Stack Overflow Survey Analysis

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- Methodology

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  - Dashboard

- Discussion
  - Findings & Implications

- Conclusion

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EXECUTIVE SUMMARY

- Dataset was collected from a Stack Overflow survey of professionals about their work, pay, etc.

- Dataset was cleaned to remove missing values, duplicate rows, and make it easier to read

- Exploratory data analysis was performed in order to get an understanding of how variables correlate with each other

- Dashboard was created to help visualize trends in the dataset about what technologies respondents used and their overall demographics

- Finally, this presentation was curated to present all of the findings

INTRODUCTION

- This presentation was created to answer questions about how developers across the world relate to each other based on several different characteristics.

- The motivation was to find a way to predict/analyze what makes developer a developer.

- This report is for fellow data analysts to observe and critique the findings and provide feedback.

- The reader will gain knowledge on how one data analyst presents their findings.

METHODOLOGY

- Data sources that were used were from the tech company, Stack Overflow, who had run a 2019 survey on developers across the world

- The dataset was collected from webscraping the website using REST APIs.

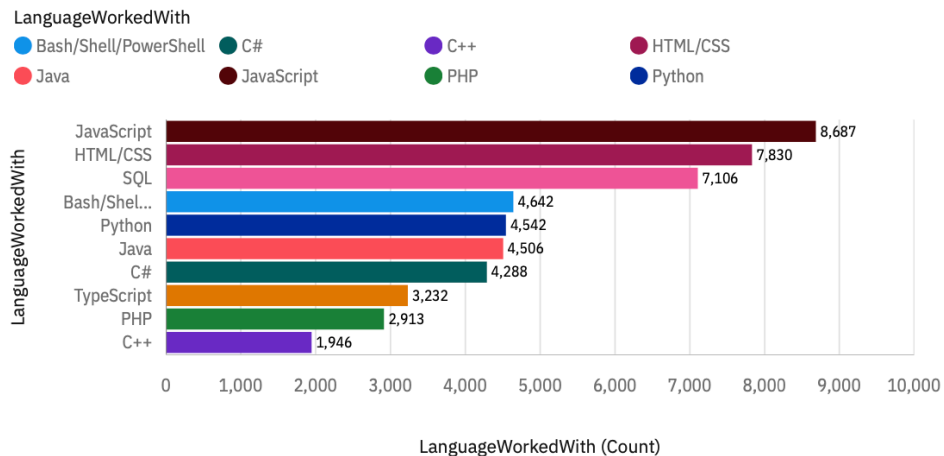- Source = https://stackoverflow.blog/2019/04/09/the-2019-stack-overflow-developer-survey-results-are-in/

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RESULTS

Coming Soon — On the next slide!

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PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

Top 10 Languages used by Respondents

LanguageWorkedWith
- Bash/Shell/PowerShell
- C#
- C++
- HTML/CSS
- Java
- JavaScript
- PHP
- Python

Language	Count
JavaScript	8,687
HTML/CSS	7,830
SQL	7,106
Bash/Shel...	4,642
Python	4,542
Java	4,506
C#	4,288
TypeScript	3,232
PHP	2,913
C++	1,946

LanguageWorkedWith (Count)

Top 10 Languages Respondents Want to Use Next Year

LanguageDesireNextYear
- Bash/Shell/PowerShell
- C#
- Go
- HTML/CSS
- Java
- JavaScript
- Kotlin
- Python

Language	Sum
JavaScript	6,630
HTML/CSS	5,328
Python	5,239
SQL	5,012
TypeScript	4,088
C#	3,591
Bash/Shell/PowerShell	3,097
Java	2,953
Go	2,759
Kotlin	1,890

Sum

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- TypeScript received almost 1000 more responses for next year as compared to current year

- Go and Kotlin are in next year's top 10, but the current year

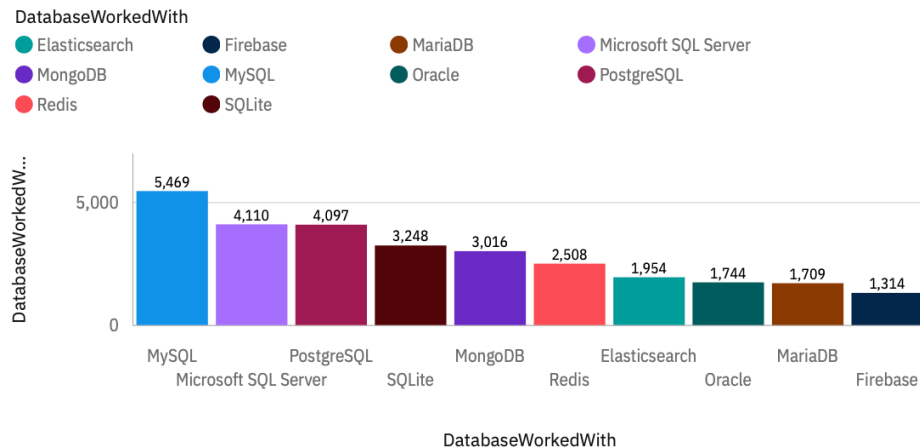- JavaScript is the #1 most recorded language by the respondents for both periods

Implications

- More people either want to learn TypeScript or companies are using it more now

- These two languages are becoming more popular and may be widely used by developers in the future

- JavaScript is still highly in demand and will continue to be

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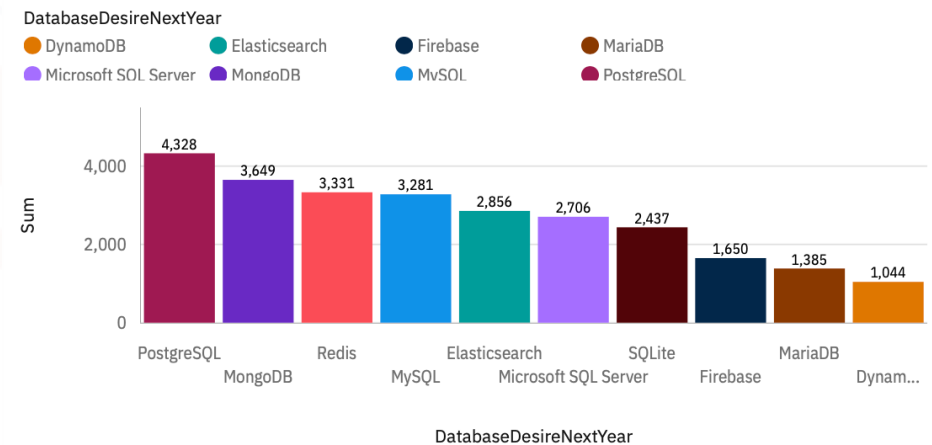
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DATABASE TRENDS

Current Year

Top 10 Databases used by Survey Respondents

DatabaseWorkedWith
- Elasticsearch
- Firebase
- MariaDB
- Microsoft SQL Server
- MongoDB
- MySQL
- Oracle
- PostgreSQL
- Redis
- SQLite

Next Year

Top 10 Databases Respondents Want to Use Next Year

DatabaseDesireNextYear
- DynamoDB
- Elasticsearch
- Firebase
- MariaDB
- Microsoft SQL Server
- MongoDB
- MySQL
- PostgreSQL

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL lost almost 2000 responses from both periods

- MongoDB and PostgreSQL stole the top 2 positions for future languages

- The changes are relatively small compared to programming languages

Implications

- MySQL may be starting to be under favored by developers compared to other RDBMS.

- They may be more sought after skills in the next couple of years

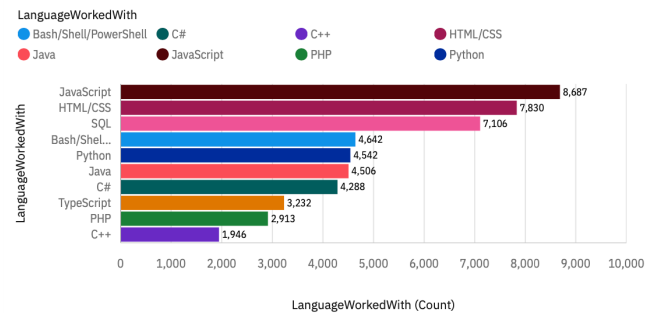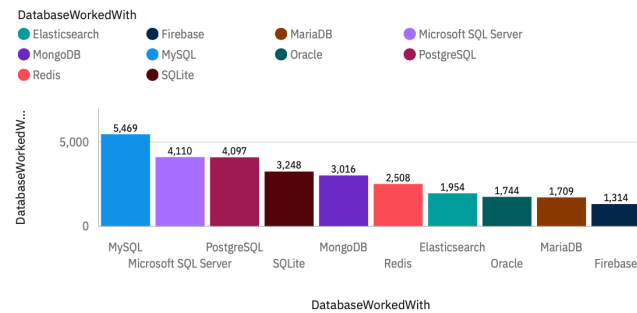- This is because there are more languages than databases to choose from

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DASHBOARD

https://github.com/shamikhmaredia/IBM-Work/blob/main/IBM%20Capstone%20Dashboard.pdf

DASHBOARD TAB 1

Current Technology Usage

Top 10 Languages used by Respondents

LanguageWorkedWith
- ● Bash/Shell/PowerShell
- ● C#
- ● C++
- ● HTML/CSS
- ● Java
- ● JavaScript
- ● PHP
- ● Python

Language	Count
JavaScript	8,687
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TypeScript	3,232
PHP	2,913
C++	1,946

LanguageWorkedWith (Count)

Top 10 Databases used by Survey Respondents

DatabaseWorkedWith
- ● Elasticsearch
- ● Firebase
- ● MariaDB
- ● Microsoft SQL Server
- ● MongoDB
- ● MySQL
- ● Oracle
- ● PostgreSQL
- ● Redis
- ● SQLite

Database	Count
MySQL	5,469
Microsoft SQL Server	4,110
PostgreSQL	4,097
SQLite	3,248
MongoDB	3,016
Redis	2,508
Elasticsearch	1,954
Oracle	1,744
MariaDB	1,709
Firebase	1,314

DatabaseWorkedWith

Platforms used by Respondents

PlatformWorkedW... 0 — 5,811

PlatformWorkedWith
- ● (no value)
- ● Arduino
- ● AWS
- ● Docker
- ● Android
- ● Google Cloud Platform
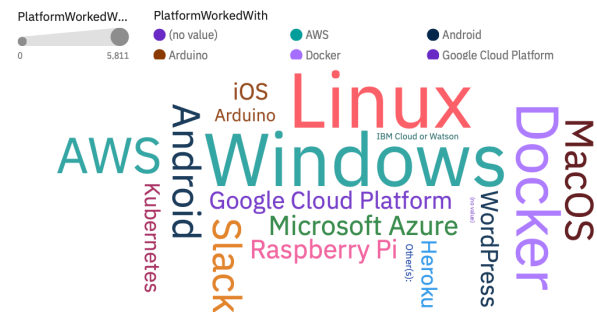
Top 10 Web Frames used by Respondents

WebFrameWorkedWith... 0 — 4,629

WebFrameWorkedWith
- ● (no value)
- ● Drupal
- ● ASP.NET
- ● Express
- ● Angular/Angular.js
- ● Flask
- ● Django
- ● Laravel

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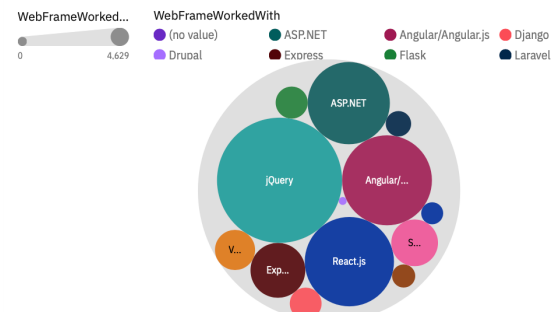
DASHBOARD TAB 2

Future Technology Trend

Top 10 Languages Respondents Want to Use Next Year

LanguageDesireNextYear
- ● Bash/Shell/PowerShell ● C# ● Go ● HTML/CSS
- ● Java ● JavaScript ● Kotlin ● Python

Language	Value
JavaScript	6,630
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Bash/Shell/PowerShell	3,097
Java	2,953
Go	2,759
Kotlin	1,890

Top 10 Databases Respondents Want to Use Next Year

DatabaseDesireNextYear
- ● DynamoDB ● Elasticsearch ● Firebase ● MariaDB
- ● Microsoft SOL Server ● MongoDB ● MvSOL ● PostgreSOL

Database	Sum
PostgreSQL	4,328
MongoDB	3,649
Redis	3,331
MySQL	3,281
Elasticsearch	2,856
Microsoft SQL Server	2,706
SQLite	2,437
Firebase	1,650
MariaDB	1,385
Dynam...	1,044

Platforms Respondents Want to Use Next Year

PlatformDesireNe... 0 — 5,865
PlatformDesireNe... 0 — 5,865

Linux, Docker, AWS, Windows, Android, Kubernetes, MacOS, Raspberry Pi, Google Cl..., iOS, Arduino, Slack, Heroku, IBM ..., Microsof..., Wo..., Oth...
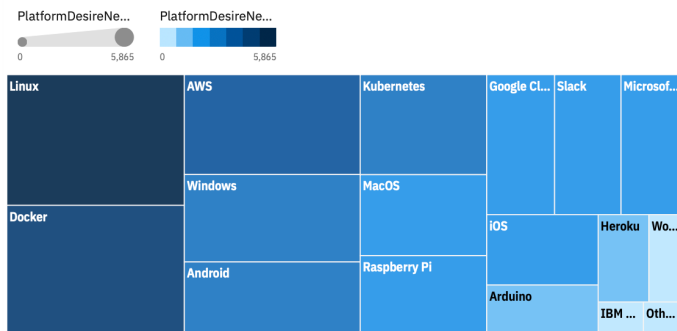
Top 10 Web Frames Respondents Want to Use Next Year

WebFrameDesire... 970 — 4,714

WebFrameDesireNextYear
- ● ASP.NET ● Angular/Angular.js ● Django ● Express
- ● Flask ● React.is ● Rubv on Rails ● Spring

React.js, Vue.js, ASP..., S..., Exp..., Angular..., jQuery, D..., F...
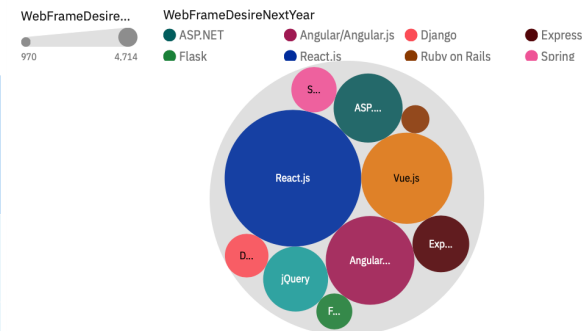
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DASHBOARD TAB 3

Demographics
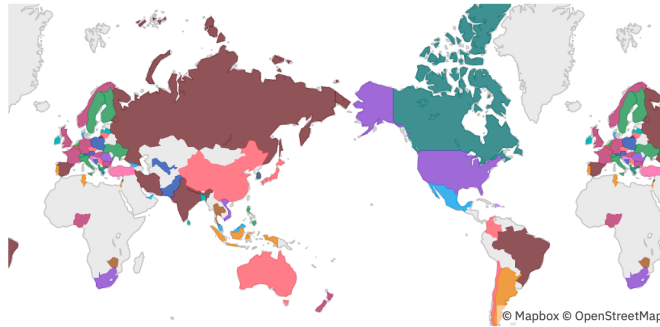
Proportion of Respondents by Gender
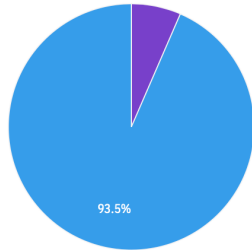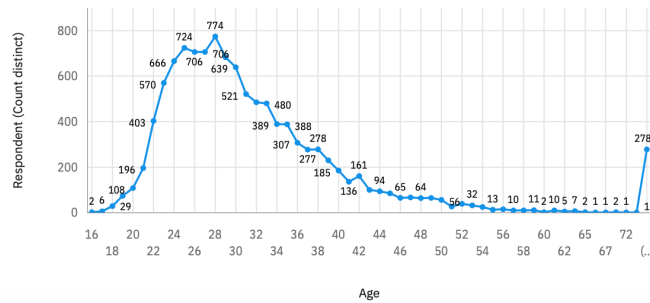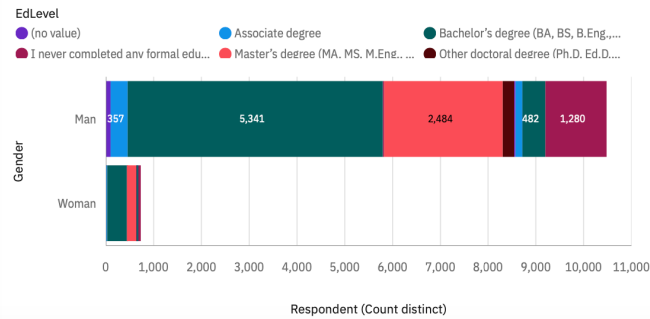
Respondents Filtered by Country of Origin

Age Distribution across Respondents

# of Respondents Based on Gender and Education Level

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DISCUSSION

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OVERALL FINDINGS & IMPLICATIONS

Findings

- There are more men who answered the survey than women

- Majority of the respondents are 30 and under

- Windows was reported more than MacOS

Implications

- The tech job market is less diverse in terms of gender, but may already be starting to balance

- There may be less developers jobs in the future as the older generation may still keep their jobs into their 50s and 60s

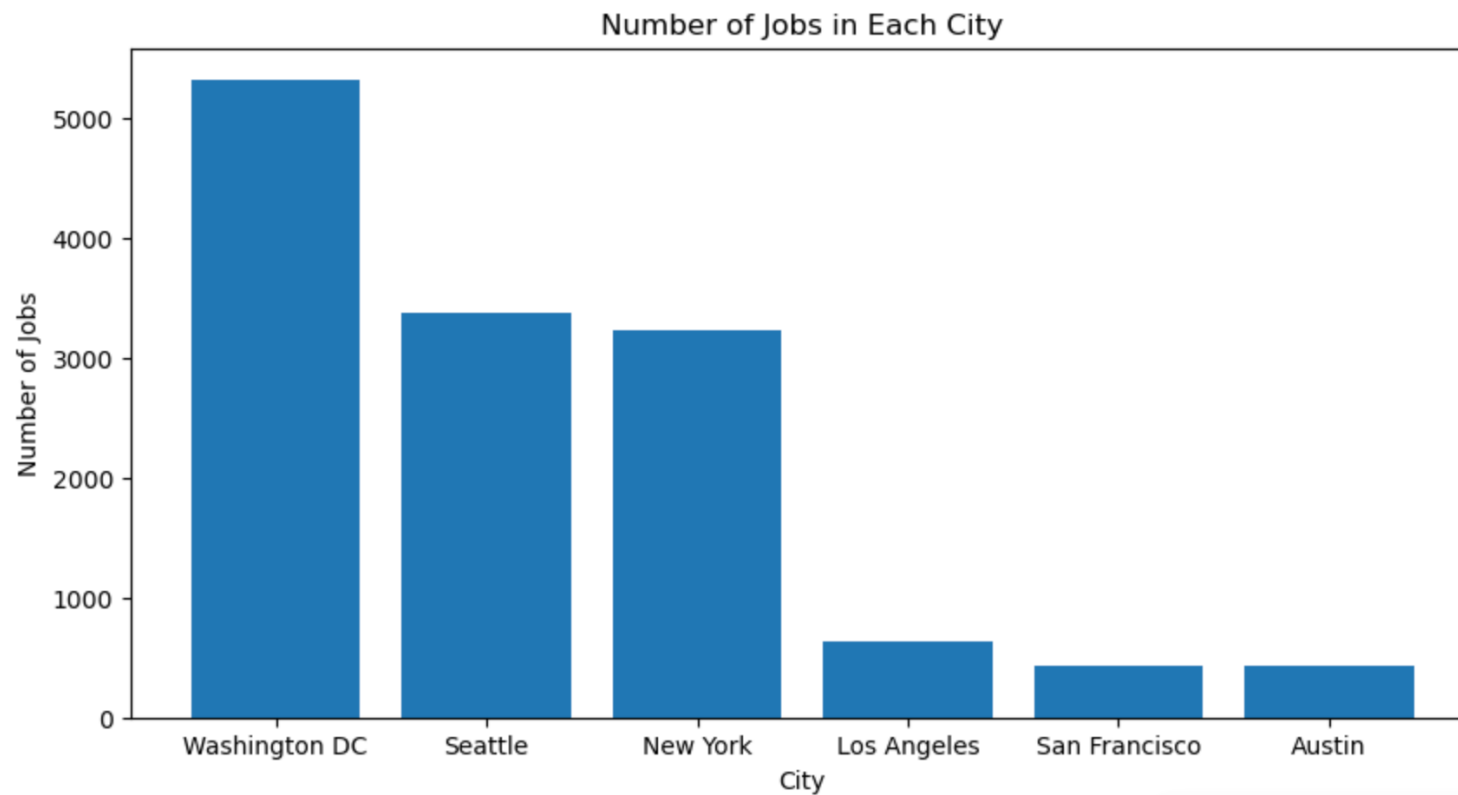- Developers may prefer the Windows system when coding

CONCLUSION

- The tech industry is constantly shifting with the arrivals of new languages, databases, and operating systems

- There may be an increase of developer jobs created around the world in the future

- Tech professionals come from different backgrounds and may have wildly different job functions

- Survey results are not fully indicative of a consensus tech job

APPENDIX

	City	Number of Jobs
0	Los Angeles	640
1	New York	3226
2	San Francisco	435
3	Washington DC	5316
4	Seattle	3375
5	Austin	434

JOB POSTINGS

Number of Jobs in Each City

POPULAR LANGUAGES

Average Annual Salaries based on Programming Language