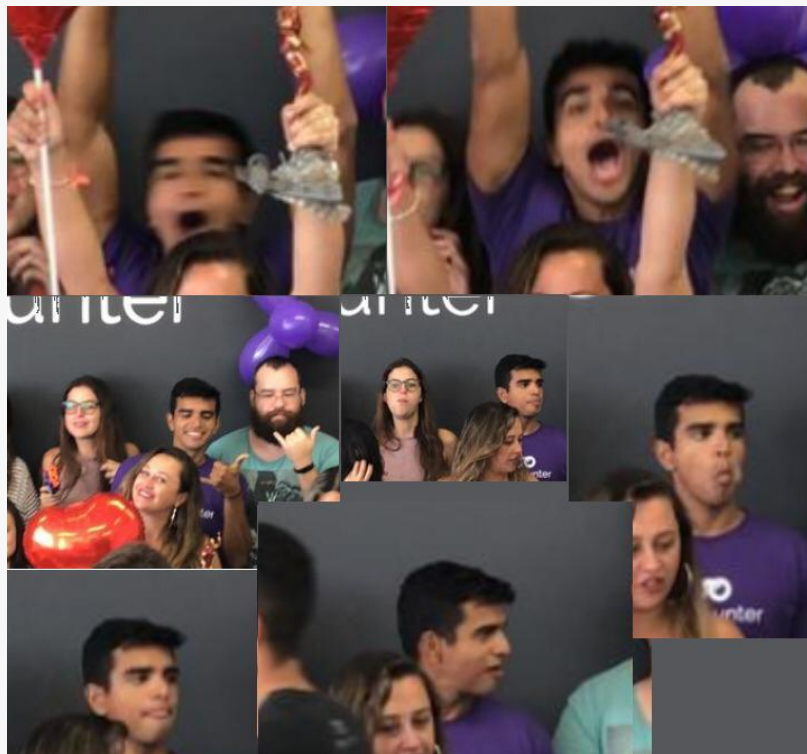




Geek Dictionary

Demystifying tech to Non-developers

@tavioalves



Otávio Augusto

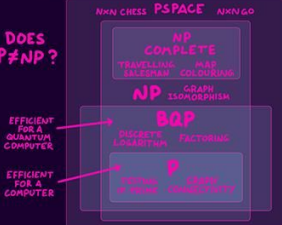
~~Pintor de parede~~
Front-End que trabalha como **Full-Stack**
Computer Engineer

github.com/tavioalves

Google is your
friend!

COMPUTATIONAL COMPLEXITY

DOES $P \neq NP$?



ALGORITHMS

BUBBLESORT
1. GO FROM LEFT TO RIGHT.
2. COMPARE EACH PAIR.
3. IF LEFT ONE HIGHER, SWITCH.
4. DO UNTIL NO MORE SWITCHES.

BUBBLE SORT $O(n^2)$

1 2 3 4 5 6 7 8

MERGE SORT $O(n \log n)$

1 2 3 4 5 6 7 8

ANALYSIS OF ALGORITHMS

ALGORITHMIC COMPLEXITY

MACHINE LEARNING



COMPUTER VISION



IMAGE PROCESSING



INFORMATION THEORY

0100110100011001



THEORETICAL COMPUTER SCIENCE

COMPUTABILITY THEORY



TURING MACHINE



AND MORE



OPTIMISATION



BOOLEAN SATISFIABILITY

x_1 OR x_2 OR x_3 (SAT)
 \bar{x}_1 OR \bar{x}_2 OR x_3
 \bar{x}_1 OR \bar{x}_2 OR \bar{x}_3
 \bar{x}_1 OR x_2 OR x_3

SUPER COMPUTING



ARTIFICIAL INTELLIGENCE



ROBOTICS



APPLICATIONS

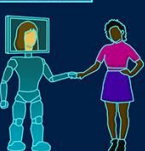
NATURAL LANGUAGE PROCESSING

CHATBOTS

-HEY HELLO THERE-
-ARE U A ROBOT?
YES-
WAIT, I MEAN NO-
-PROVE IT!
-CALCULATING...
I MADE YOU CAKE-



TELEPRESENCE



AUGMENTED REALITY



HUMAN COMPUTER INTERACTION



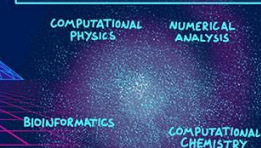
INTERNET OF THINGS



BIG DATA



COMPUTATIONAL SCIENCE



OPERATING SYSTEMS



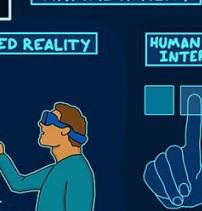
SOFTWARE ENGINEERING



COMPUTER GRAPHICS



VIRTUAL REALITY



SOFTWARE AND PROGRAMMING LANGUAGES



COMPILERS

JAVASCRIPT COMPILER

C++ COMPILER

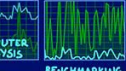
C COMPILER

ASSEMBLY COMPILER

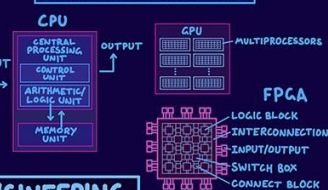
DATA MANAGEMENT



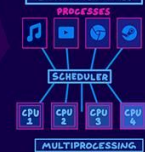
PERFORMANCE



COMPUTER ARCHITECTURE



SCHEDULING



MONITOR



HARDWARE



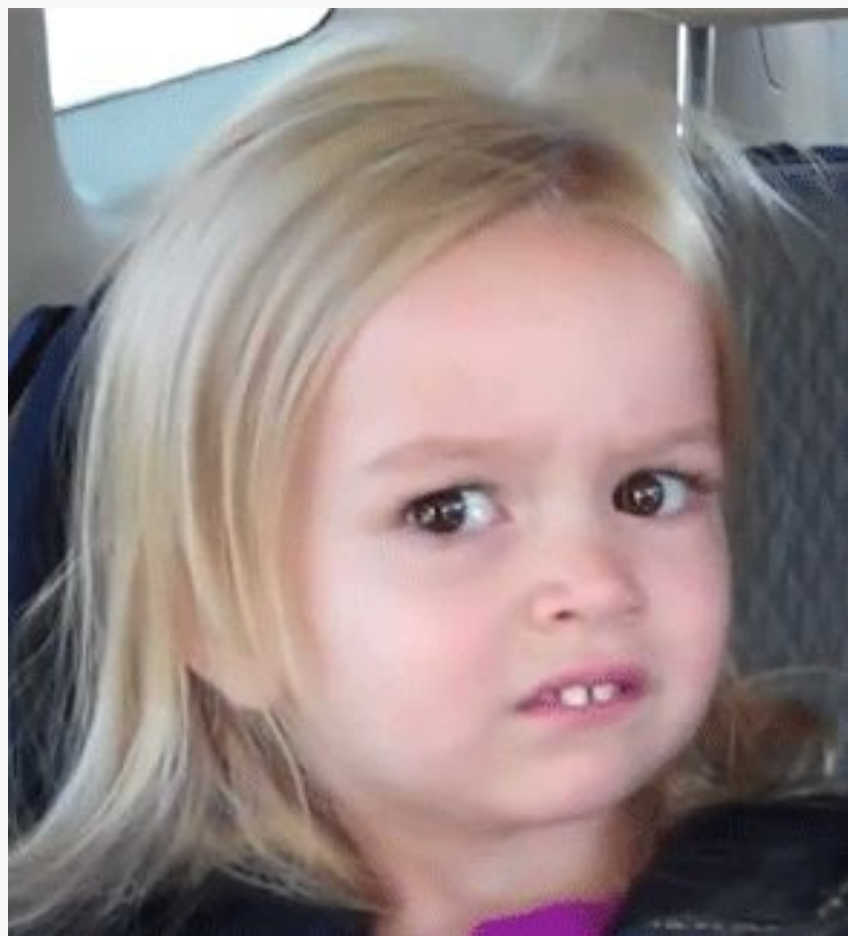
DATA STRUCTURES





A word cloud of software development terms. The words are arranged in a non-uniform, overlapping manner. The colors range from a deep, dark purple to a lighter, almost white-purple. The font is a clean, sans-serif typeface. The words vary in size, with some being significantly larger than others, suggesting a hierarchy or frequency of use. The overall composition is dense and modern.

Programmer
Language
Engineer
Cloud
Test
DevOps
CI/CD
Framework
Task Runner
Developer
Mobile
Script
IDE
Game
Engine
Front-End
Algorithm
Library
Database
Agile
Quality Assurance
Back-End
Mobile



Keep **calm** and
follow me!

Focus just at some topics

Tools	Programming Languages*	Libraries	Frameworks	Database
Roles	Front-End	Back-End	DevOps*	Mobile
Others	Software Development Careers	Web Development	Agile Methods	

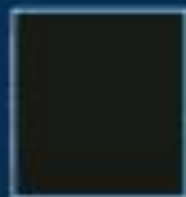
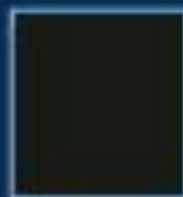
First things first

Programming Languages

“is a vocabulary and set of grammatical rules for instructing a computer or computing device to perform specific tasks.”

Source: https://www.webopedia.com/TERM/P/programming_language.html

understanding the execution of a C Program



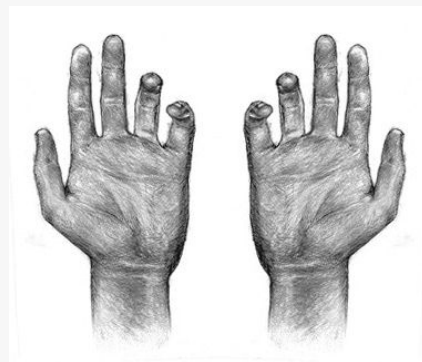
OK, now I have a doubt!

Non-Programming Languages



HTML, XML,
SQL and
JSON...

CSS, SASS
and SCSS...



Most used - Languages

JavaScript

Java

Python

C#

PHP

C++

C

TypeScript

Ruby

Swift

Assembly

Go

Source: <https://insights.stackoverflow.com/survey/2018/>



Don't sleep, please!

Library and Framework

“Both are reusable code written by someone else. Their purpose is to help you solve common problems in easier ways.”

Source: <https://medium.freecodecamp.org/the-difference-between-a-framework-and-a-library-bd133054023f>

Most used - Library

React

jQuery

Redux

NodeJS

Redux

Most used - Framework

AngularJS

TensorFlow

Django

Spring

.NET Core

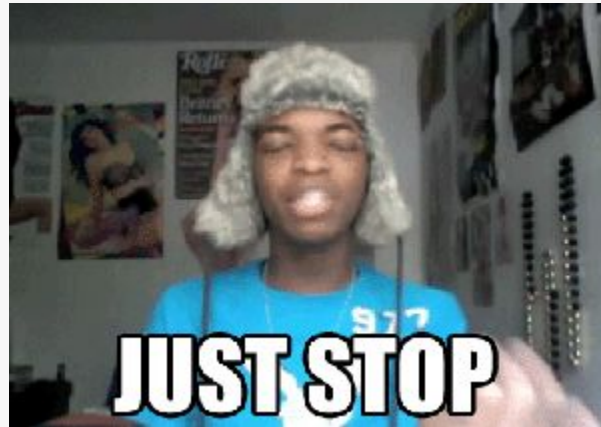
Xamarin

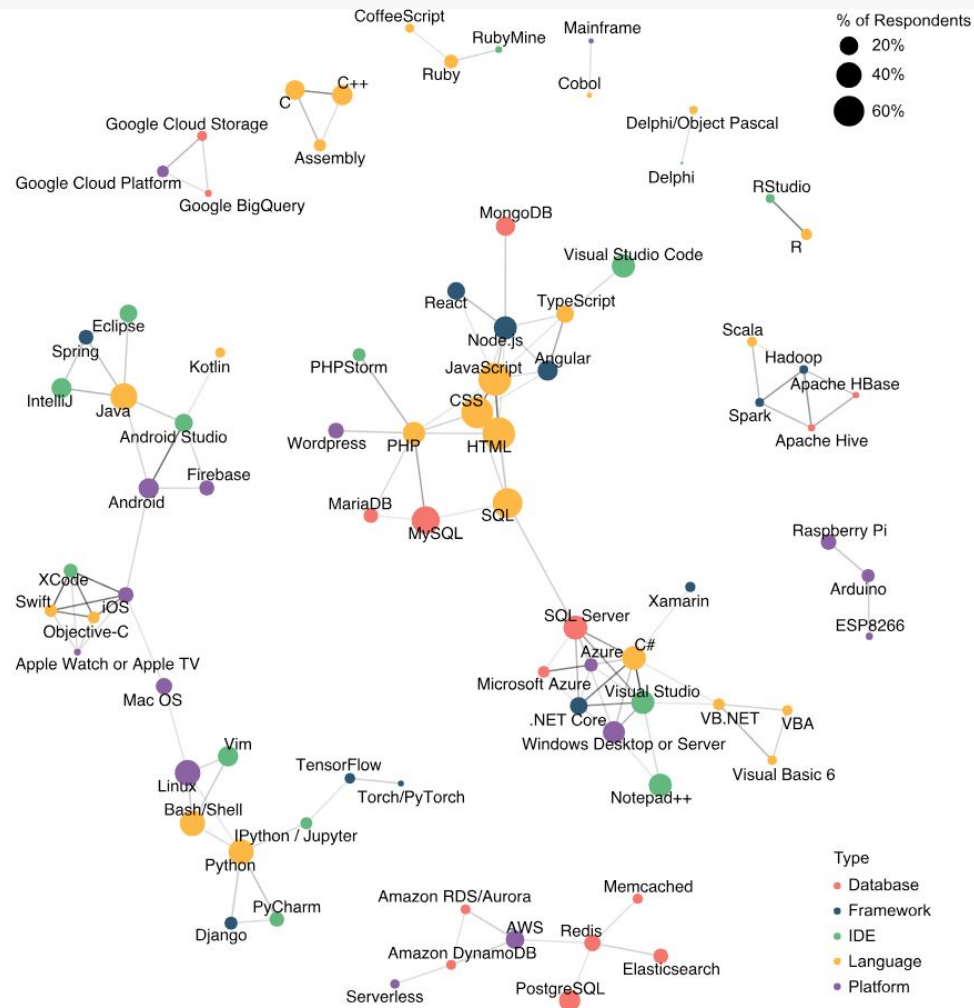
Vue.js

Laravel

ASP NET

Language != Library and Framework





Source: <https://insights.stackoverflow.com/survey/2018/>

Let store things!

Database

“A database is an organized collection of data, generally stored and accessed electronically from a computer system.”

Source: <https://en.wikipedia.org/wiki/Database>

Most used - Database

MySQL **Elasticsearch** **PostgreSQL**

MariaDB **SQL Server** **MongoDB**

Pay attention now! More...

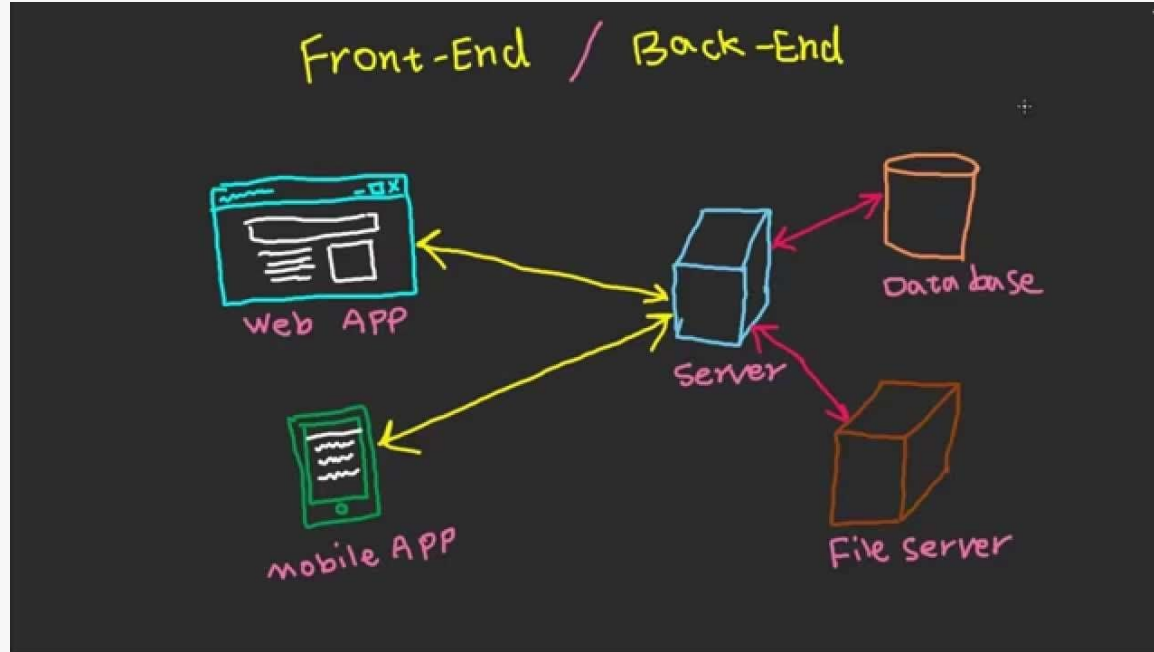
Roles

“Developers work in technologic companies. They are responsible for the design, testing and maintenance of software programs for computer operating systems or applications, or database management systems.”

Front-end

Back-end

Database



DevOps*

More and more...

Software Development Careers

Paths and Careers

**Web
Development***

Mobile

Games

Embedded System

Desktop

Network

Junior

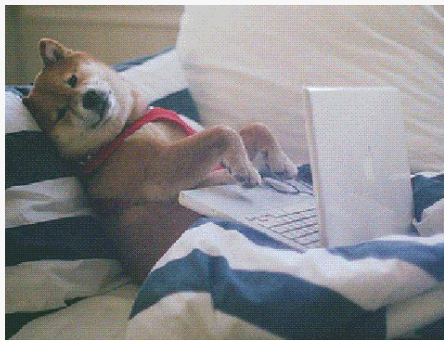
Pleno

Senior

Tech Lead/CTO



1 ~ 2 years*



2 ~ 4 years*



5 ~ 10 years*



*

What **Senior** developers have in common?

1. Being a **sole** programmer.
2. **Mentoring** and **growing** other programmers.
3. Navigating social and political issues **inside** an organization.
4. Matching **technical solutions** to **business needs**.

Source: <https://medium.com/s/story/what-truly-makes-a-senior-developer-74b608847d7e>



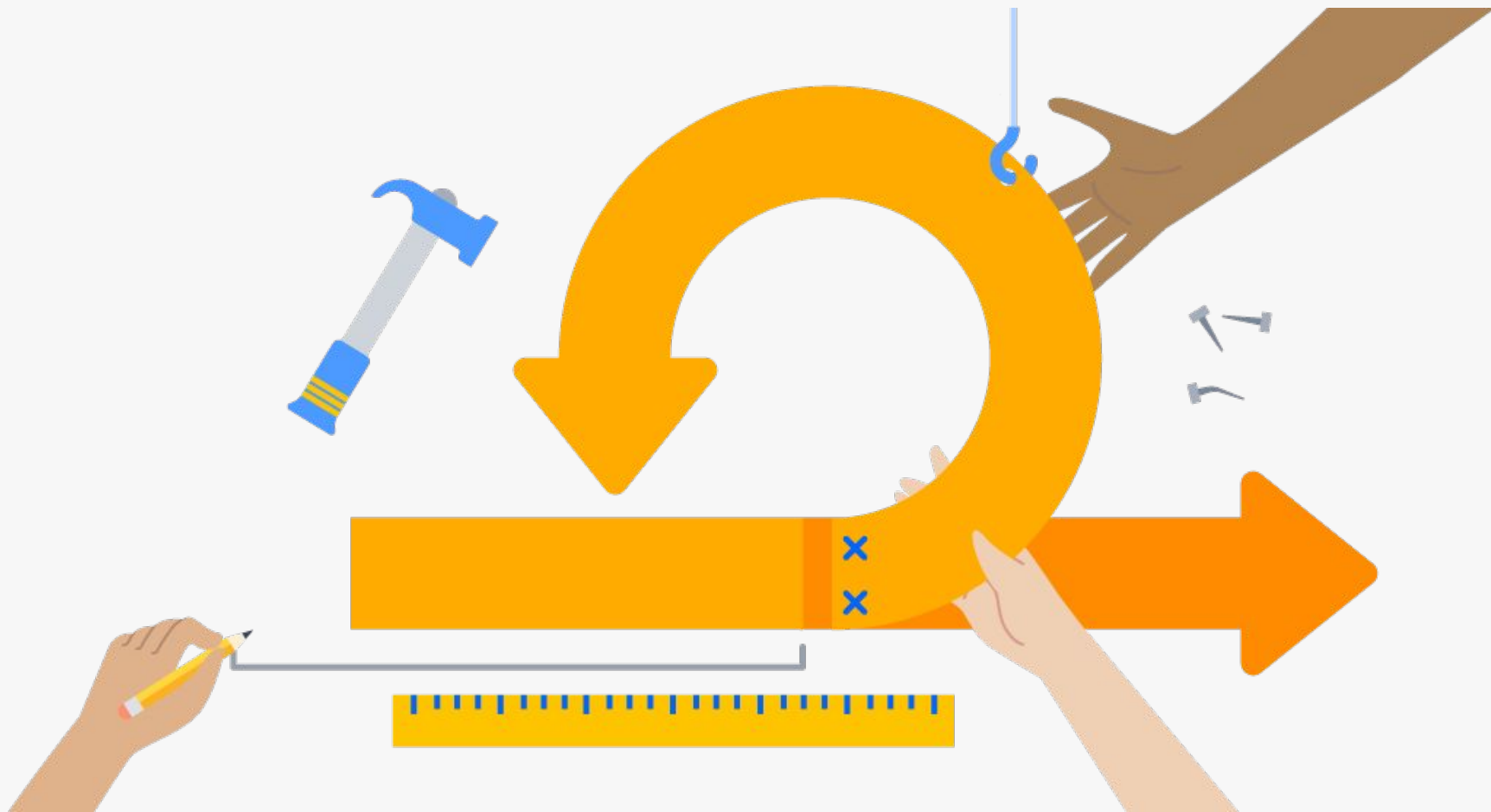
Be agile!

Agile Process

Scrum

XP

Kanban





And that, gentlemen, is
SCRUM.

One more thing, or two, or maybe...

IDE

**Open
Source**

Clean Code

Deploy

UI/UX

Git/Github

Doubts?!







Geek Dictionary

Demystifying tech to Non-developers

@tavioalves