Analysis of Technology trends

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OUTLINE

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

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EXECUTIVE SUMMARY

- Context of data and analysis goals.

- Methodology description
  - Data gathering
  - Data analysis
  - Data presentation & visualizations

- Future Technology Trends

- Implications in relations to the overall findings highlighted

- Key-take-aways related to analysis, and presented data

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INTRODUCTION

- Analyze and present findings in relation the technology trends in software- and web development among developers around the world
  - Analyzed data from Stack Overflow's annual developer survey covers extensively what the current programming languages are, and which future trends are to be expected.

- Purpose of analysis:
  - Highlight current- and future soft (or eventual hard) requirements, for future jobs related to understanding of tech. languages.
  - Highlight demographical factors, related to tech. (country, gender)

- This analysis hold relevancy to;
  - Programmers
  - IT industry leaders
  - Comp. science students

METHODOLOGY

- Collecting survey data and gaining an understanding of given data.
  - Web scraping
  - APIs
  - Request libraries
  - Data Wrangling
  - Data cleaning
- Data Vizualization
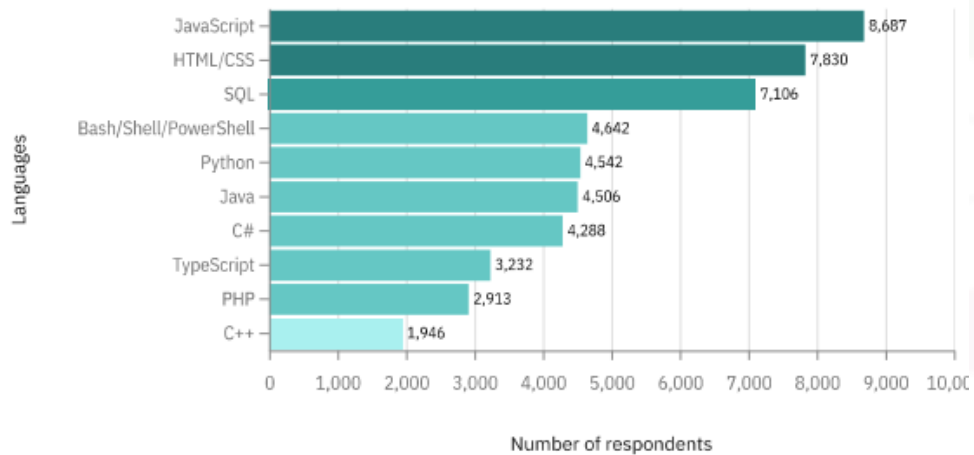 - IBM Cognos (dashboards)
- Presenting our findings

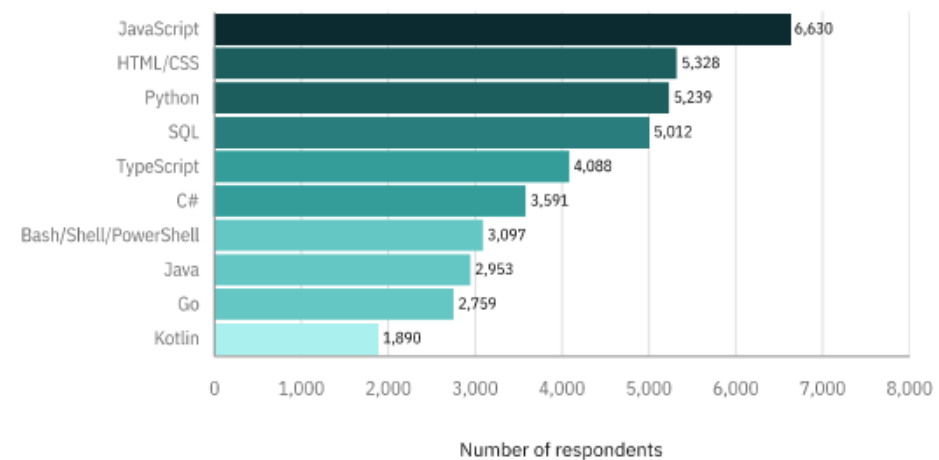# RESULTS
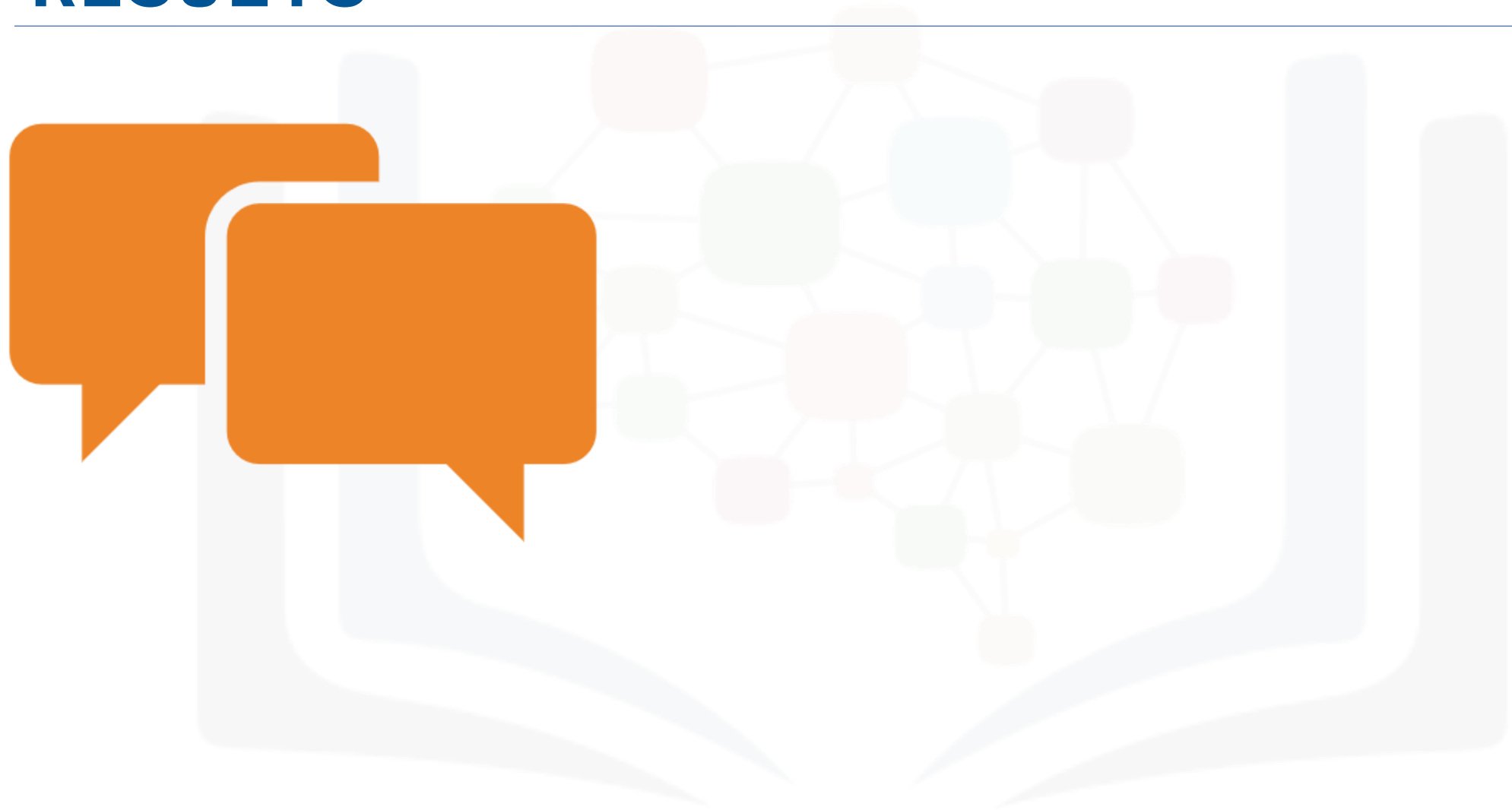
PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 languages worked with according to respondents

Language	Number of respondents
JavaScript	8,687
HTML/CSS	7,830
SQL	7,106
Bash/Shell/PowerShell	4,642
Python	4,542
Java	4,506
C#	4,288
TypeScript	3,232
PHP	2,913
C++	1,946

Next Year

Top 10 Languages desired to learn according to respondents

Language	Number of respondents
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

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript and HTML-CSS leading tech. languages.
- Interest in Python increasing
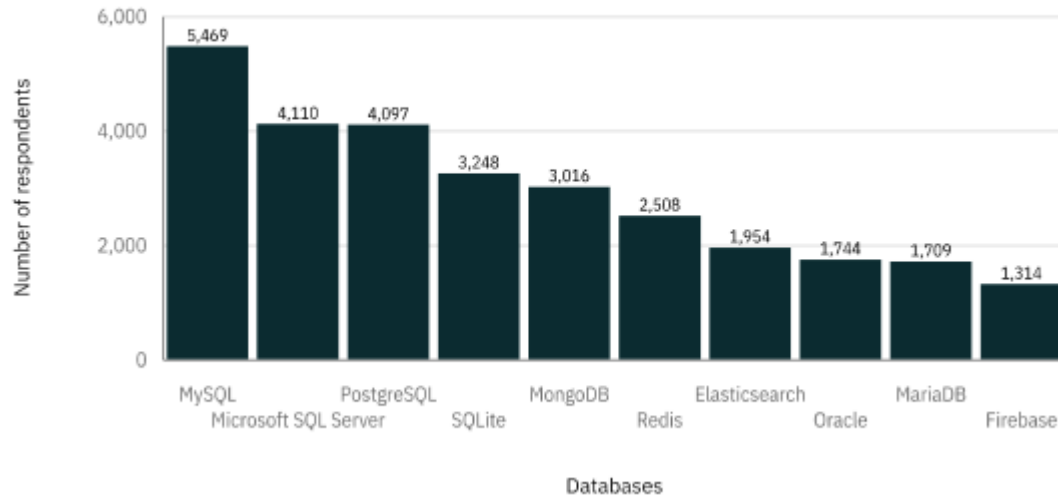- Increasing interest in TypeScript And Kotlin

Implications

- Favor of status quo. JavaScript/HTML-CSS leads as the languages the most desire to learn.
- Pythons increase in popularity is in accordance to assumptions, as it is a leading language used for AI
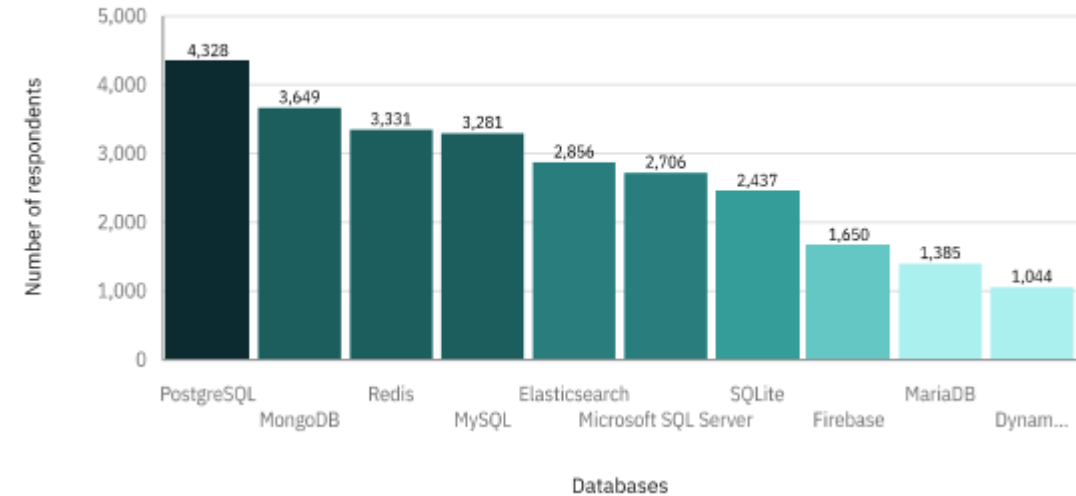
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DATABASE TRENDS

Current Year

Top 10 Databases worked with according to respondents

Next Year

Top 10 Databases desired to learn according to respondents

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL leads as the most frequent used database

- PostgreSQL retains fairly high levels of use

- Decline in popularity and use in Microsoft SQL

Implications

- Favor of status-quo. Open sourced databases preferred.

- Increased interested in NoSQL databases like MongoDB and Redis.

- PostgreSQL has a fairly high interest comparatively to use

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DASHBOARD

Link to the read-only view of the Cognos dashboard:

https://github.com/B-D-E1804/IBM-Data-Analyst-Capstone-Project/blob/main/IBM%20Cognos%20-%20Capstone%20Project%20pdf.pdf

https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FIBM%2BCapstone%2BProject%2B-%2BModule%2B5&action=view&mode=dashboard&subView=model0000019262183625_00000000
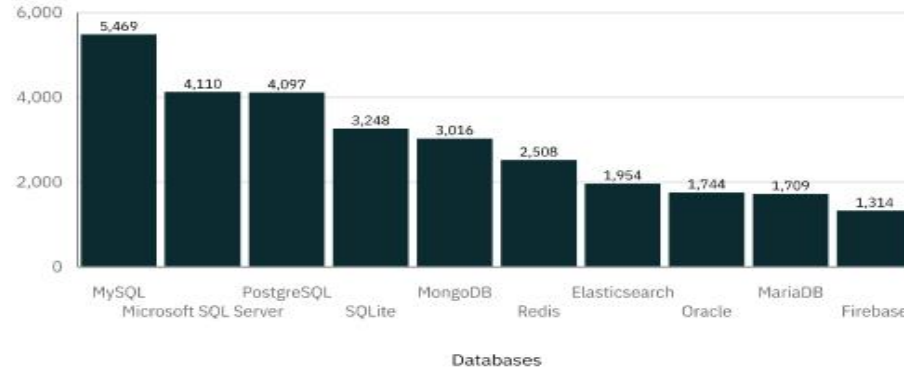
DASHBOARD TAB 1

Current Technology Usage

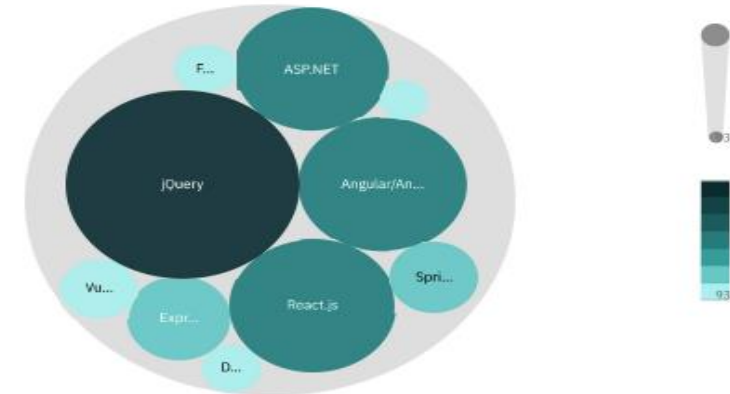Top 10 languages worked with according to respondents
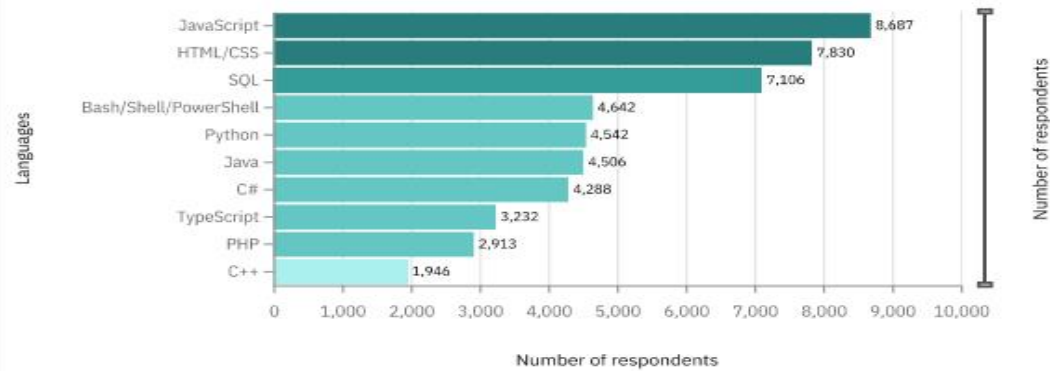
Top 10 Databases worked with according to respondents

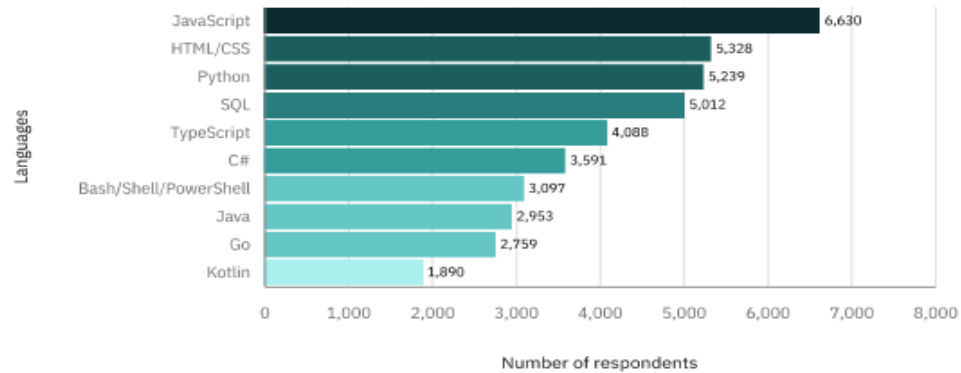Platforms most frequently used according to respondents

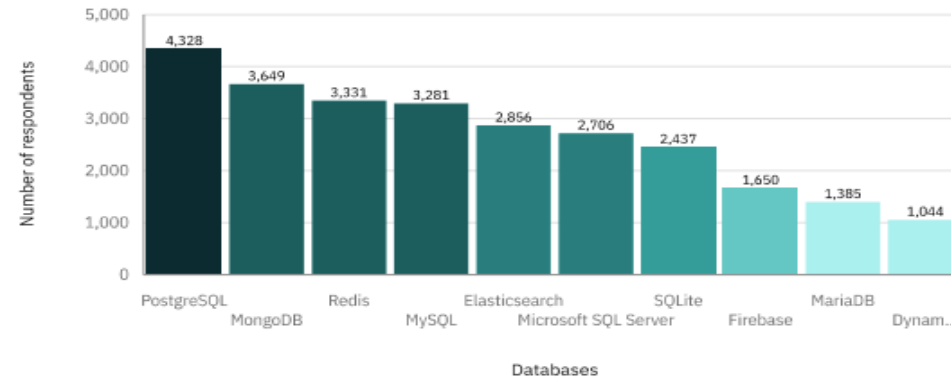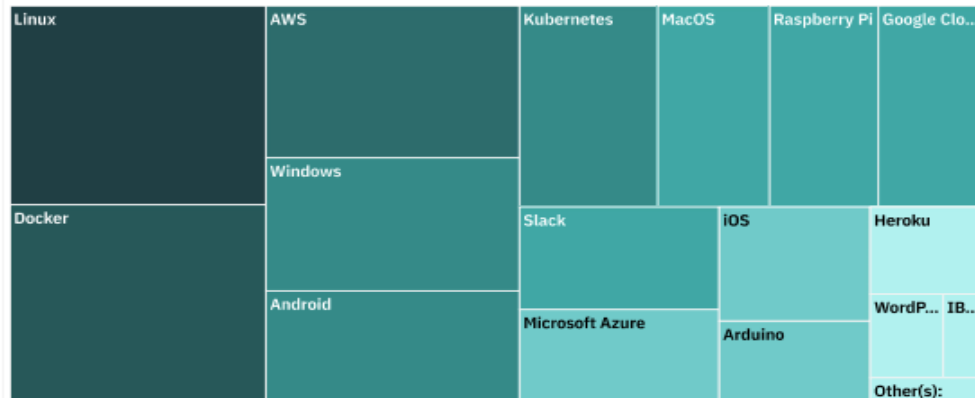Top 10 WebFrames worked with according to respondents

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DASHBOARD TAB 2

Future Technology Trend

Top 10 Languages desired to learn according to respondents

Languages	Number of respondents
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

Top 10 Databases desired to learn according to respondents

Databases	Number of respondents
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

Desired Platform for Next Year according to respondents

Linux, AWS, Kubernetes, MacOS, Raspberry Pi, Google Clo..., Windows, Docker, Slack, iOS, Heroku, Android, Microsoft Azure, Arduino, WordP..., IB..., Other(s):

Top 10 WebFrames desired to learn according to respondents
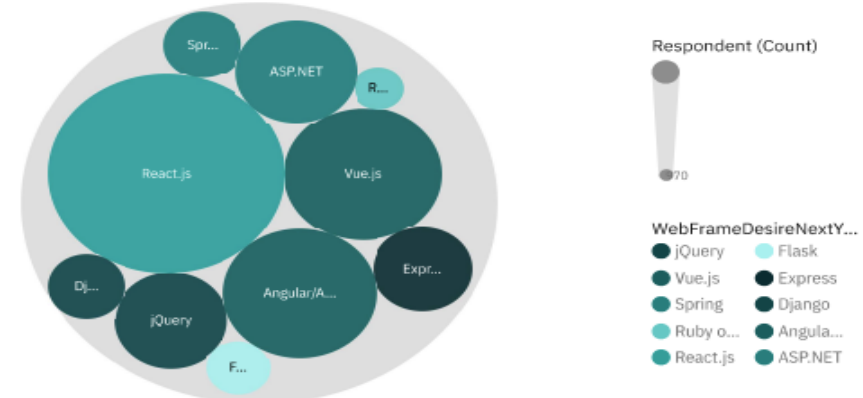
Respondent (Count) 70

WebFrameDesireNextY...
- jQuery
- Vue.js
- Spring
- Ruby o...
- React.js
- Flask
- Express
- Django
- Angula...
- ASP.NET

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DASHBOARD TAB 3
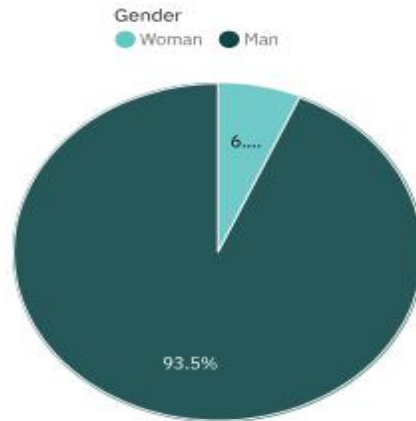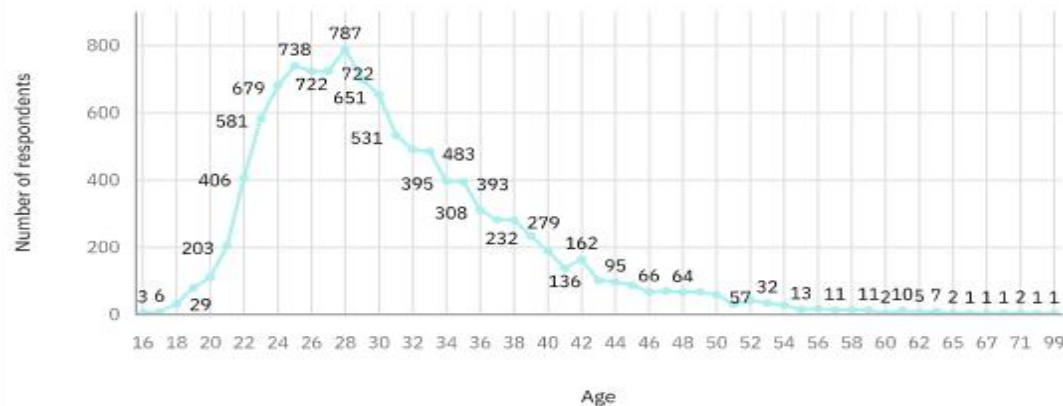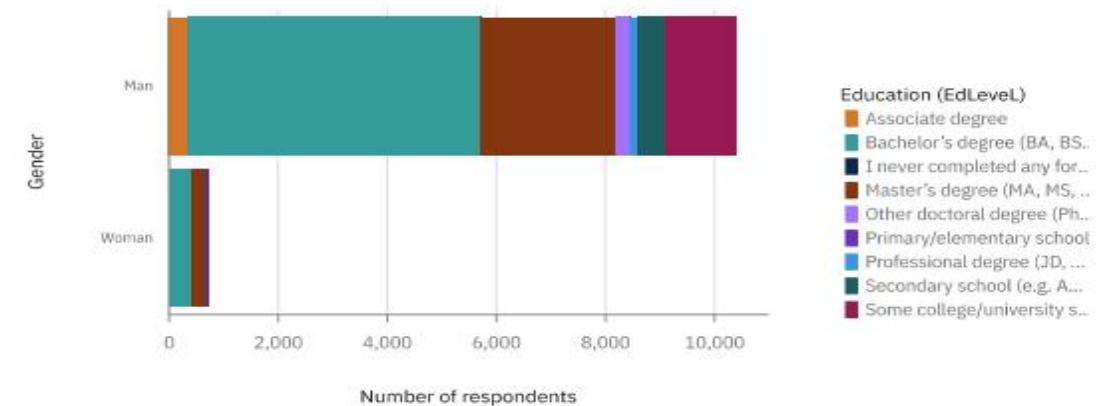
DISCUSSION

- Impact and overall value of tech popularity- and usage in emerging countries and economies

- Lack of females represented in demographics of analyzed data
  - A real concern in terms of discrimination, or statistical bias due to survey data?

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript retains it's popularity, and is overall desired to be learnt

- Male dominated field

- Users- or people highly interested in developing usually come from more established countries (USA, Western Europe)

Implications

- Little changes annually, although noSQL databases have seen an significant boost in desire to learn/popularity

- Majority of developers, have a formal education

- Need for higher degree of inclusion; lack of females
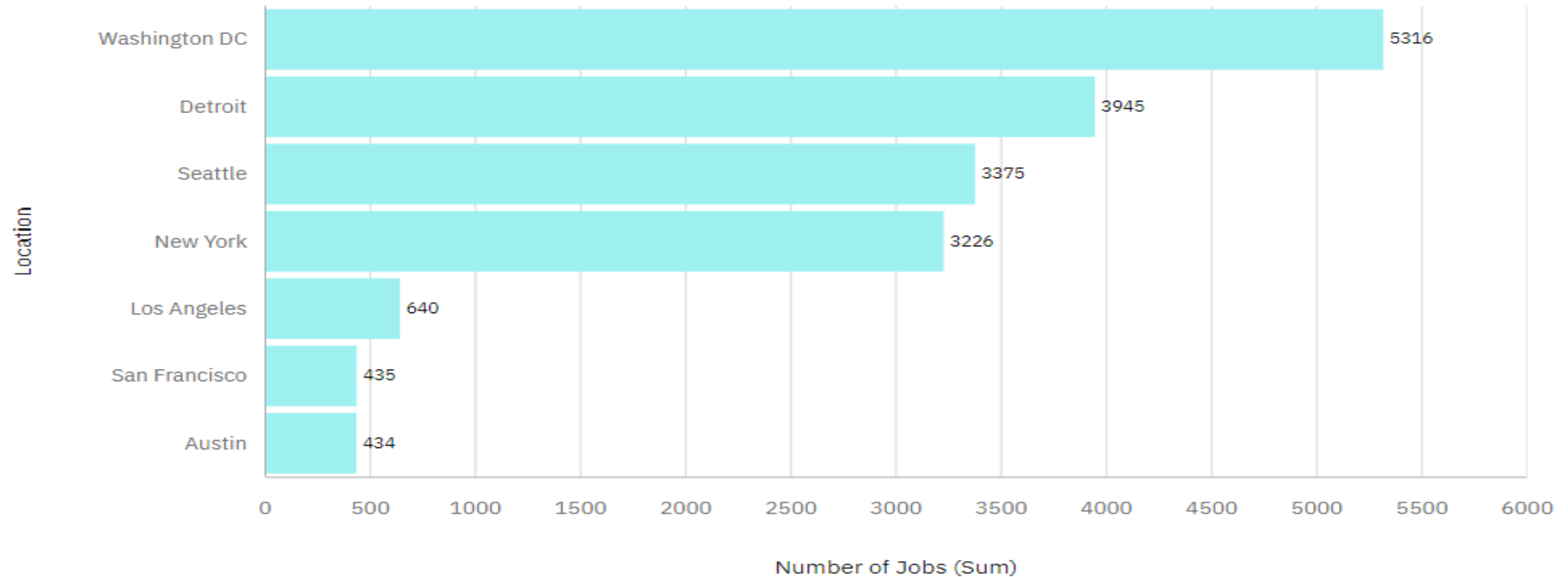
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CONCLUSION

- Technology trends
  - On par with previous years, with some slight changes in popularity related to a few key programming languages and databases.
- On-going development and need of IT/ in emerging economies/countries.
- Underlying demographical trends
  - Age, gender, country

APPENDIX

JOB POSTINGS

Number of Jobs by Location

POPULAR LANGUAGES

Average Annual Salary by Language

Language	Average Annual Salary (Average)
Swift	130,801
Python	114,383
C++	113,865
Javascript	110,981
Java	101,013
Go	94,082
R	92,037
C#	88,726
SQL	84,793
PHP	84,727