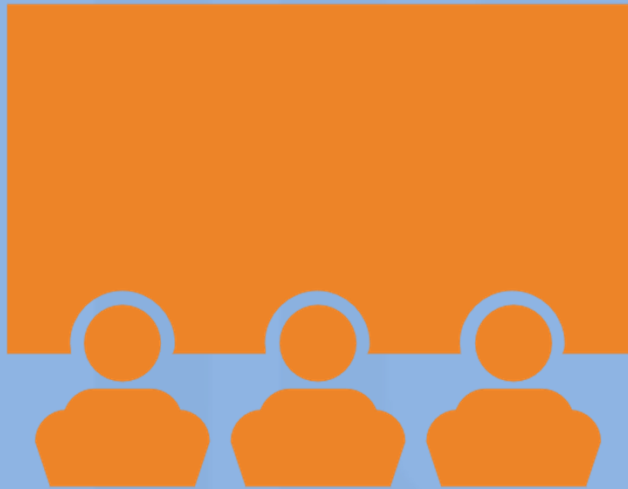# TRENDING TECHNOLOGIES: STACK OVERFLOW DEVELOPER SURVEY, 2024

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October 10, 2024

OUTLINE

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

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EXECUTIVE SUMMARY

- **Top programming languages in demand:**
  - JavaScript, HTML/CSS, SQL, Bash/Shell/PowerShell, Python

- **Top database skills in demand:**
  - My SQL, Microsoft SQL Server, Postgre SQL, SQLite, MongoDB

- **Popular platforms:**
  - Windows, Linux, Docker, AWS, Slack

- **Popular Web Frames:**
  - jQuery, Angular/Angular.js, React.js, ASP.NET, Express

- **Future Technology Trend:**
  - Python takes the third row, followed by SQL and TypeScript
  - Redis and Elasticsearch also place in Top 5
  - Android is in the Top 5 demanded platforms, the rest remains
  - React.js takes the first row and Vue.js is the latest addition as the last

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INTRODUCTION

- In the realm of programming and technology, several key trends have emerged in recent years.
- These insights shed light on the evolving landscape of programming languages, web frameworks, and the demographics of professional developers.
- **Stack Overflow** conducts an inclusive survey of individuals engaged in coding globally.
- Covering a wide array of topics from preferred technologies to career aspirations, 2019 marks the 9th consecutive year of survey publication.
- Nearly 90,000 developers participated in the 20-minute survey in 2019 Survey.
- Let's explore some of the notable findings.

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METHODOLOGY
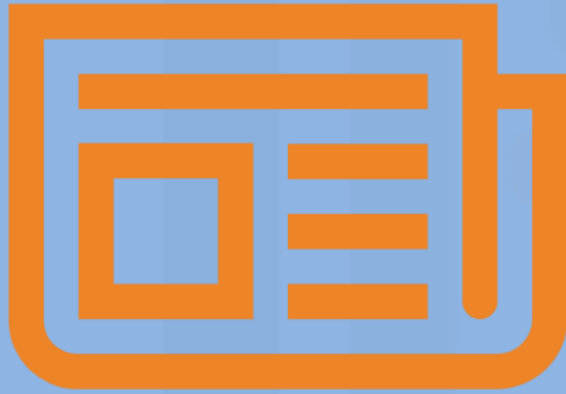
- Data is based on the survey conducted by **Stack Overflow** from January 23 to February 14 and involved **88,883 software developers** from **179 countries**.

- Familiarization with this dataset was achieved through completing **IBM** labs on **Coursera**, which encompassed topics such as Web Scraping, Dataset Exploration, Data Wrangling, Exploratory Data Analysis, and Data Visualization.

- Data analysis and visualization was conducted via **IBM Cognos Analytics**.

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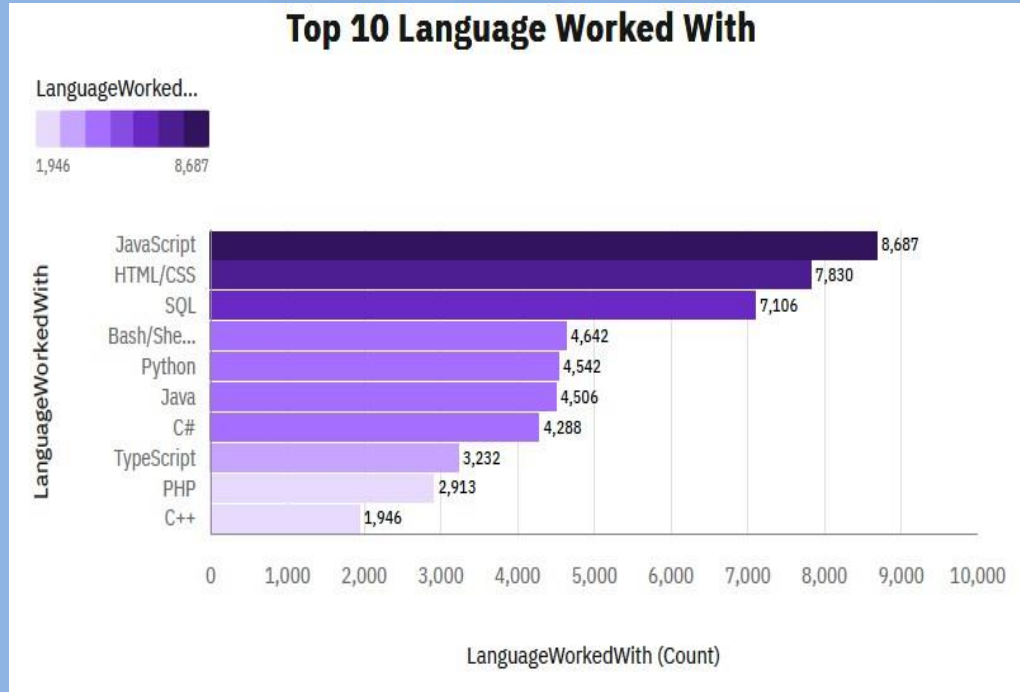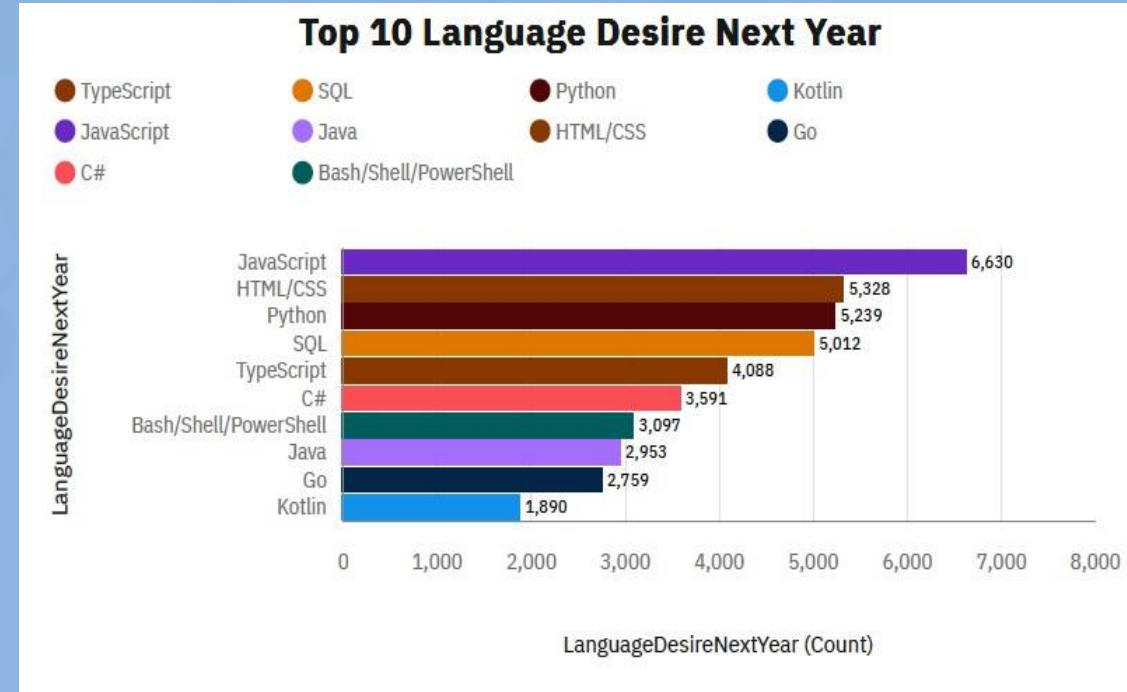
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RESULTS

- **Python** overtakes **Java**, becoming the 5th most preferred language with significant growth. It stands as the fastest-growing major programming language.

- **JavaScript** remains the most used programming language.

- **jQuery** is the most widely used among web frameworks, with **React.js** surpassing **Angular** in developer usage this year.

- Globally, *men* represent approximately **90%** of respondents, with higher *female* representation among students than professional developers in regions like the US, India, and the UK.

- Around 3/4 of professional developers globally hold at least a **bachelor's degree**, aligning with past findings.

- 3/4 of survey respondents in professional developer roles are **under 35 years old**.

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PROGRAMMING LANGUAGE TRENDS

2024

Following Year

Top 10 Language Worked With

LanguageWorked...

1,946 — 8,687

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

LanguageWorkedWith (Count)

Top 10 Language Desire Next Year

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

LanguageDesireNextYear	Count
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

LanguageDesireNextYear (Count)

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PROGRAMMING LANGUAGE TRENDS

FINDINGS

- **JavaScript** and **HTML/CSS** emerge as the most used programming languages among all respondents

- **SQL** also maintains a significant presence.

- **Python** just edged out **Java** in overall ranking.

IMPLICATIONS

- The dominance of **JavaScript** and **HTML/CSS** underscores their indispensability in modern web development, highlighting the importance of mastering them for developers.

- The high usage of **SQL** emphasizes the critical role of data management and querying in modern software applications, across both web and non-web environments.

- The rise of **Python** might also reflect its versatility and ease of use, attracting developers across various domains from data science to software development.

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DATABASE TRENDS

2024
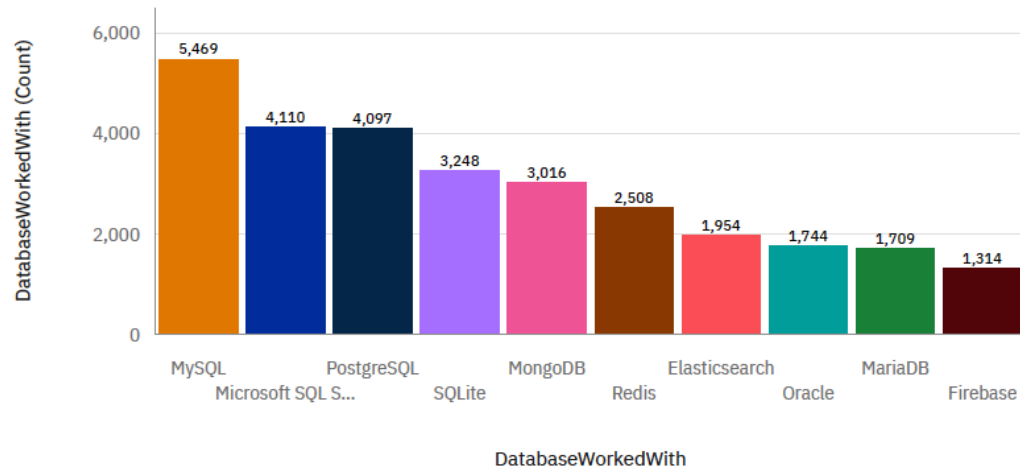
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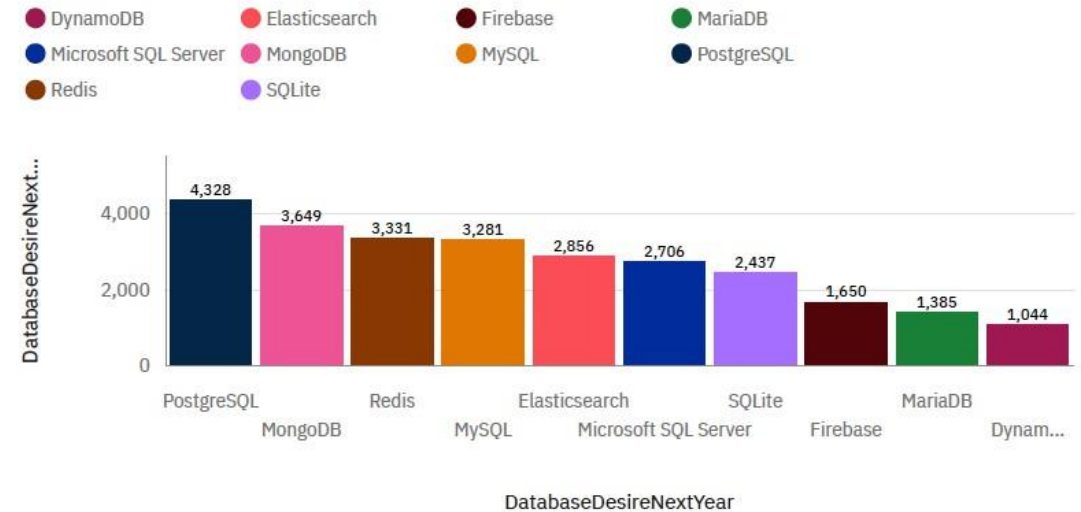
DATABASE TRENDS

FINDINGS

- **MySQL** leads as the most used DBMS among all respondents.
- **PostgreSQL** and **Microsoft SQL Server** follow closely behind **MySQL**.
- **MongoDB** ranks as the top **NoSQL** database.

IMPLICATIONS

- The popularity of **MySQL**, **PostgreSQL**, and **Microsoft SQL Server** underscores the importance of relational databases in various applications.
- The high usage of **MongoDB** reflects the growing trend towards **NoSQL** databases, driven by the need for flexible data models and scalability, particularly in modern web and mobile applications.
- The diverse range of database systems utilized by developers indicates the importance of selecting the right tool for the job, considering factors such as data structure, scalability, and performance requirements.

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DASHBOARD

You can find the dashboard link below:
https://github.com/Ocarbo2285

CURRENT TECHNOLOGY USAGE
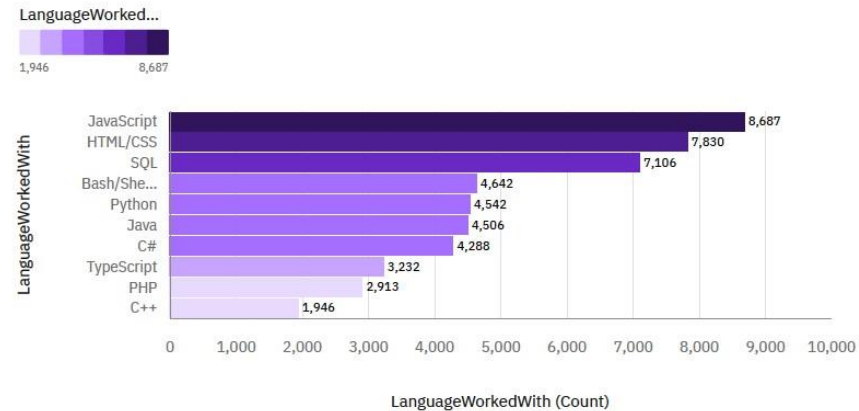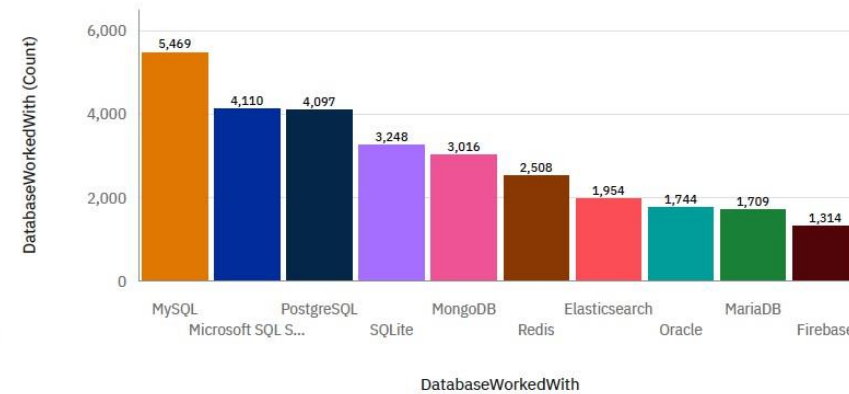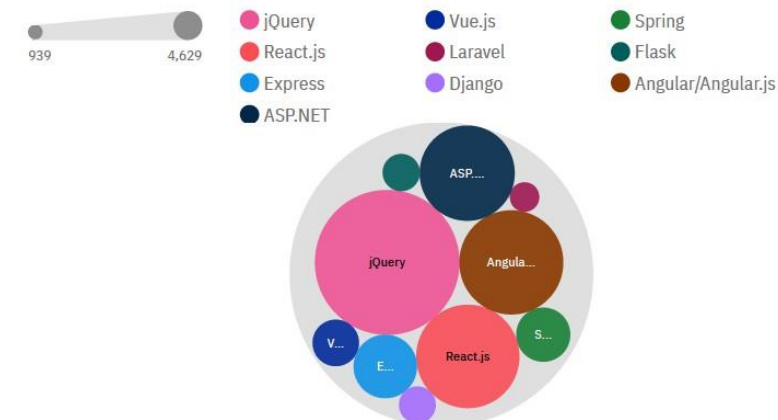
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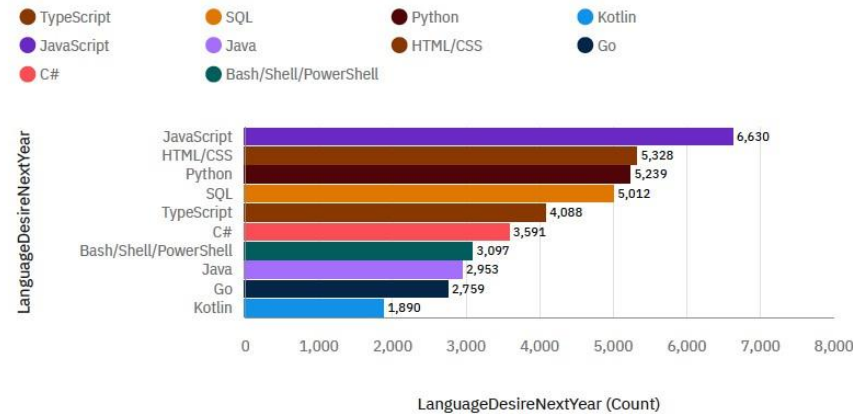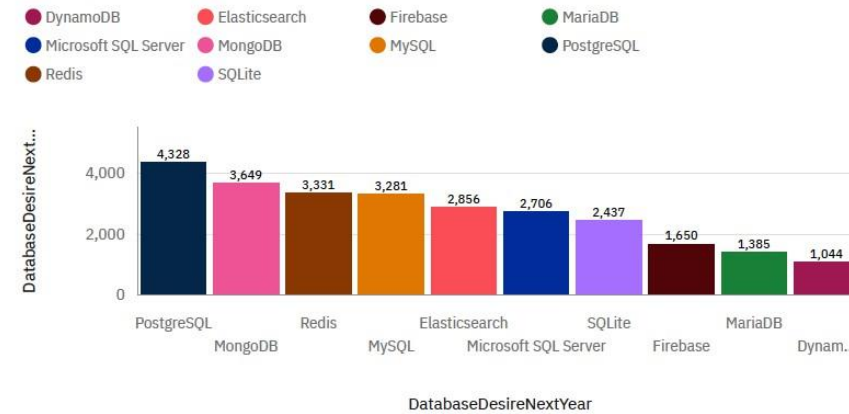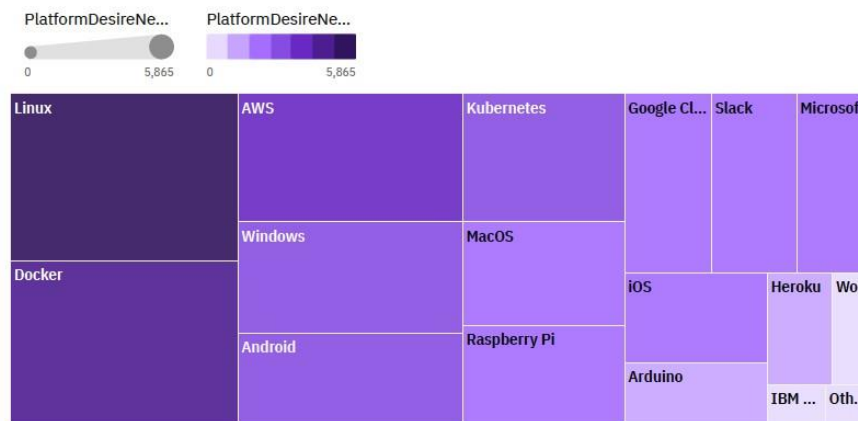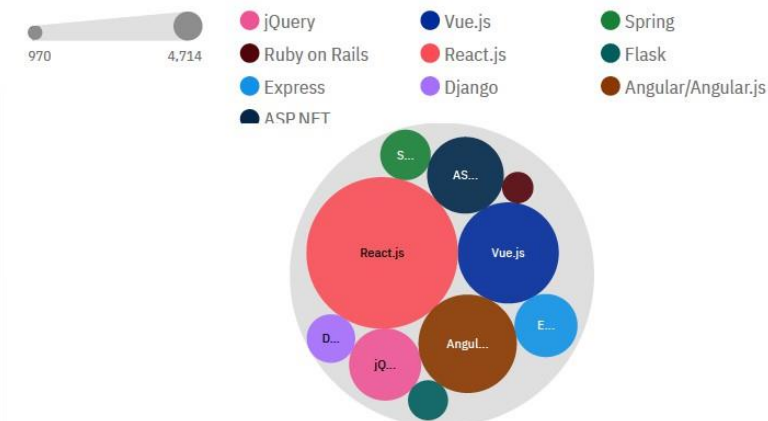
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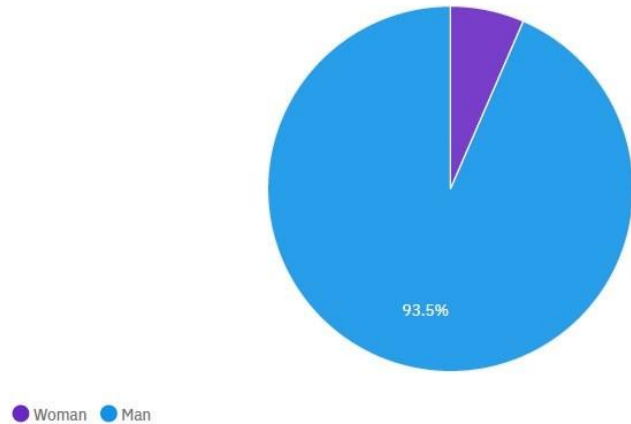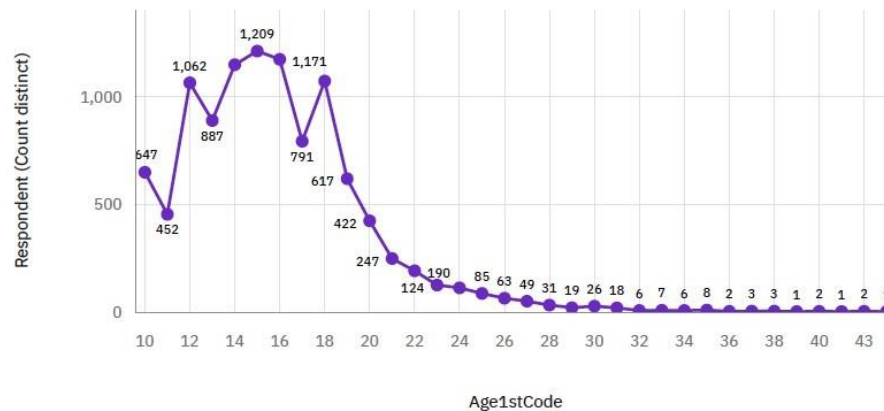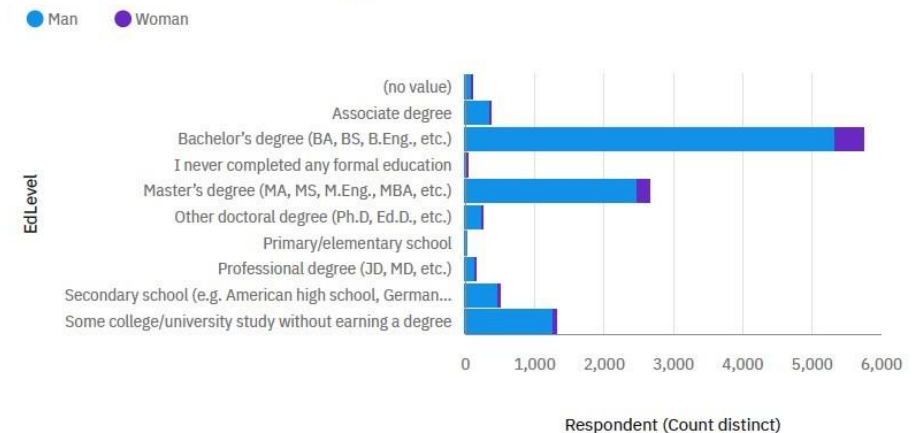
DISCUSSION

- The dominance of **JavaScript** and **HTML/CSS** and the adoption of **MySQL** as the leading database management system

- Highlights the central role of **web development** in the programming landscape

- Opens up discussions on the significance of **client-side scripting and styling**, trends in web development frameworks, and the evolving nature of **web technologies**

CONCLUDING REMARKS

FINDINGS

- **Technology Trends**: The dominance of **JavaScript** and **HTML/CSS** underscores the importance of staying updated with technology trends in web development.

- **Data Management**: The prevalence of **MySQL**, **PostgreSQL**, and **Microsoft SQL Server** highlights the critical role of effective data management in software development.

- **Diversity of Tools**: The diverse range of programming languages and database systems utilized by developers underscores the importance of understanding the strengths and weaknesses of different tools.
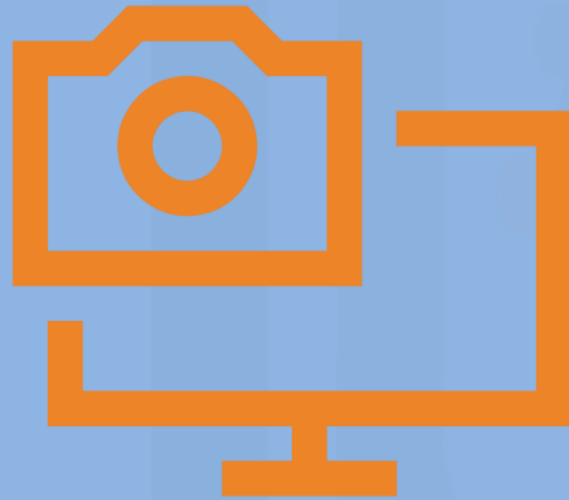
IMPLICATIONS

- **Web Dominance**: The widespread usage of JavaScript and HTML/CSS indicates the dominance of web development in the programming ecosystem, reflecting the growing importance of online platforms and digital experiences.

- **Database Diversity**: The variety of database management systems used highlights the importance of flexibility and adaptability in data storage solutions. Organizations must consider factors such as data structure, scalability, and performance when selecting a database system.

- **Industry Standardization**: The popularity of certain technologies like JavaScript and MySQL suggests a degree of industry standardization, where certain tools become widely adopted due to their proven reliability and effectiveness. This can simplify collaboration and interoperability within the developer community.

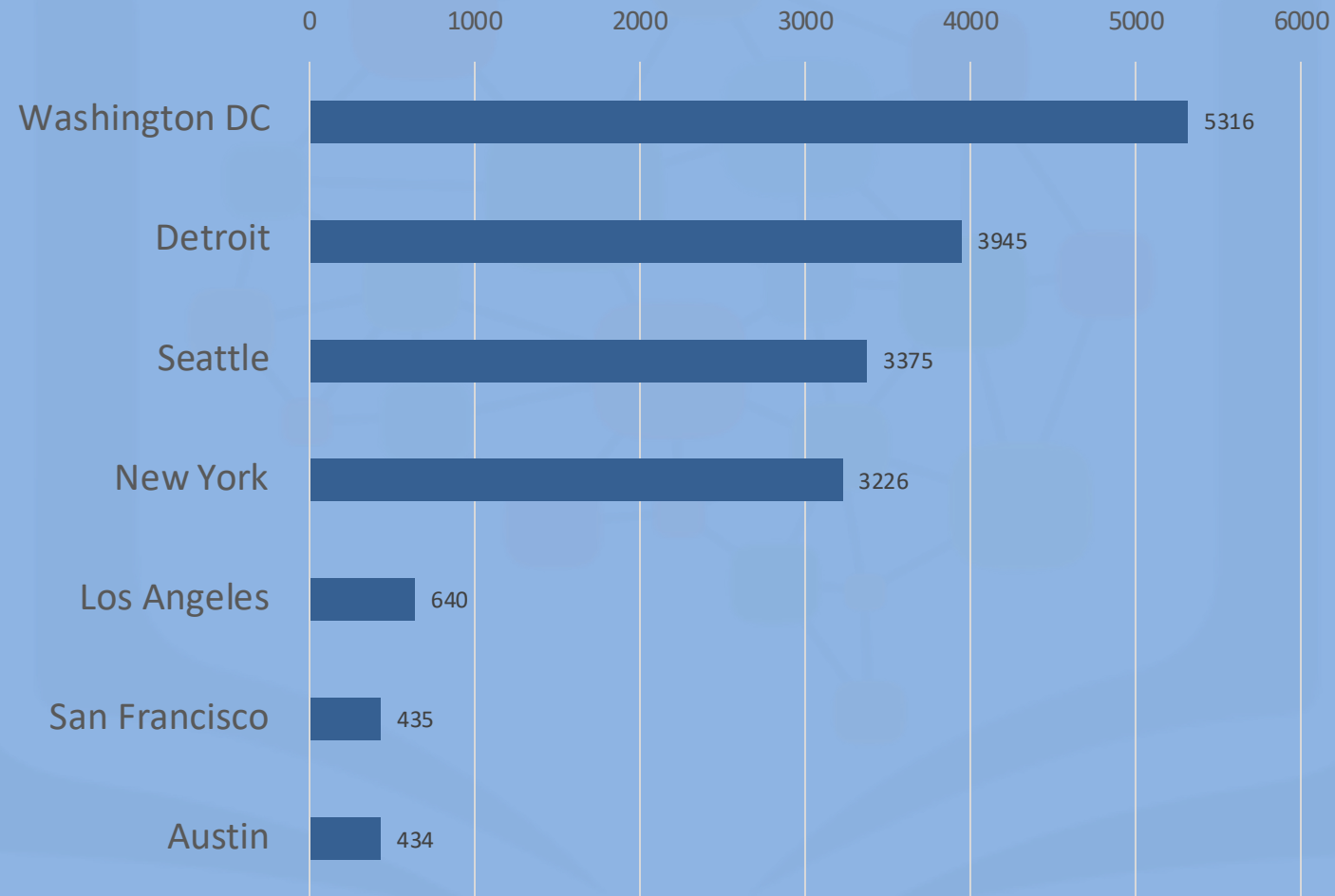**IBM Developer**

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CONCLUSION

- The findings underscore the dynamic nature of the programming landscape and the critical role of technology in driving innovation across industries.
- As developers navigate this ever-changing terrain,
  o a keen understanding of diverse programming languages
  o database systems becomes essential to meet the demands of modern applications
  o ensure optimal outcomes in software development projects.

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APPENDIX

- A- Job Postings Chart
- B- Popular Languages Chart

A- JOB POSTINGS CHART

B- POPULAR LANGUAGES CHART

Language	Value
C	13498
Java	2609
Python	1173
Oracle	784
JavaScript	355
C#	333
C++	305
SQL Server	250
MongoDB	174
Scala	33
PostgreSQL	10
MySQL Server	0

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