OUTLINE

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

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EXECUTIVE SUMMARY

- To remain competitive, it's important to keep pace with challenging technologies. This report shows the collected data from various sources to identify current and projected trends on emerging technological skills.

- The data used for this analysis was gathered from the Stack Overflow Survey, IBM website, and GitHub job postings. From there it was cleaned, subjected to exploratory analysis, and visualized on dashboards using IBM Cognos Analytics.

- The results of this analysis showed that JavaScript is currently the most popular programming language; and is also the top choice for developers to learn in the future. For the database, MySQL is currently the most used, but PostgreSQL is projected to take that place in the future.

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INTRODUCTION

- This report provides an analysis of the current and projected trends in programming languages, databases used, platforms, web frames, and the demographics of the data gathered.

- This report is structured around the following key questions:
  - What are the top programming languages in demand?
  - What are the top database skills in demand?
  - What are the popular web frames?

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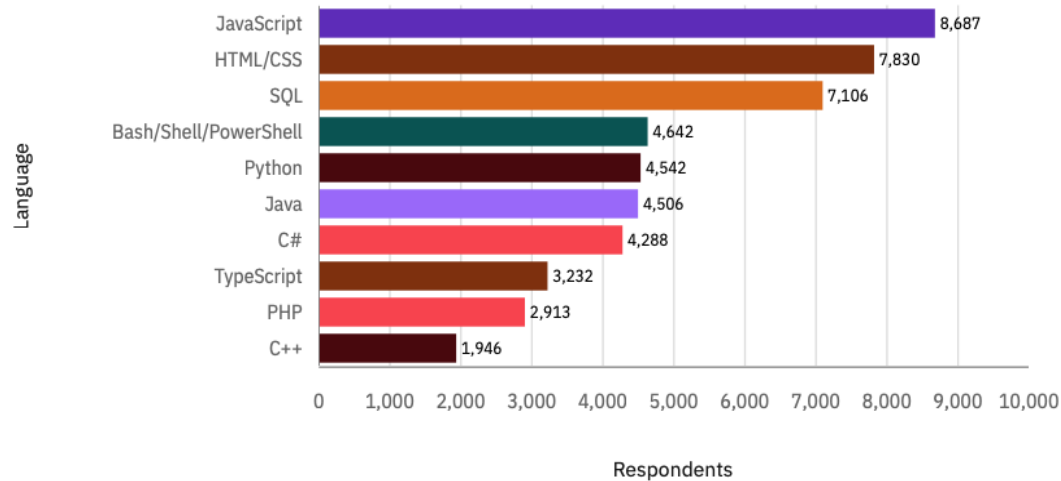
SKILLS NETWORK

METHODOLOGY

- Data Collection and Exploring the Data
  - APIs & Web Scraping
- Data Wrangling
  - Data Cleaning using Python
- Exploratory Data Analysis
  - Data Distribution, Finding Outliers, & Finding Correlation
- Data Visualization
  - Distribution of Data, Relationships, Composition of Data, & Comparison of Data
- Building a Dashboard
  - Using IBM Cognos Analytics

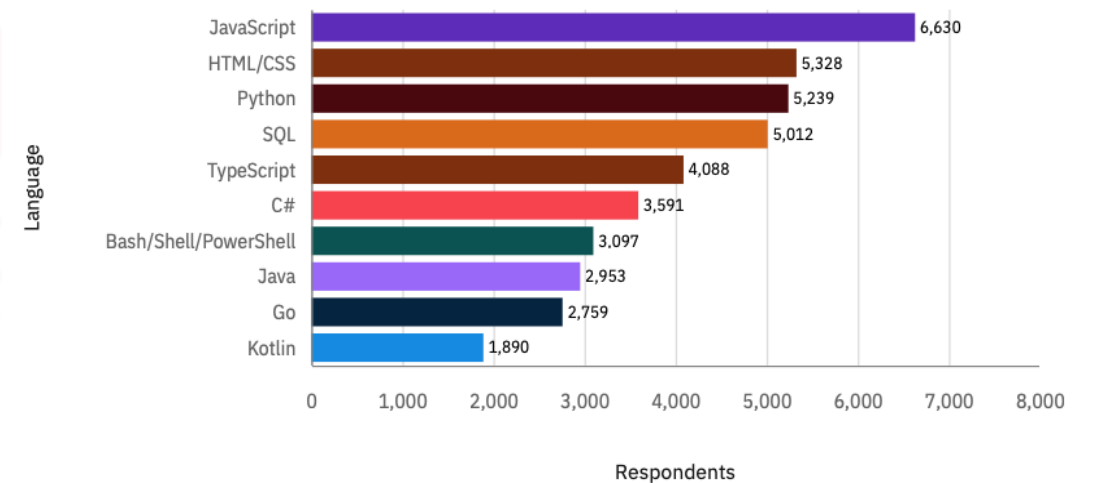# RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

Top 10 Programming Languages Worked With

Language	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

Top 10 Languages Desired to Learn

Language	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

PROGRAMMING LANGUAGE TRENDS FINDINGS & IMPLICATIONS

Findings

- JavaScript and HTML/CSS are currently the most used programming languages and is projected to stay that way next year.

- There is an increase in popularity for Python.

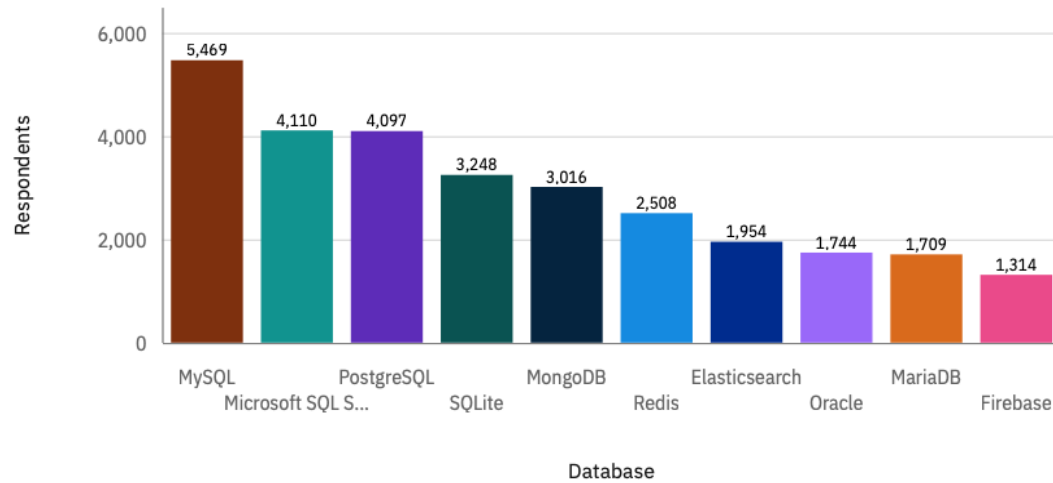- Although overtaken by Python, SQL remains a popular language to learn.

Implications

- JavaScript and HTML/CSS are both used for web development. Which could mean it's a high-value skill to have.

- With the rising demand of AI and ML skills, Python's simplicity and readability could be the cause of this popularity increase.

- SQL is the foundation for any data professional—an important skill to have.
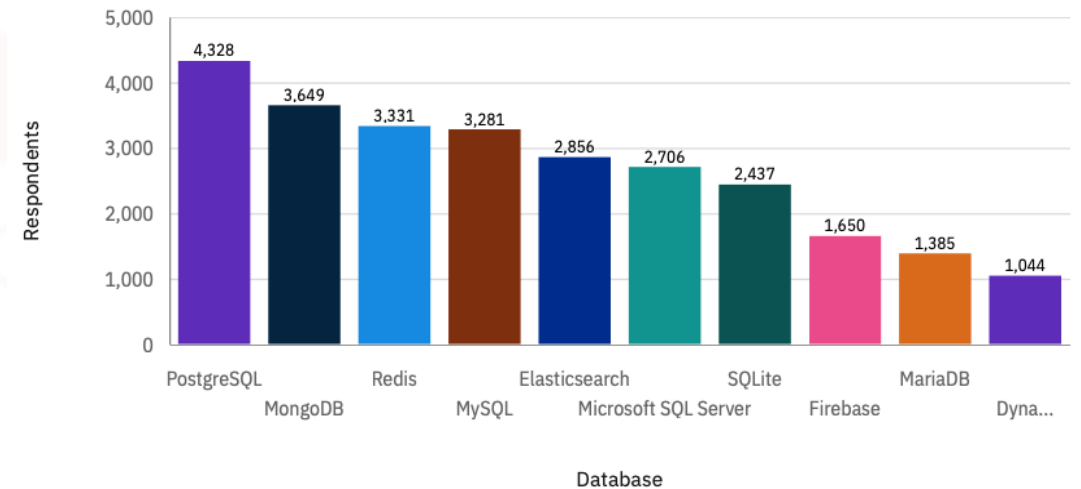
DATABASE TRENDS

Current Year

Next Year

Top 10 Databases Worked With

Top 10 Databases Desired to Learn

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DATABASE TRENDS FINDINGS & IMPLICATIONS

Findings

- MySQL and Microsoft SQL Server, the most used databases this year, are not projected to be so next year.

- Oracle is also not projected to be part of the top 10 databases used next year.

- There is an increase in popularity for PostgreSQL, MongoDB, and Redis.

Implications

- MySQL, Microsoft SQL Server, and Oracle are losing popularity in the market.

- Business needs/requirements must be changing.

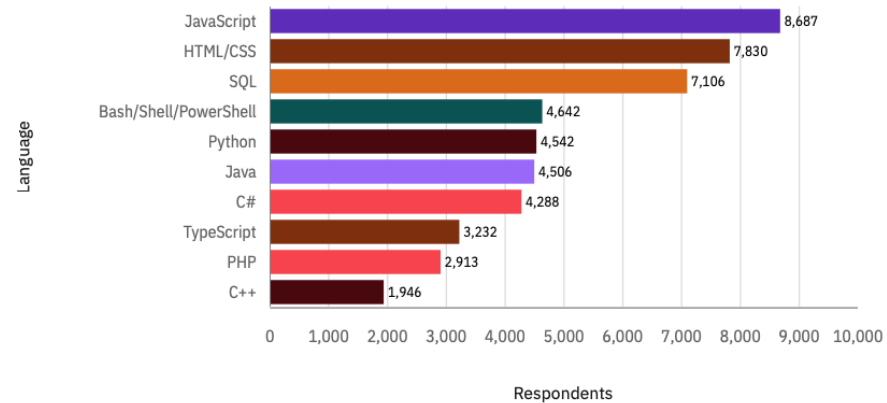IBM Developer

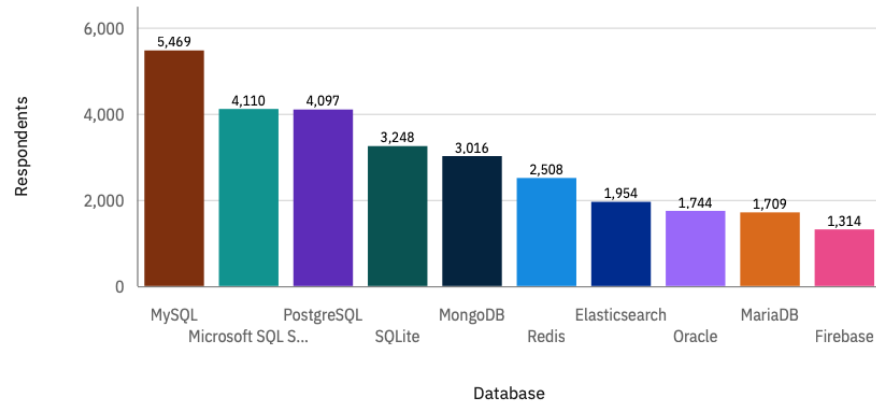SKILLS NETWORK

DASHBOARD

IBM Cognos Analytics Dashboard:

https://ap2.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FIBM%2BCapstone%2B%2528Dashboard%2Bwith%2BCognos%2529&action=view&mode=dashboard&subView=model00000191b6875fc1_00000004

CURRENT TECHNOLOGY USAGE
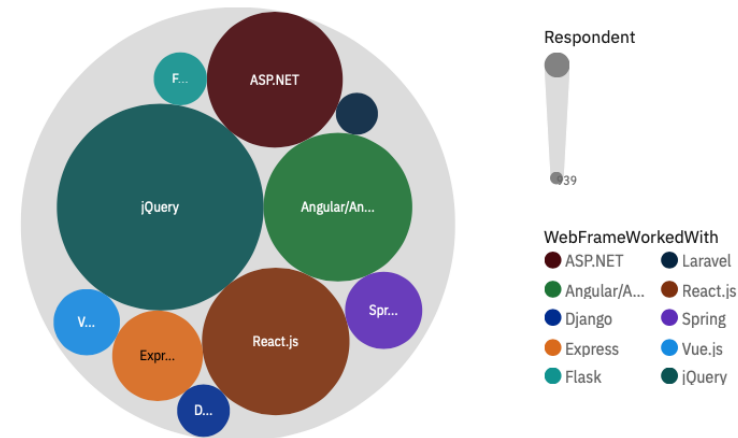
Top 10 Programming Languages Worked With

Language	Respondents
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Python	4,542
Java	4,506
C#	4,288
TypeScript	3,232
PHP	2,913
C++	1,946

Top 10 Databases Worked With

Database	Respondents
MySQL	5,469
Microsoft SQL S...	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

Platforms Used

Top 10 Web Frames Worked With

Respondent

WebFrameWorkedWith
- ASP.NET
- Angular/A...
- Django
- Express
- Flask
- Laravel
- React.js
- Spring
- Vue.js
- jQuery

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FUTURE TECHNOLOGY TREND

Top 10 Languages Desired to Learn

Language	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

Database	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
Dyna...	1,044
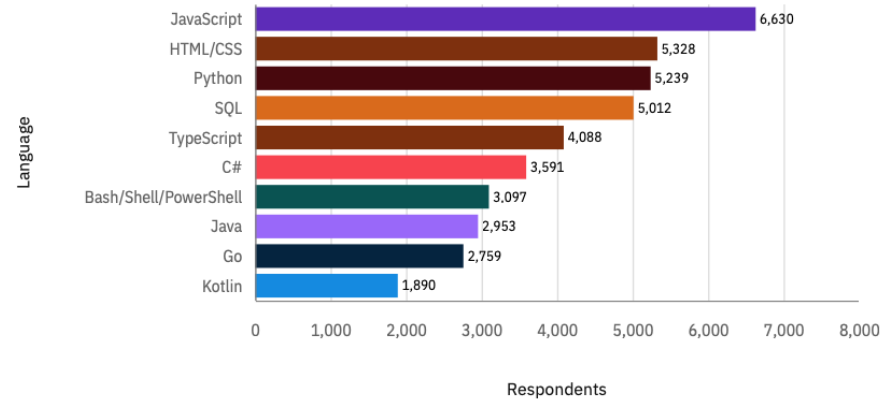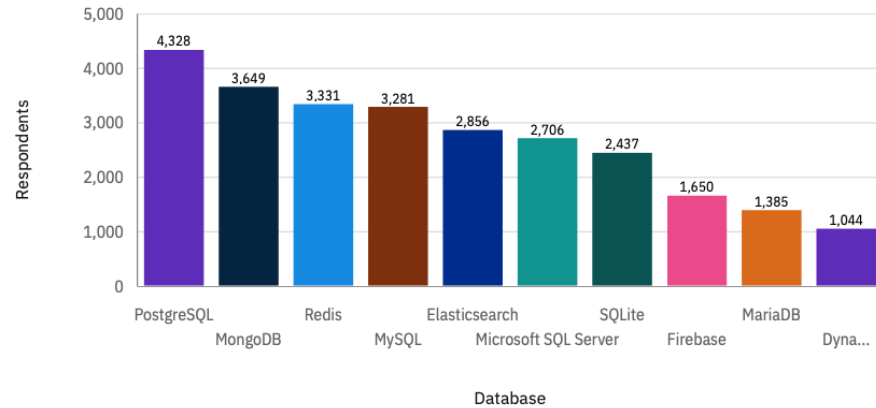
Platforms Desired to Learn

Linux, AWS, Kubernetes, MacOS, Raspberry Pi, Google Clo..., Docker, Windows, Slack, iOS, Heroku, Android, Microsoft Azure, Arduino, WordP..., IB..., Other(s):
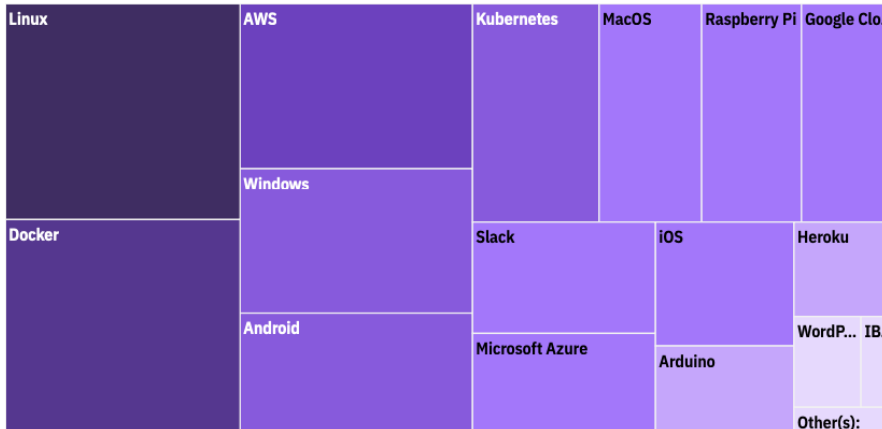
Top 10 Web Frames Desired to Learn

Respondent

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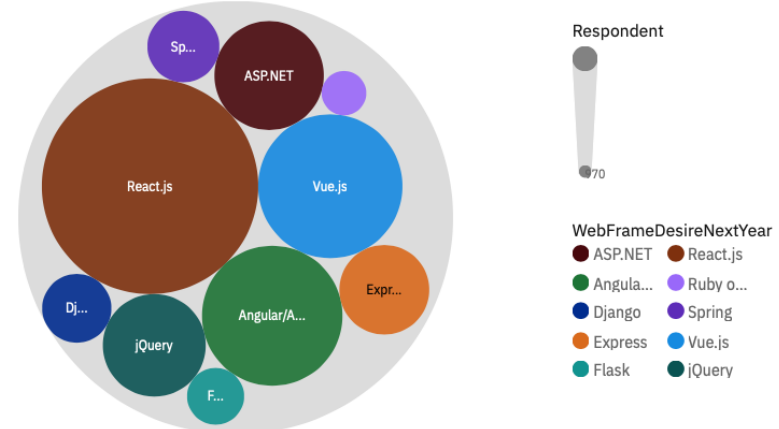
DEMOGRAPHICS

Respondents by Gender

Gender
- Woman
- Man

6.5%
93.5%
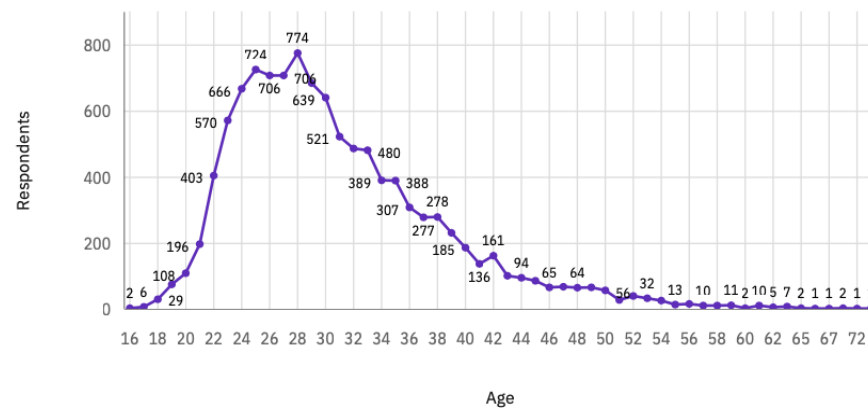
Respondent Locations

Responde...
1

© Mapbox © OpenStreetMap
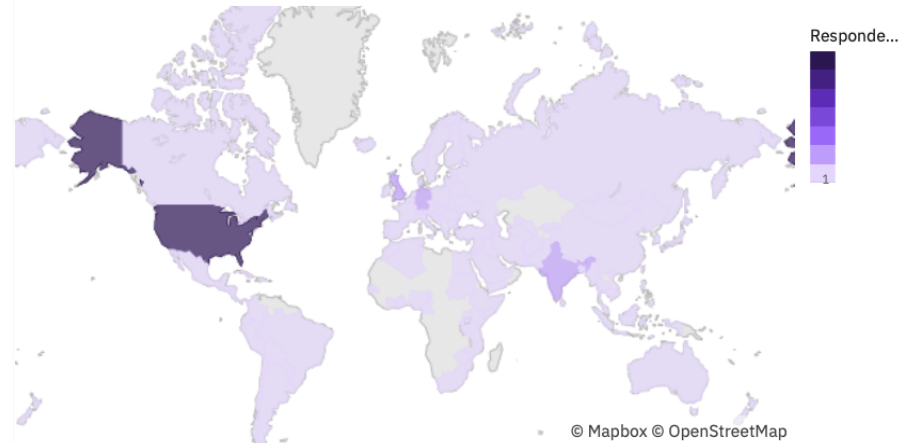
Respondents by Age

Respondents by Gender and Education Level

EdLevel
- Associate degree
- Bachelor's degree (...
- I never completed ...
- Master's degree (M...
- Other doctoral degr...
- Primary/elementar...
- Professional degre...
- Secondary school (...
- Some college/univ...

Man: 5,341 · 2,484 · 1,280
Woman

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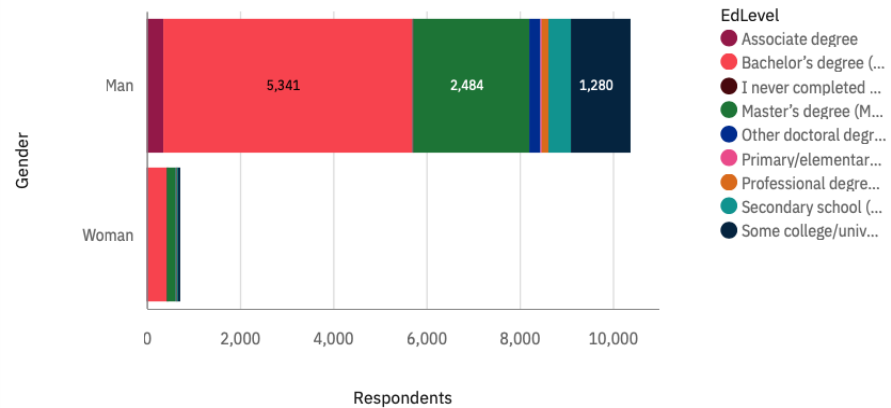
DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript is very popular and Python is growing fast.
- MySQL is currently the most used database, but it is projected to be replaced with PostgreSQL.
- React.js is becoming the go-to framework for modern web development within the JavaScript community.
- Demographics show over 90% of developers are male and have a bachelor's degree.

Implications

- JavaScript and Python are the languages of choice for rising trends in the technological industry.
- Business needs/requirements must be changing.
- React.js must be more advantageous to use over the previous jQuery.
- There's a lack of gender diversity in the field and a higher education remains an entry barrier for aspiring developers.

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DISCUSSION

- Will Python ever become the most used programming language?

- What advantages do these other databases have over MySQL?

- Why is Oracle no longer projected to be a top 10 database?

- Why is React.js projected to be the most popular web frame?

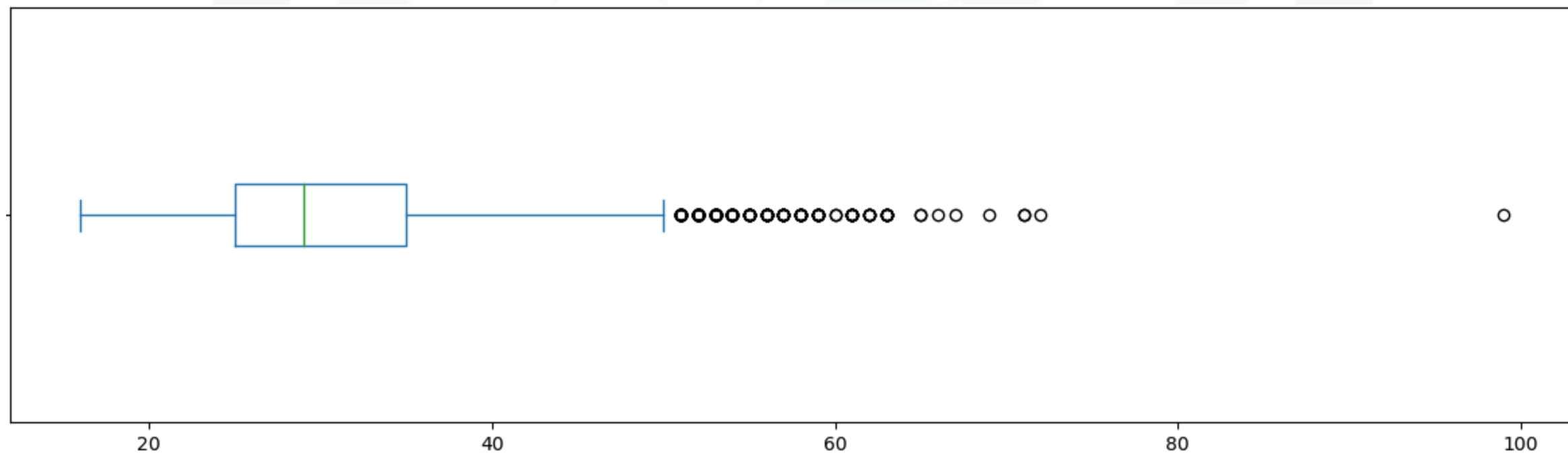- The relevance of a degree in securing a job in this industry.
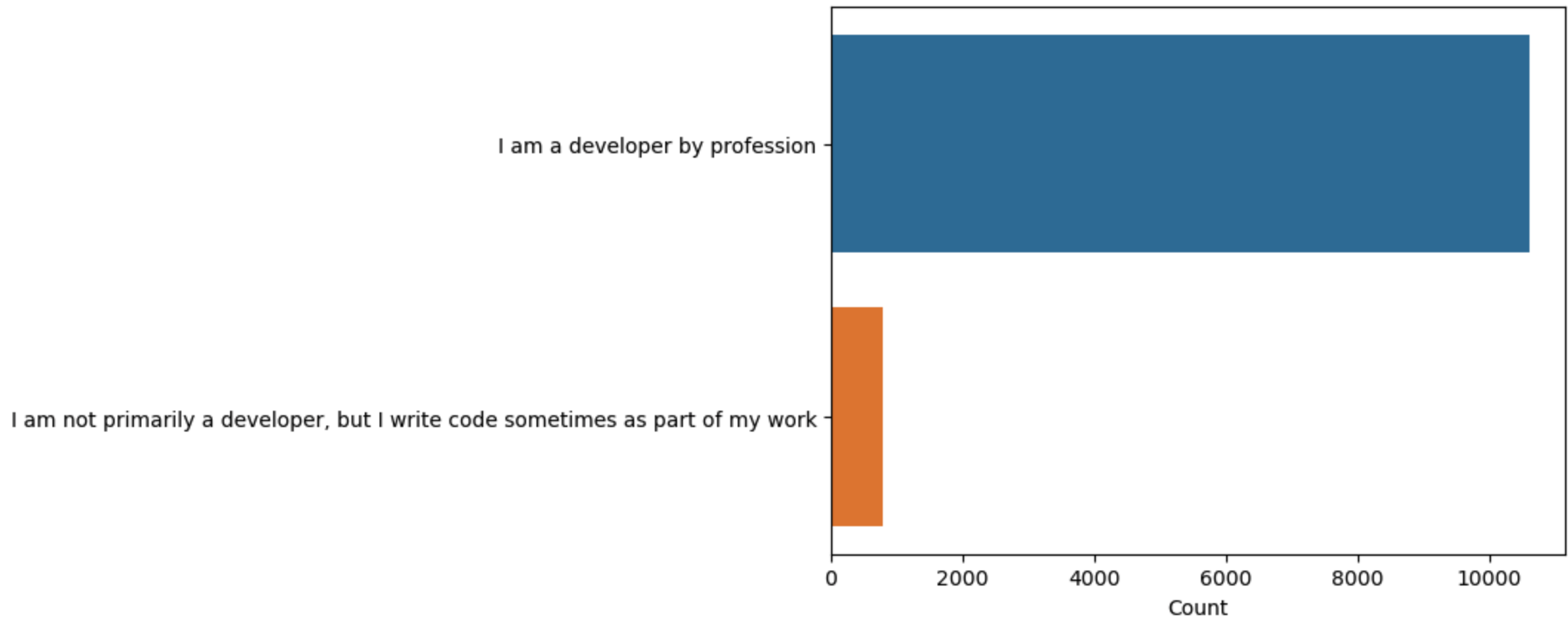
CONCLUSION

CONCLUSION

- It is important to keep up with trends and future skill requirements in the industry to remain competitive.

- JavaScript and Python skills are strong assets.

- SQL may not be as popular, but it is a necessary and foundational skill for data professionals.

- Each database has its own advantages and disadvantages.
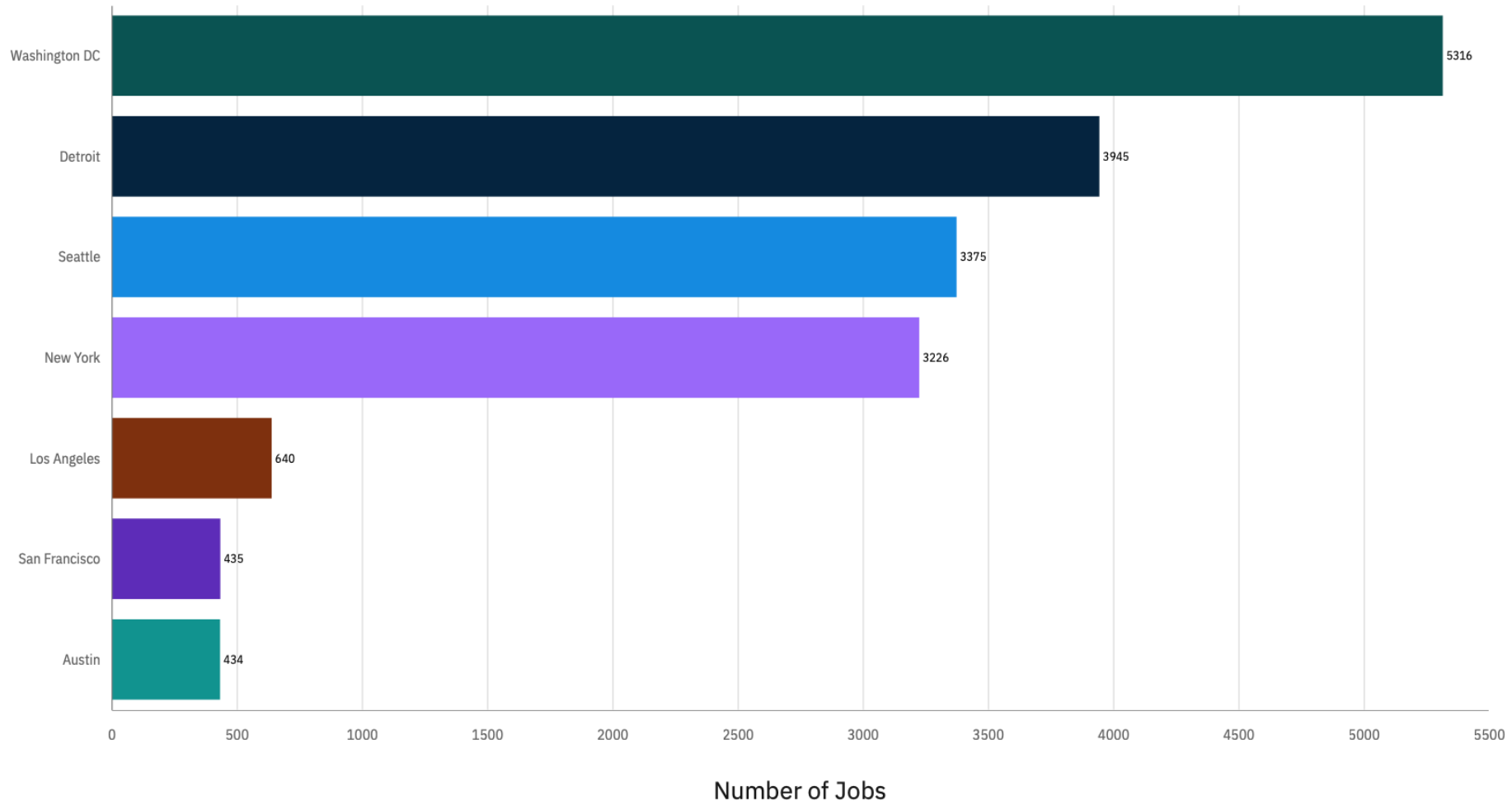
APPENDIX

AGE DISTRIBUTION

DEVELOPER BY PROFESSION

JOB POSTINGS

POPULAR LANGUAGES

Average Annual Salary

Language	Salary
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

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