



Capstone
Project



Stack Overflow Developer Survey-2019

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OUTLINE



- Executive Summary
- Introduction
- Methodology
- Results
 - Visualization – Charts
 - Dashboard
- Discussion
 - Findings & Implications
- Conclusion
- Appendix

EXECUTIVE SUMMARY



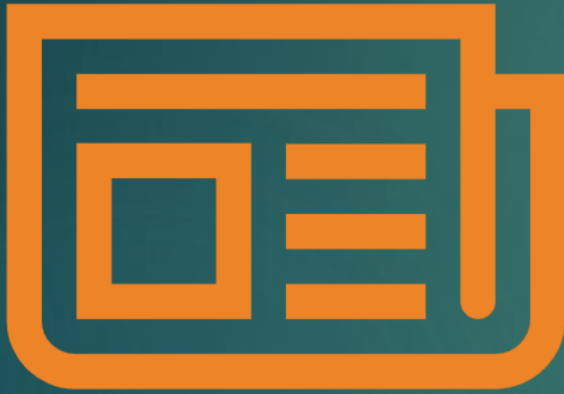
- Based on the Stack Overflow survey, developers displayed what could be **a picture of the IT job market demand** in terms of **technologies used** for the year of **2019** and a possible change in the **short term future**
 - Tracked technologies include **programming languages** and **database technologies**
- Most relevant **programming** languages included
 - What is being used today
 - JavaScript, HTML/CSS, SQL, Bash, Python, Java, C#
 - What is expected for the short term future
 - JavaScript, Python, HTML/CSS, SQL, TypeScript, C#, Bash
 - This indicates a strong presence of **technologies related to the Web** both in the **current** market, and desire to work with it in the **future**. Developers also seem to look forward to work with **Python**.
- Most relevant **database** technologies included
 - What is being used today
 - MySQL, PostgreSQL, Microsoft SQL Server, SQLite, MongoDB
 - What is expected for the short term future
 - PostgreSQL, MongoDB, Redis, MySQL, Elasticsearch
 - While RDBMS still have a very strong presence, developers are greatly interested in **NoSQL** solutions. Also, **opensource** systems are likely to be in vogue in a **near future**.

INTRODUCTION



- The Stack Overflow Developer Survey (2019) provided data for this report
- Data about the developers community included:
 - **Programming languages**
 - What languages developers are currently using
 - Languages developers would like to use by next year
 - **Database technologies**
 - Technologies developers are currently using
 - What solutions developers have desire to work with by next year
 - **Demographics**
 - Gender
 - Age
 - Level of education
- With this data, an **outline of the current necessities of the job market** was made
- In addition, it provided enough data to spot **trends of new technologies usage**

METHODOLOGY



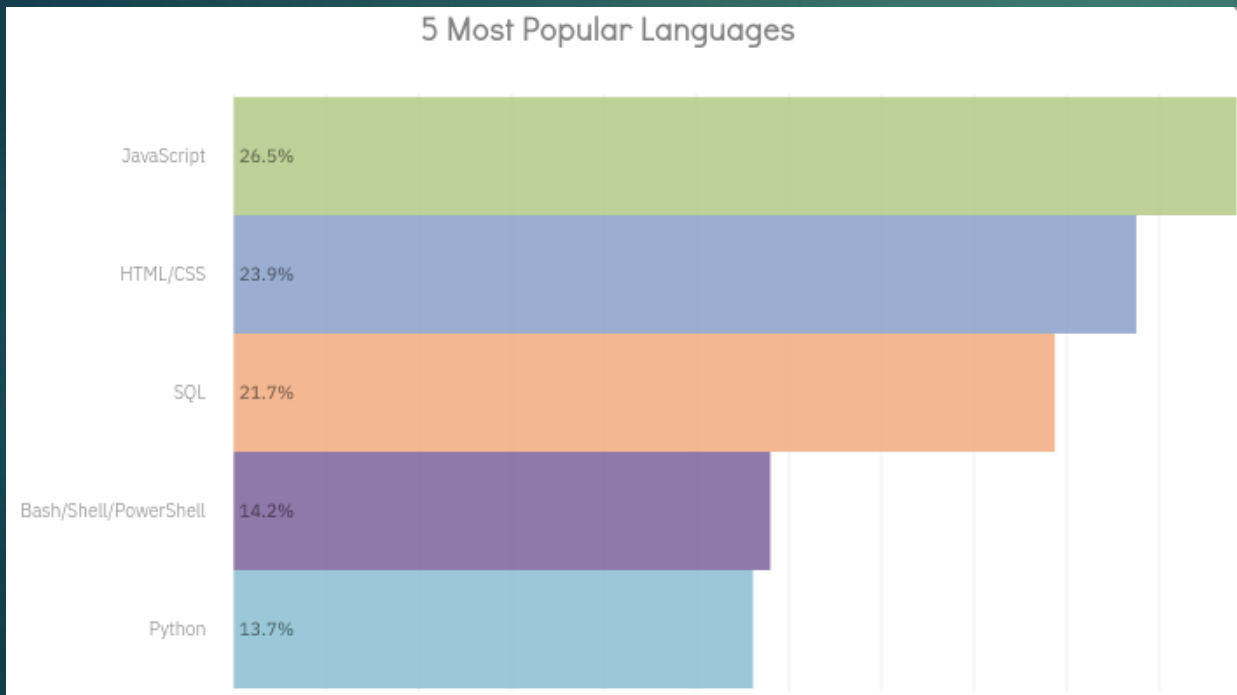
- A modified dataset of the 2019 Stack Overflow Developer Survey Result^[1] was **wrangled** in order to make it fit for analysis
 - The two files^{[2][3]} used for this report can be reached through links provided in the Resources section
- The resulting data was used for an **exploratory analysis** where **distributions**, **correlations** and **outliers** were evidenced
- In the next step, Cognos Dashboard Embedded was used to produce a three part dashboard
 - The dashboard is displayed in this presentation and can also be accessed through a link

RESULTS

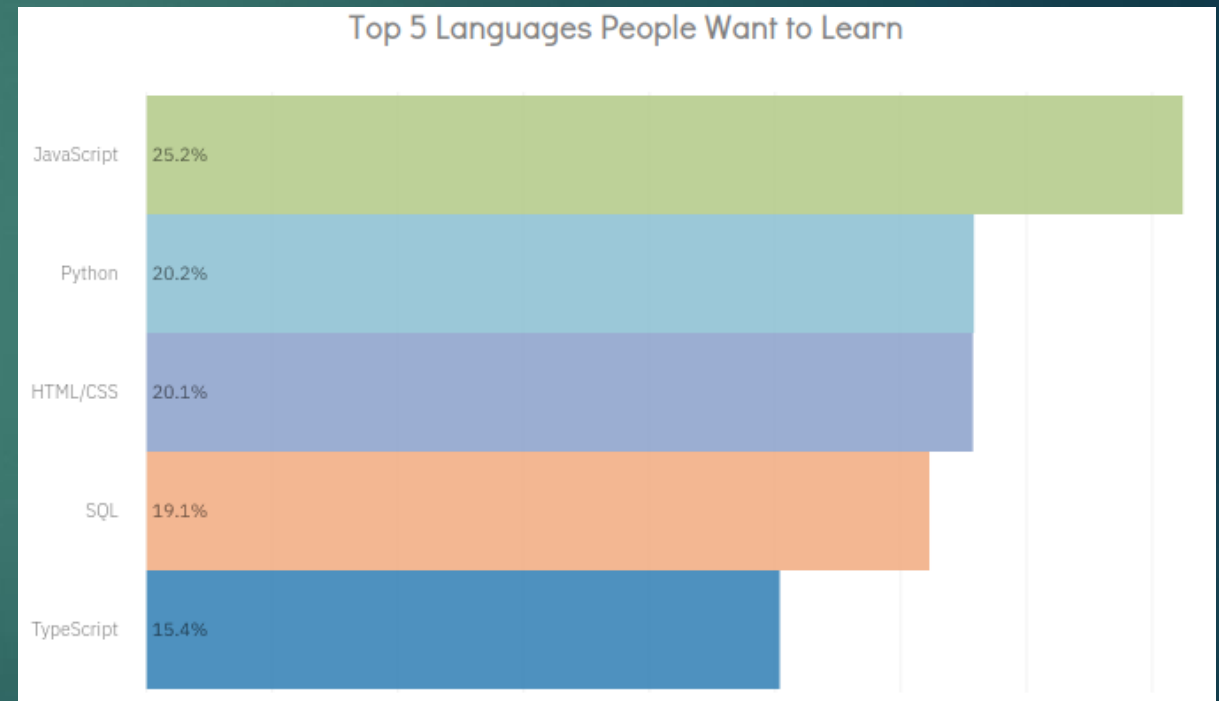


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **JavaScript** and **HTML/CSS** kept their status in the top 3 languages with little changes
- **Python** had a great leap comparing currently used languages and languages developers want to learn
- **Linux, Windows, AWS, Docker** and **Android** maintained their ranks
- **SQL** lost one position in the ranking, but still is in the top 5 languages
- Developers are very interested in working with **TypeScript** in the short term future
- **PHP** and **C++** do not show up in the top 10 preferences of developers to future usage

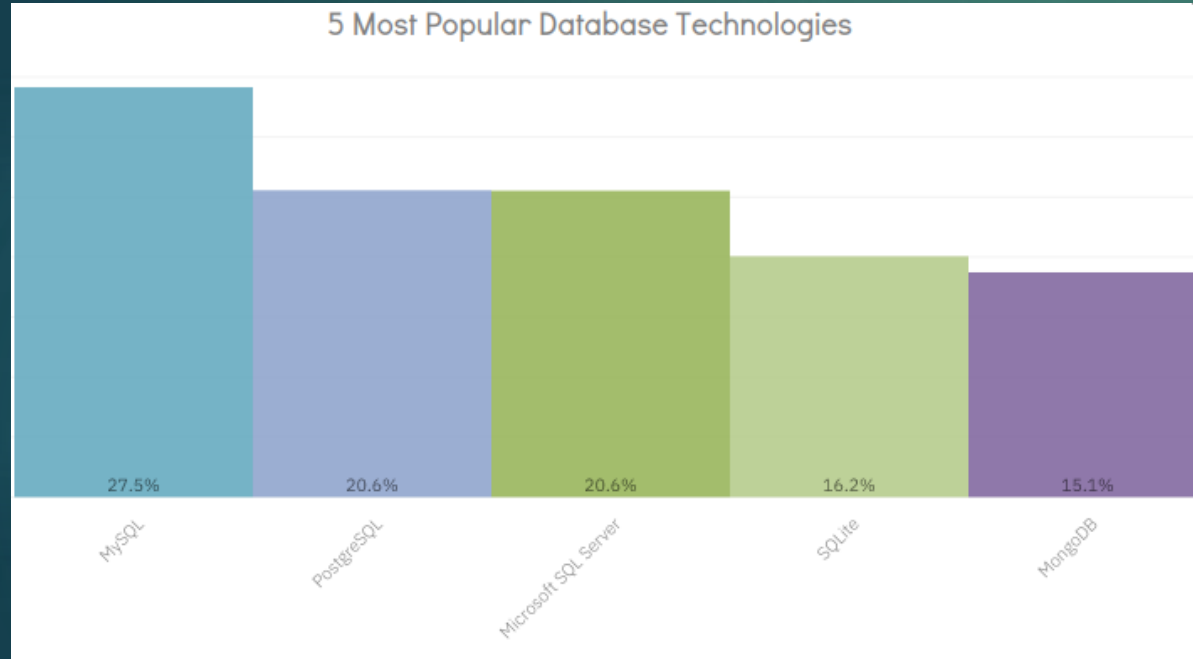
Implications

- **JavaScript** and **technologies related to the Web** are leading the ranks. Newer ones are growing in popularity and older ones (**PHP**) are generating less interest over time
- **Python** is gaining a lot of attention, but the source of it might be outside the Web environment, as Python web frameworks (**Flask** and **Django**) remained stable in popularity
- Even though **Linux** and **Docker** are the top ranked platforms developers want to work with, **Bash** seems to be decreasing in popularity
- **SQL** is maintaining its relevance in the job market

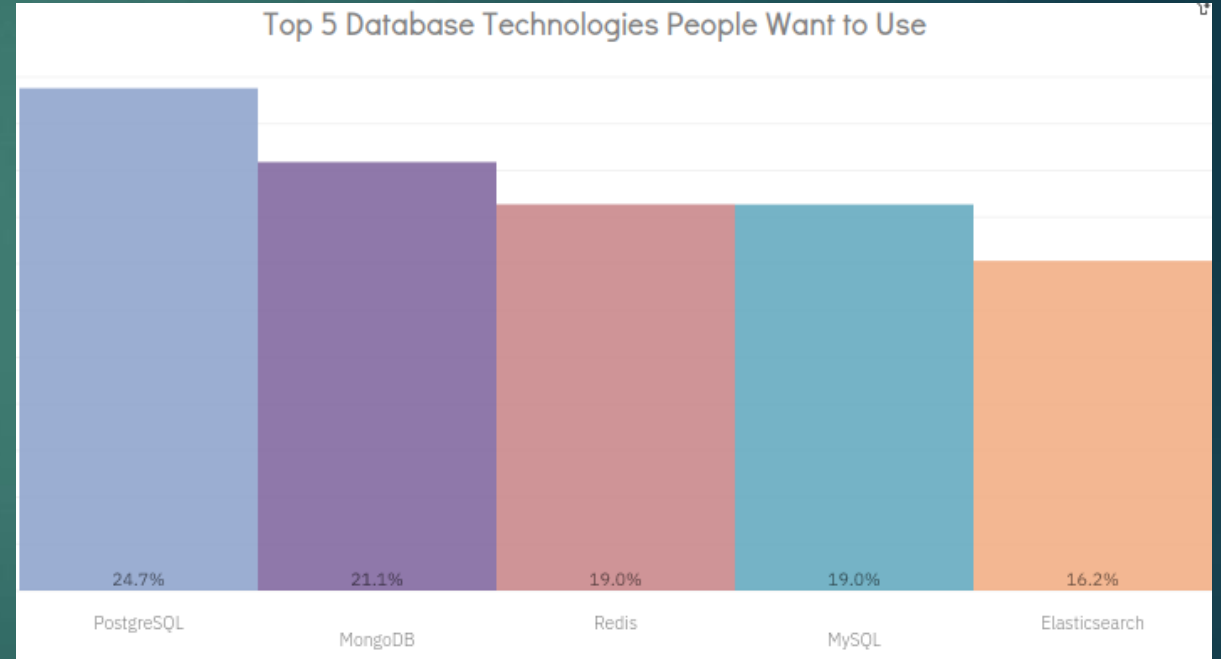


DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **PostgreSQL** took the lead of popularity of usage intention
- Developers are showing a lot less interest in working with **MySQL** and **Microsoft SQL Server**
- **MongoDB**, **Redis** and **Elasticsearch** are drawing a lot of attention from developers

Implications

- **Open source solutions** seem to be in vogue
- **RDBMS** solutions are still the mainstream in the market, but developers are very interested in trying **NoSQL** systems
- Even though NoSQL systems are getting a lot of attention, an open source RDBMS (**PostgreSQL**) is leading the popularity among developers





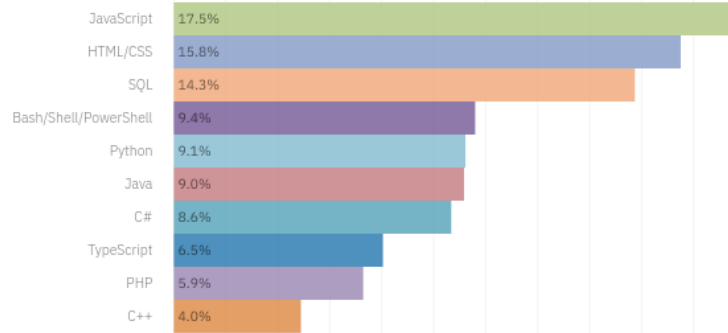
DASHBOARD

[LINK TO A READ-ONLY VIEW OF THE COGNOS DASHBOARD](#)

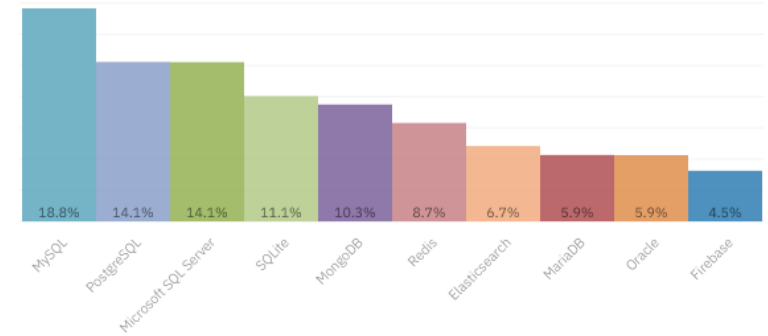
DASHBOARD

TAB 1

10 Most Popular Languages



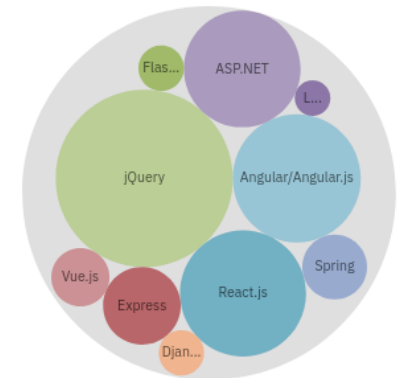
10 Most Popular Database Technologies



Most Popular Platforms



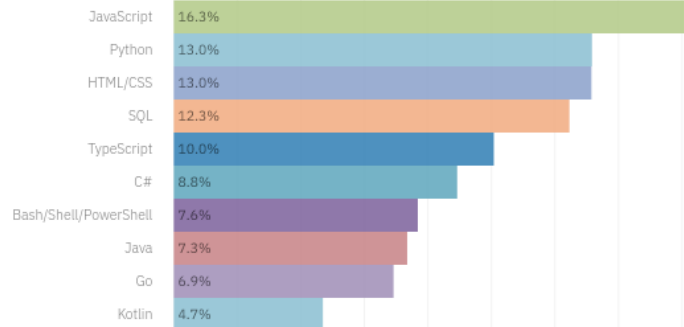
10 Most Popular Web Frameworks



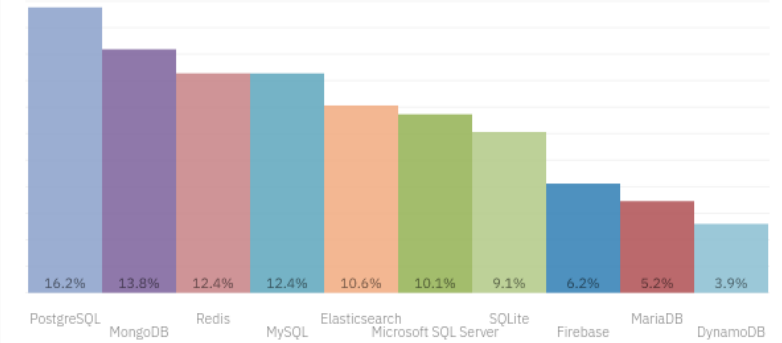
DASHBOARD

TAB 2

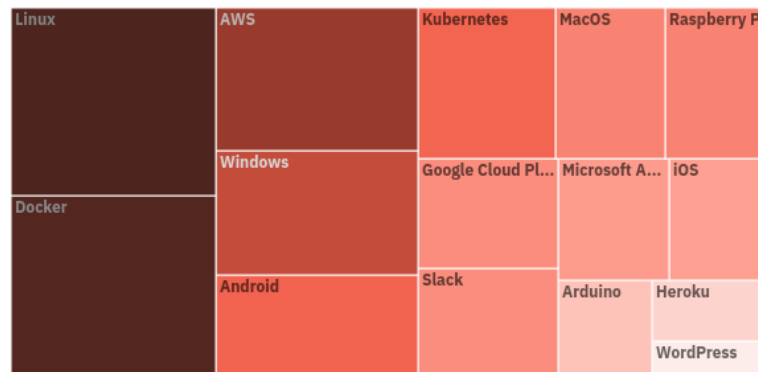
Top 10 Languages People Want to Learn



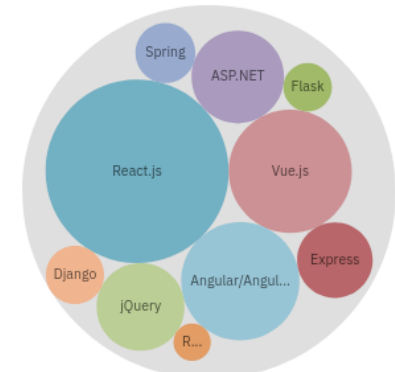
Top 10 Database Technologies People Want to Use



Platforms People Want to Work With



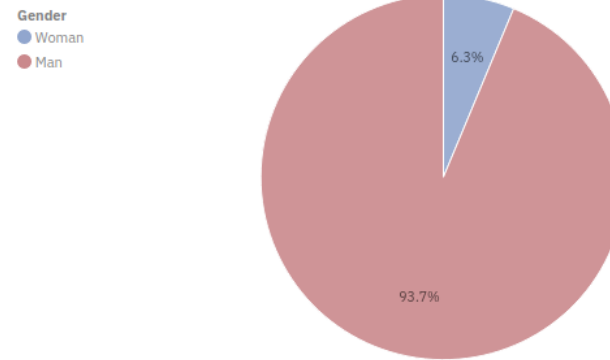
Top 10 Web Frameworks People Want to Work With



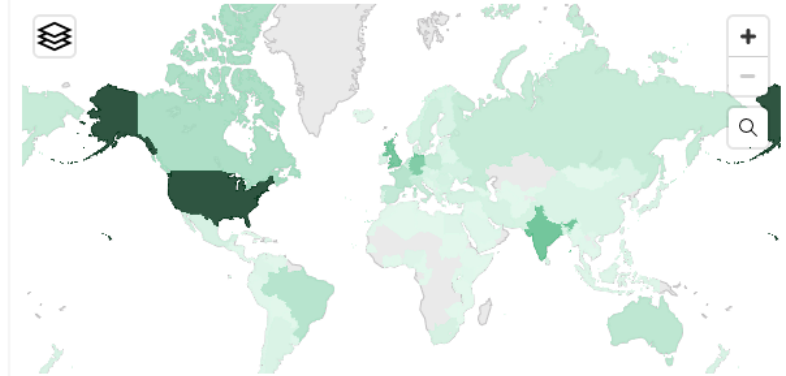
DASHBOARD

TAB 3

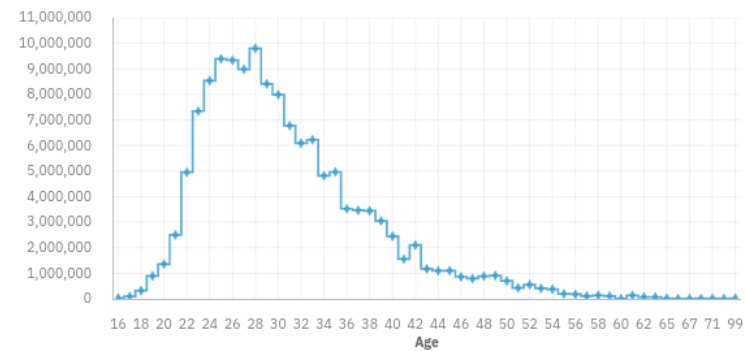
Respondents by Gender



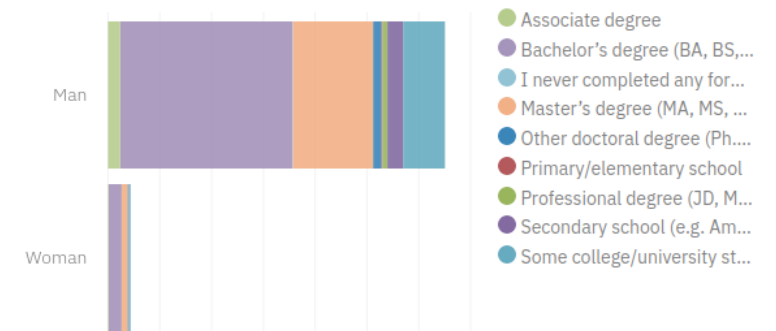
Respondents by County



Respondents Age



Respondents by Age and Education Level



DISCUSSION



OVERALL FINDINGS & IMPLICATIONS

Findings

- Programming languages directly connected to Web development are in a high, with **JavaScript** leading the ranks
- TypeScript is likely to gain space in the coming years
- **jQuery** is still relevant, **React** and **Vue** are increasing in popularity among developers
- **Angular** does not display an increase in popularity, but still is very relevant to the job market
- Developers are very curious about **NoSQL** solutions
- Despite **Windows** having the current largest share in the job market, developers are very willing to use **Linux**, **Docker** and **AWS**

Implications

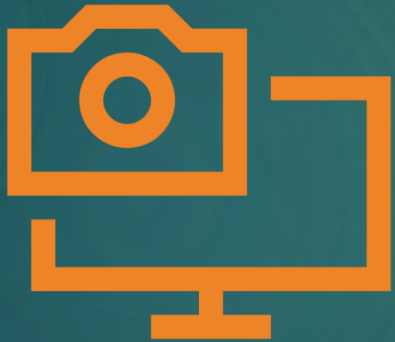
- Being **TypeScript** a syntactical superset of JavaScript, it helps to boost the relevance of the latter even more
- **JavaScript** based frameworks are in a sharp rise
- Older JavaScript frameworks are still relevant to the market
- **Open source** solutions are getting a lot of attention
- **NoSQL** is getting a lot of interest, but still isn't very consolidated in the market

CONCLUSION

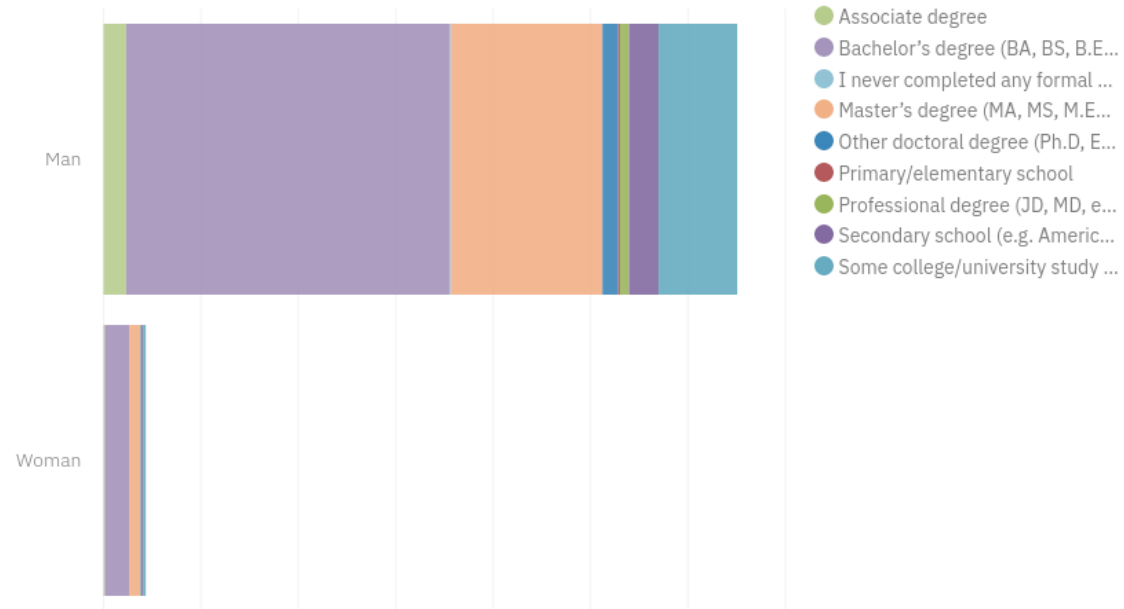


- JavaScript is a must for anyone who intends in starting a career as a web developer
- Python is getting more relevant by the day. As it's a powerful tool for a broad range of tasks, it is very compelling to be learnt
- NoSQL is attracting a lot of attention, but it's still not a go-to solution to most companies
- SQL is keeping its relevance
- Linux and cloud systems seem to be in a rise
- Open source solutions are a goal for many developers

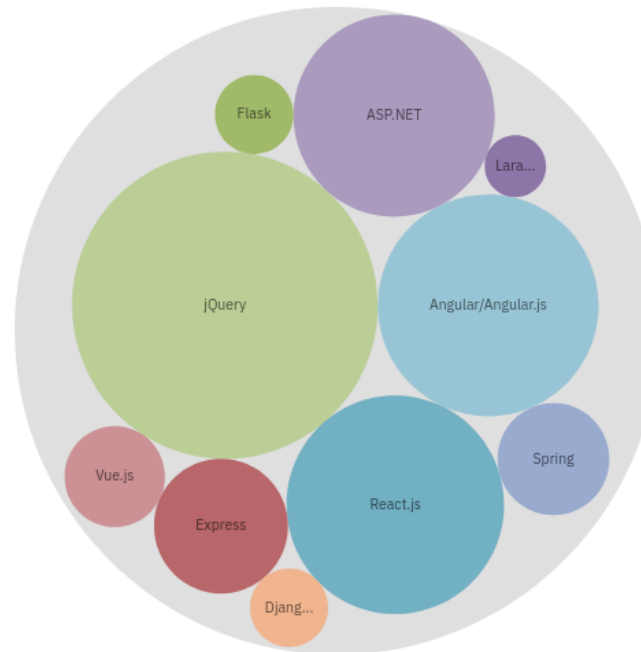
APPENDIX



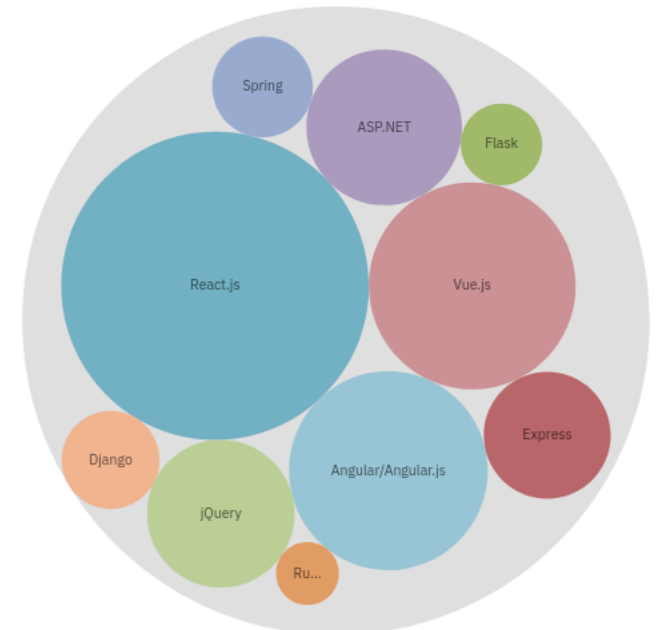
Respondents by Age and Education Level



10 Most Popular Web Frameworks

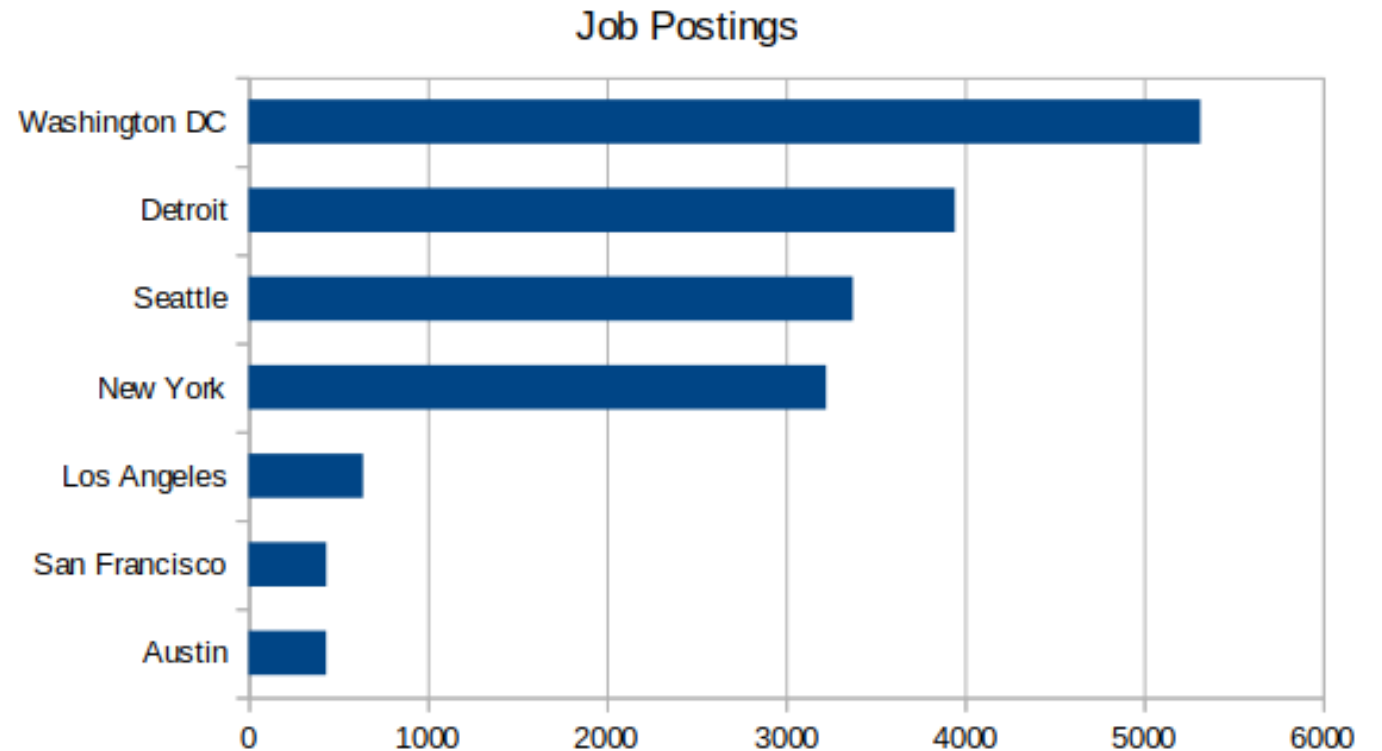


Top 10 Web Frameworks People Want to Work With



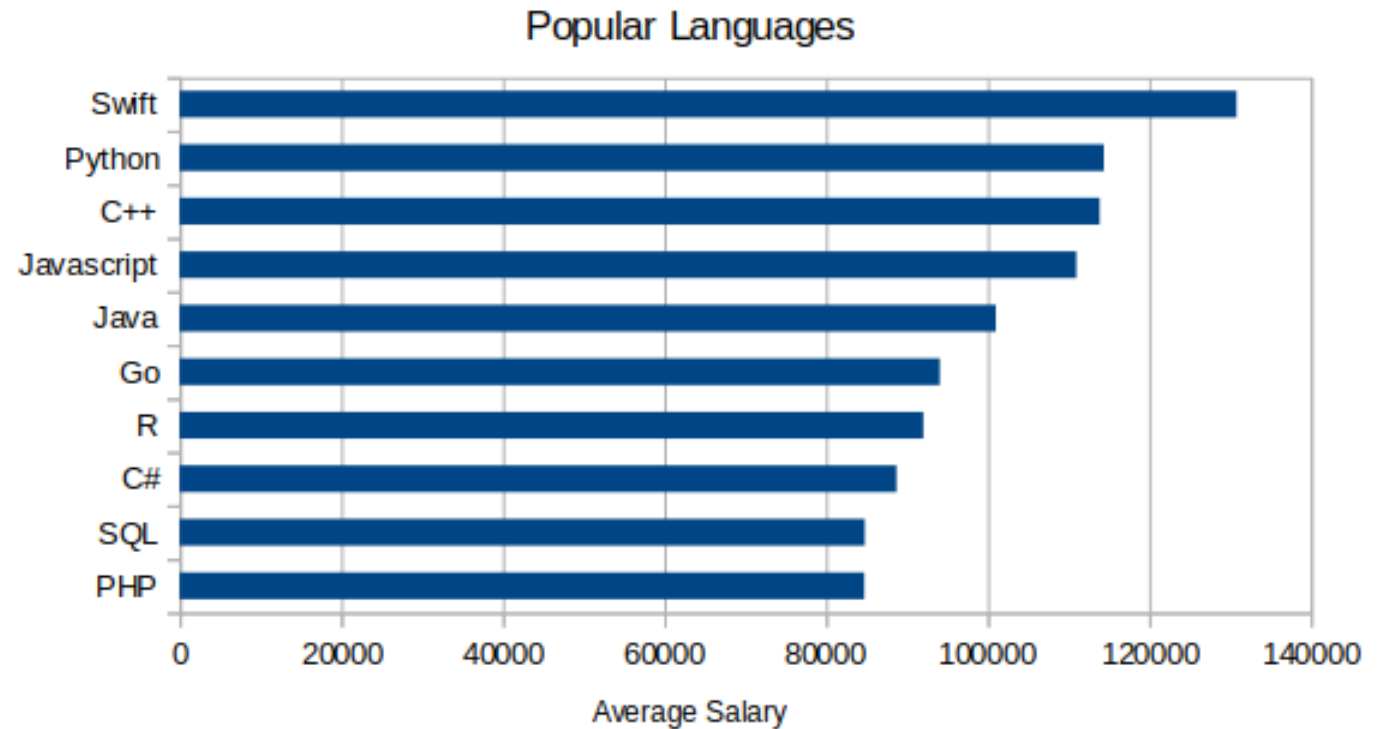
JOB POSTINGS

In Module 1 you have collected the job posting data using Job API in a file named "job-postings.xlsx". Present that data using a bar chart here. Order the bar chart in the descending order of the number of job postings.



POPULAR LANGUAGES

In Module 1 you have collected the job postings data using web scraping in a file named "popular-languages.csv". Present that data using a bar chart here. Order the bar chart in the descending order of salary.



Resources

- ▶ 1. [Stack Overflow Developer Survey - 2019](#)
- ▶ 2. [Modified dataset - technologies](#)
- ▶ 3. [Modified dataset - demographics](#)