Treding Technologies: Stack Overflow Developer Survey, 2023

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Aug 6, 2024

OUTLINE

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

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EXECUTIVE SUMMARY

- Top 10 programming language in demand:

  JavaScript, HTML/CSS, SQL, Bash/Shell/PowerShell, Pythom

- Top 10 database skills in demand:

  MySQL, 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 3rd 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 1st 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 illuminate the evolving landscape of programming languages, web frameworks, and the demographics of professional developers.

- **Stack Overflow** a comprehensive survey of individuals engaged in coding globally.

- Covering a wide array of topics from preferred technologies to career aspirations, 2023 marks the 14th consecutive year of survey publication.

- Nearly 90,000 developers participated in the 20-minute survey in 2023 survey.

- Let's explore some of the notable findings.

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METHODOLOGY

- The data comes from a survey conducted by **Stack Overflow** between January 23 and February 14, involving **88,883 software developers** from **179 countries.**

- Familiarity with this dataset was achieved by completing **IBM** labs on **Coursera**, covering topics such as Web Scraping, Data Exploration, Data Wrangling, Exploratory Data Analysis, and Data Visualization.

- Data analysis and visualization were carried out using **IBM Cognos Analytics**.

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RESULTS

- **Python** has surpassed **Java** to become the 5th most preferred language, marking significant growth and establishing itself as the fastest-growing major programming language.
- **JavaScript** continues to be the most widely used programming language.
- Among web frameworks**, jQuery** remains the most popular, with **React.js** overtaking **Angular** in developer usage this year**.**
- Globally, **men** make up approximately 90% of respondents, with higher **female** representation among students compared to professional developers in regions like the US, India, and the UK.
- About 75% of professional developers worldwide have at least a **bachelor's degree**, consistent with past findings.
- Additionally, 75% of professional developers are **under 35 years old.**
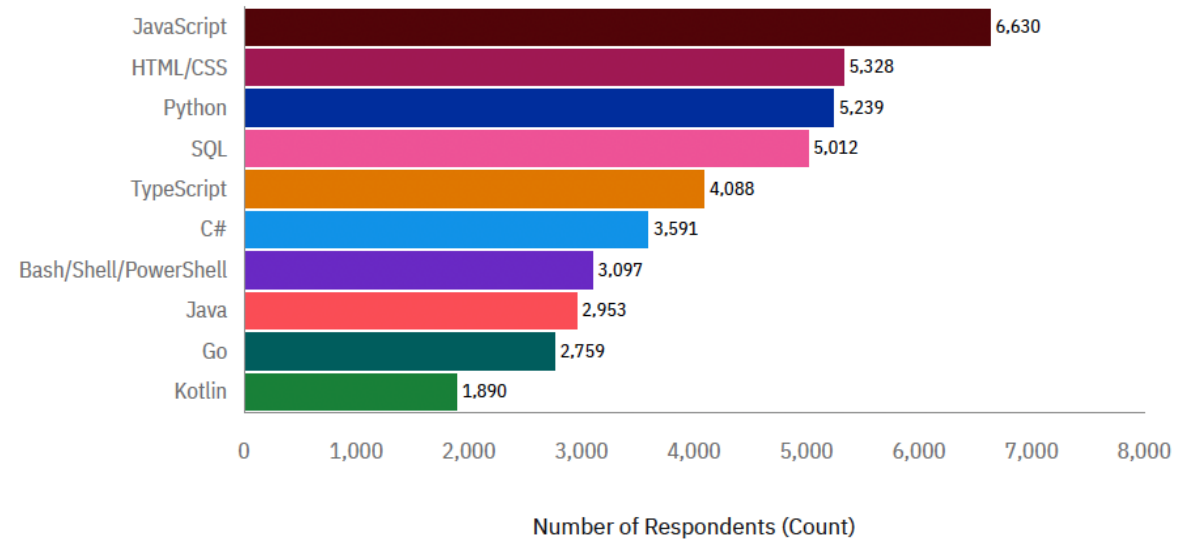
PROGRAMMING LANGUAGE TRENDS

Current Year
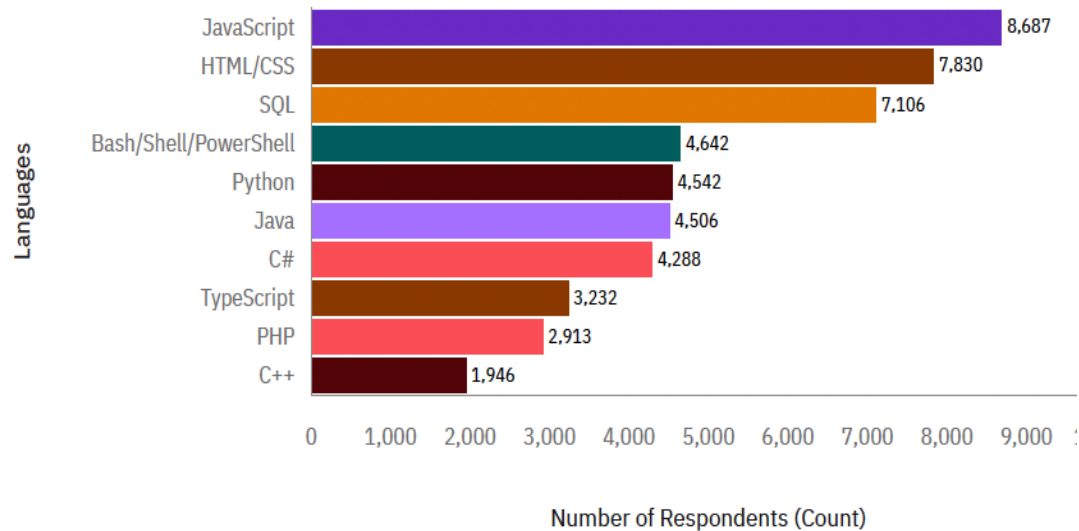
Next Year

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

FINDINGS

- **JavaScript** and **HTML/CSS** have emerged as the most popular programming languages among all respondents.

- **SQL** continues to have a strong presence as well.

- **Python** has just slightly surpassed **Java** in the overall rankings.

IMPLICATIONS

- The dominance of **JavaScript** and **HTML/CSS** underscores their essential role in modern web development, emphasizing the importance for developers to master these technologies.

- The widespread use of **SQL** highlights the crucial role of data management and querying in contemporary software applications, both in web and non-web environments.

- **Python**'s rise in popularity likely reflects its versatility and ease of use, making it attractive to developers in various fields, from data science to software development.
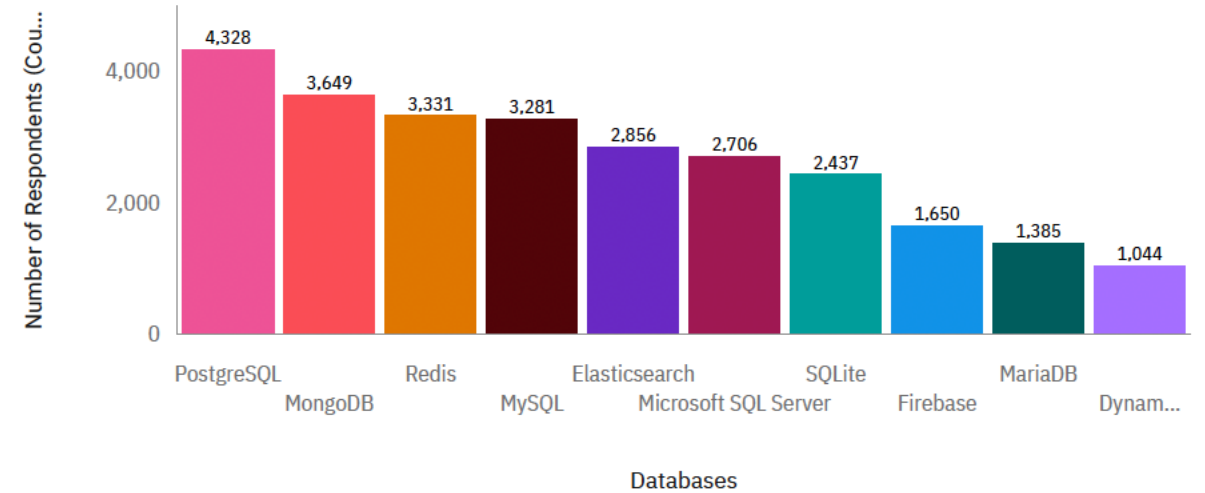
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DATABASE TRENDS

Current Year

Next Year

Top 10 Databased Worked With
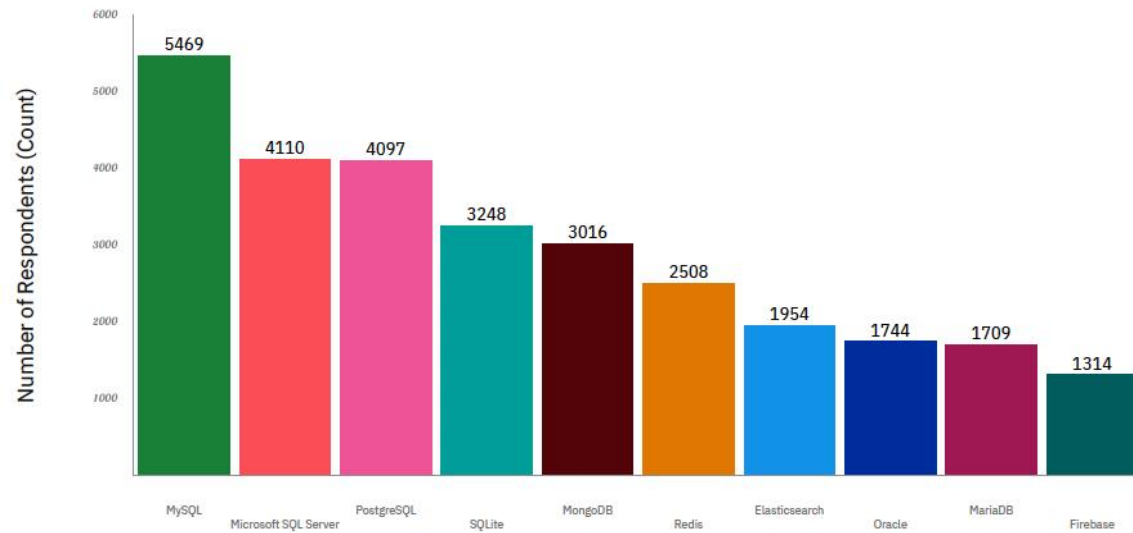
Top 10 Desired Databaseto Learn

DATABASE TRENDS

FINDINGS

- **MySQL** is the most widely used DBMS among all respondents.
- **PostgreSQL** and **Microsoft SQL Server** follow closely behind **MySQL**.
- **MongoDB** holds the top spot as the leading **NoSQL** database.

IMPLICATIONS

- The widespread use of **MySQL**, **PostgreSQL**, and **Microsoft SQL Server** highlights the significance of relational databases in many applications.
- **MongoDB**'s popularity indicates the increasing shift towards **NoSQL** databases, driven by the demand for flexible data models and scalability, especially in modern web and mobile applications.
- The variety of database systems employed by developers underscores the importance of choosing the right tool based on data structure, scalability, and performance needs.

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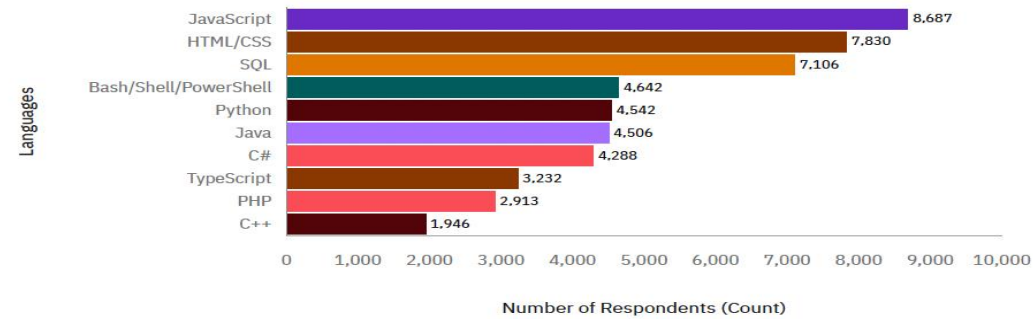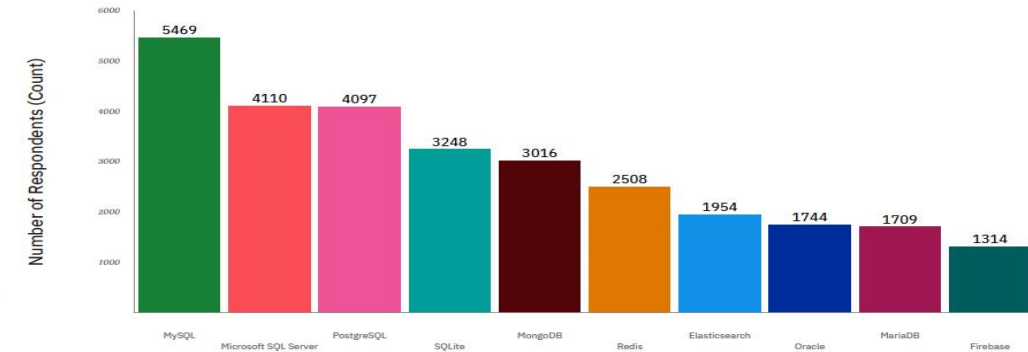
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DASHBOARD

https://github.com/hpourmand/Dashboards

Current Technology Usage

Tab 1

Top 10 Programming Languages Used

Top 10 Databased Worked With
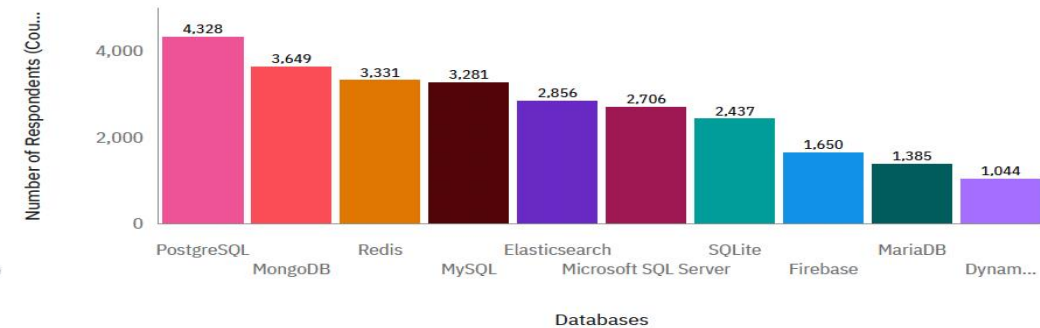

Platform Interacted

Top 10 Web Frames Used

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Future Technology Usage
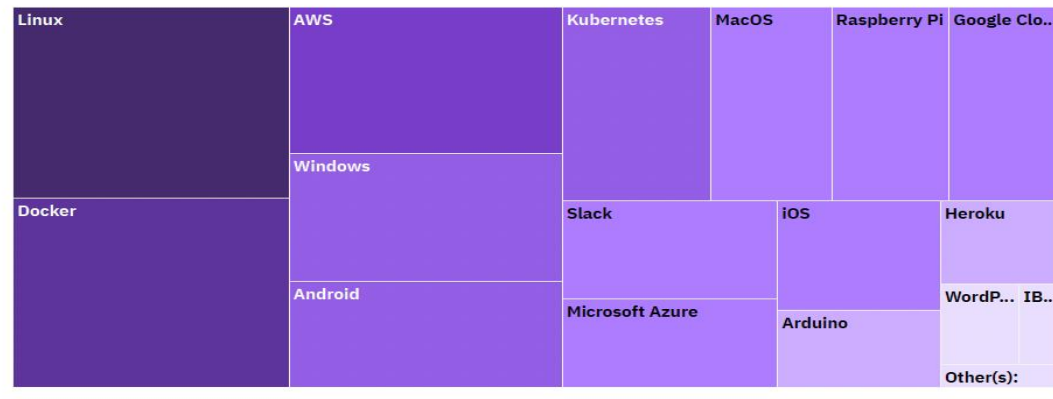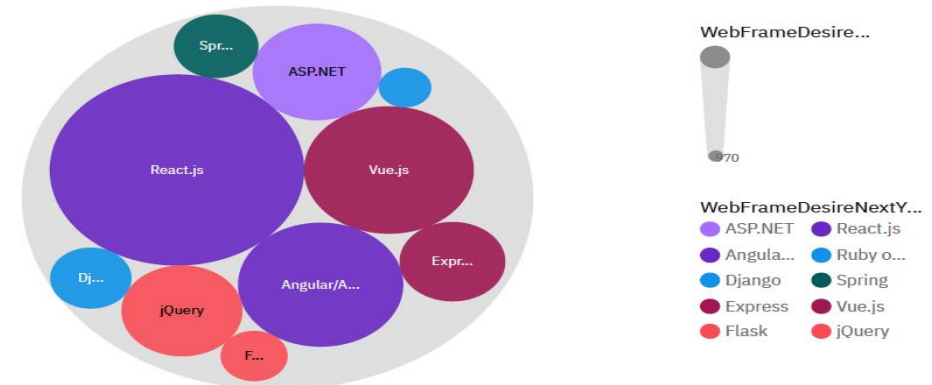
Demographics

Tab 1

Respondent by Gender
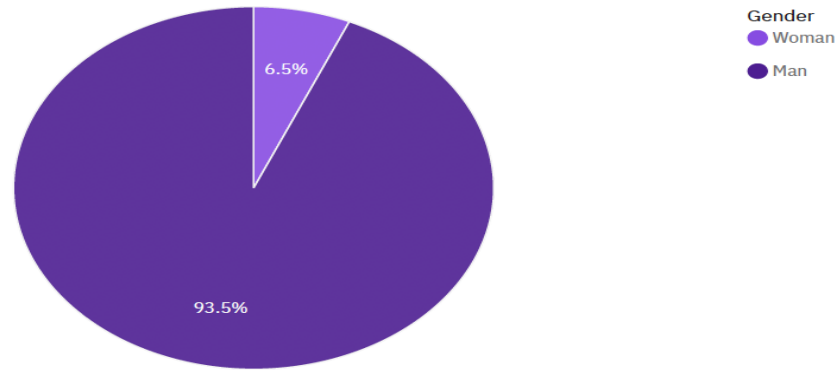
Respondent Locations

© Mapbox © OpenStreetMap
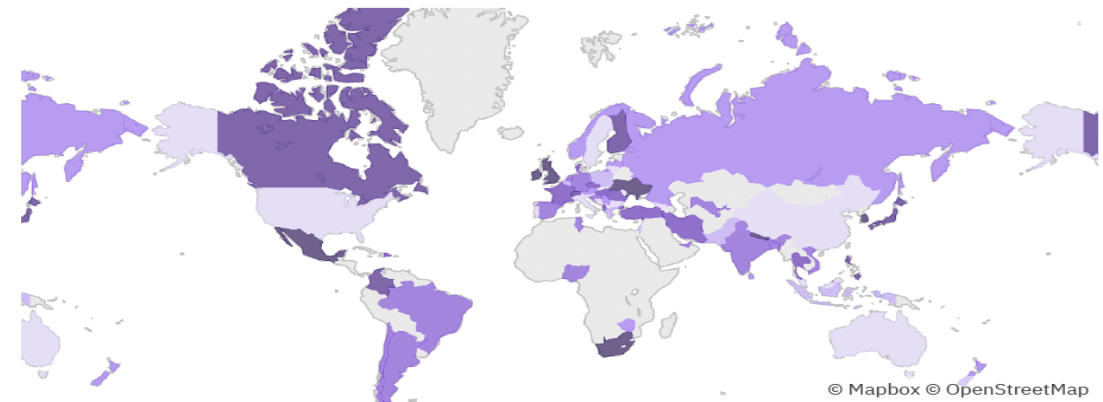
Respondent by Age
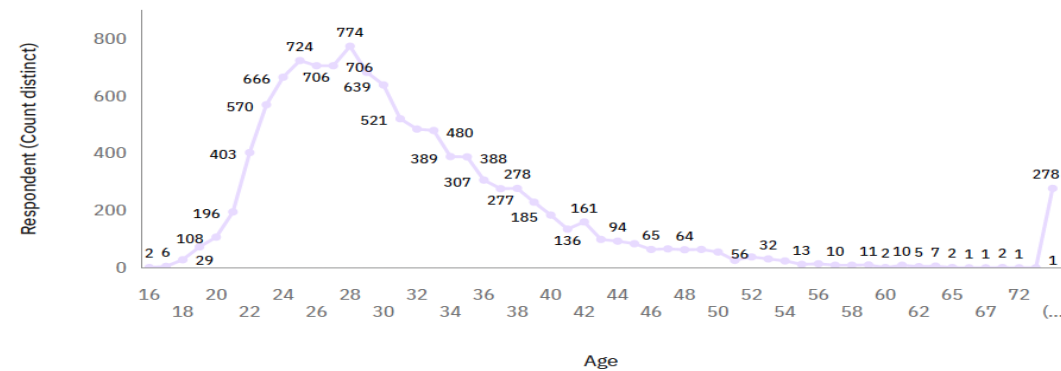
Formal Educational Level / Gender

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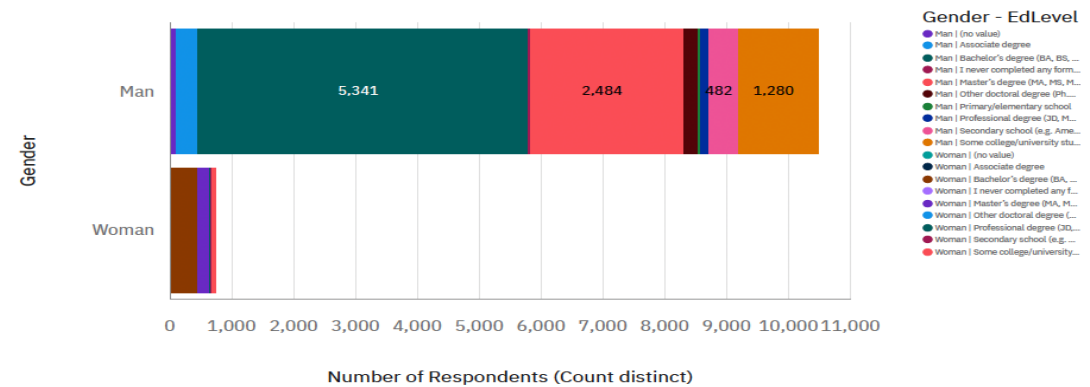
DISCUSSION

- **JavaScript** and **HTML/CSS** are dominant, with **MySQL** as the leading database management system.

- This emphasizes the crucial role of **web development** in programming.

- It highlights the importance of **client-side scripting and styling**, trends in web development frameworks, and the evolving nature of **web technologies**.

OVERALL FINDINGS & IMPLICATIONS

FINDINGS

- **Technology Trends**: **JavaScript** and **HTML/CSS** dominance highlights the need to stay updated with web development trends.

- **Data Management**: The use of **MySQL**, **PostgreSQL**, and **Microsoft SQL Server** emphasizes effective data management in software development.

- **Diversity of Tools**: The variety of programming languages and database systems shows the importance of understanding different tools' strengths and weaknesses.

IMPLICATIONS

- **Web Dominance:** The widespread use of JavaScript and HTML/CSS shows the importance of web development and online platforms.

- **Database Diversity:** Various database systems highlight the need for flexible and adaptable data storage solutions.

- **Industry Standardization:** The popularity of technologies like JavaScript and MySQL indicates industry standardization, simplifying collaboration and interoperability.

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CONCLUSION

- The findings highlight the dynamic nature of the programming landscape and the crucial role of technology in driving innovation across industries.

- Developers need a strong understanding of diverse programming languages and database systems to meet modern application demands.

- This knowledge is essential for achieving optimal outcomes in software development projects.
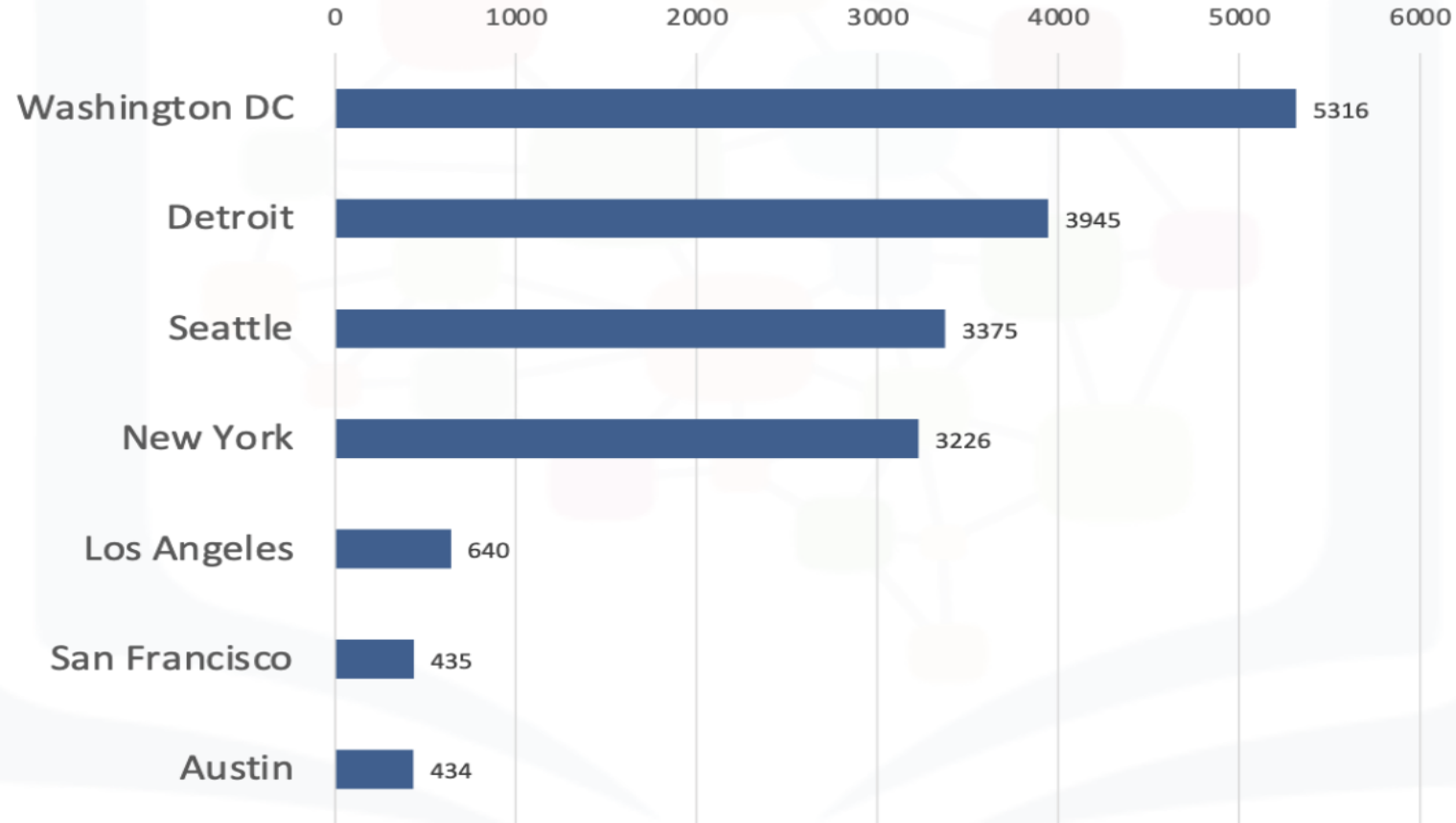
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APPENDIX

A) Job Posting Chart

B) Popular Languages Chart

JOB POSTINGS CHART

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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