TRENDING TECHNOLOGIES: STACK OVERFLOW DEVELOPER SURVEY & Insights

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March 2024

IBM Developer

SKILLS NETWORK

OUTLINE

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EXECUTIVE SUMMARY

- **Current Technology Trend:**
  - Current Top 10 programming languages :JavaScript, HTML/CSS, SQL, Bash/Shell/PowerShell, Python, java, C#, TypeScript, PHP, C++
  - Current Top 10 database : My SQL, Microsoft SQL Server, Postgre SQL, SQLite, MongoDB, Redis, Elasticsearch, Oracle, MariaDB, Firebase
  - Popular platforms: Windows, Linux, Docker, AWS, Slack
  - Popular Web Frames: jQuery, Angular/Angular.js, React.js, ASP.NET, Express
- **Future Technology Trend:**
  - Top programming languages will be JavaScript, HTML/CSS, Python, SQL
  - Top database will be Postgre SQL, MongoDB, Redis, My SQL, Elasticsearch
  - Top platform will be Linux, Docker, Windows, AWS, Android
  - Top Web Frames will be React.js, Vue.js, Angular.js, ASP.NET

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.

METHODOLOGY

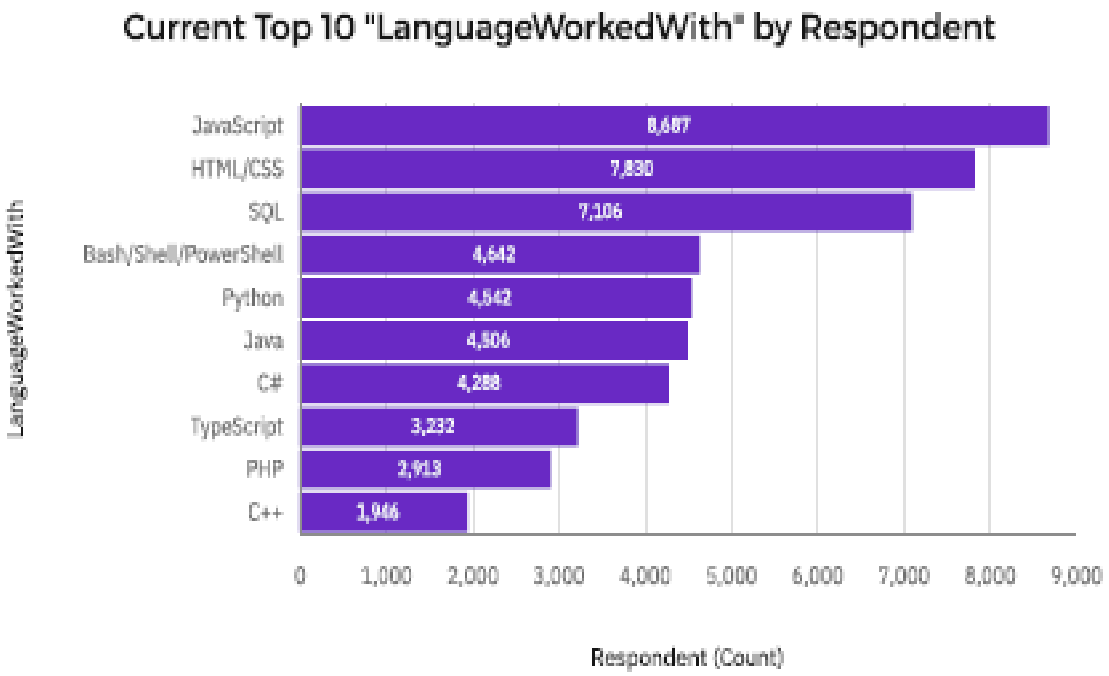
- Data is based on the survey conducted by Stack Overflow from January 23 to February 14 and involved 88,883 software developers from 179 countries.
- Familiarization with this dataset was achieved through completing IBM labs on Coursera, which encompassed topics such as Web Scraping, Dataset Exploration, Data Wrangling, Exploratory Data Analysis, and Data Visualization.
- Data analysis and visualization was conducted via IBM Cognos Analytics tool.

RESULTS

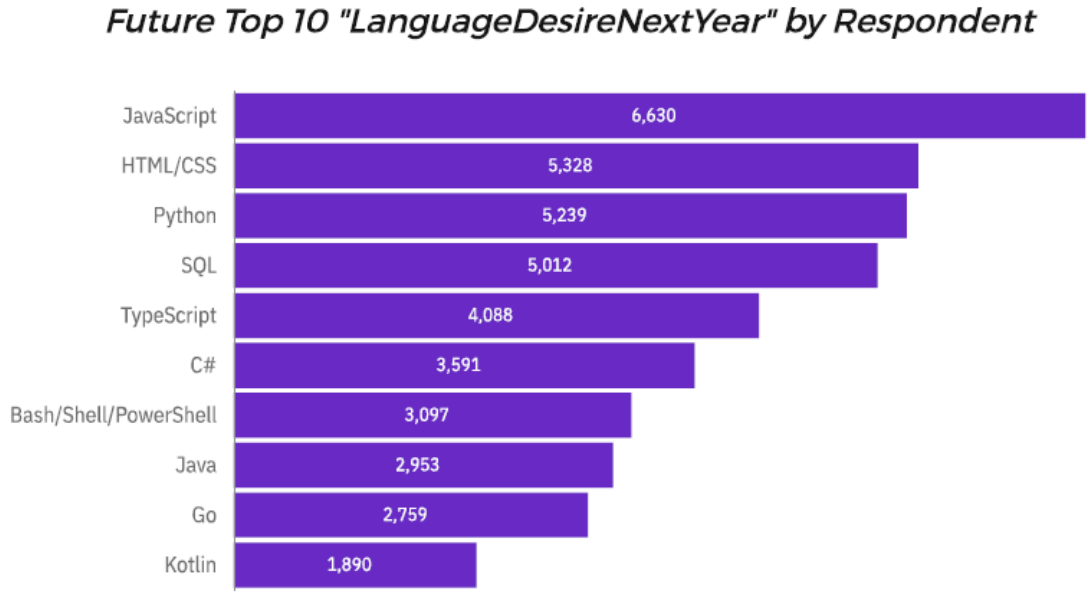
- Python overtakes Java, becoming the 5th most preferred language with significant growth. It stands as the fastest growing major programming language.
- JavaScript remains the most used programming language.
- jQuery is the most widely used among web frameworks, with React.js surpassing Angular in developer 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.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

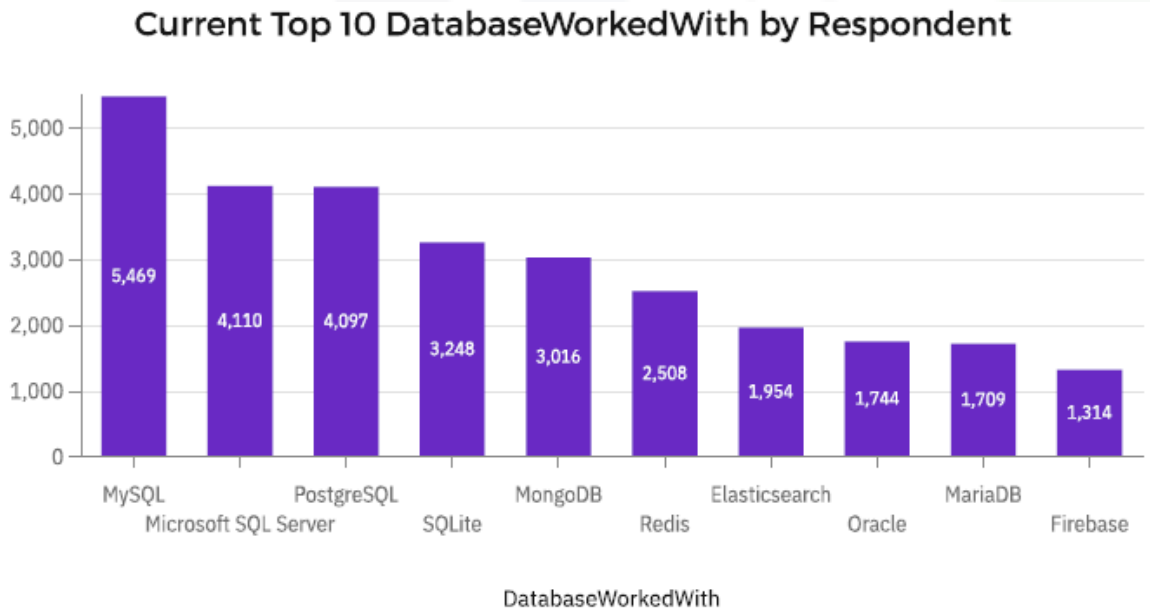
- **JavaScript** and **HTML/CSS** are still at the first two places as the most used programming languages.
- **Python** has moved to the 3rd place passing **Bash** and **SQL**.
- There are some languages have left the top 10 used languages list such as **C++,** and **PHP**; in the contrast, there are newly added languages like **GO,** and **Kotlin**.

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.

DATABASE TRENDS

Current Year



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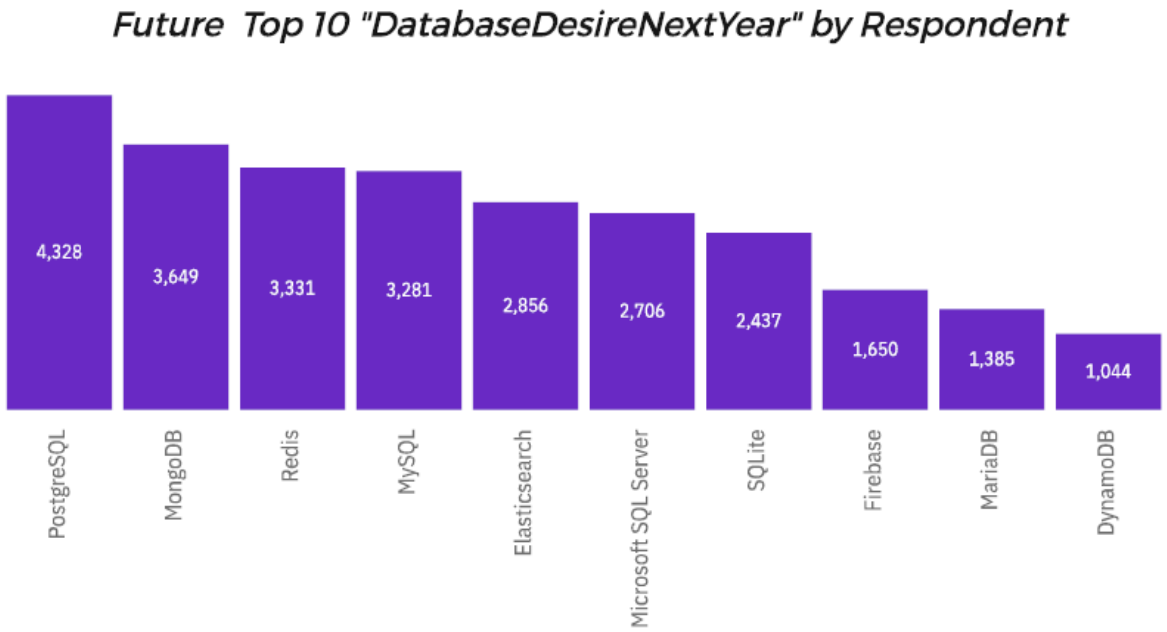


DATABASE TRENDS - FINDINGS & IMPLICATIONS

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.

DASHBOARD

My GitHub link of the Cognos dashboard

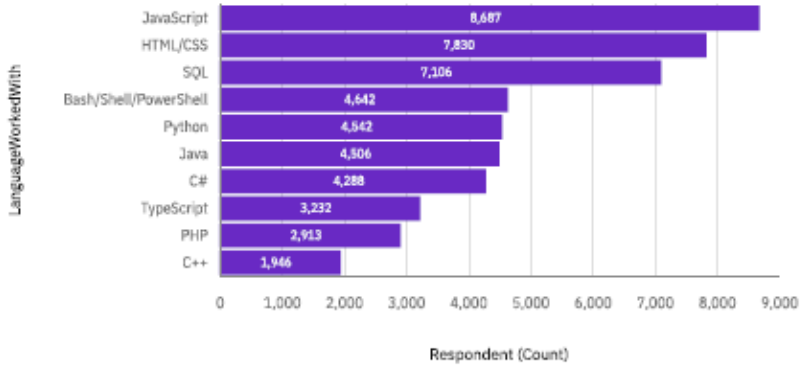
DASHBOARD TAB 1

IBM_Cognos_Dashboard_Final_Project

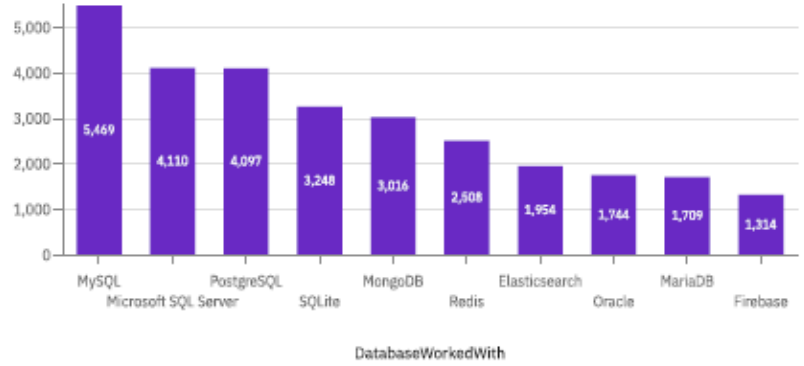
https://us3.ca.analytics.ibm.com/bi/dashboard-print.html?cl=en-us&pl=en

Current Technology Usage

Current Top 10 "LanguageWorkedWith" by Respondent

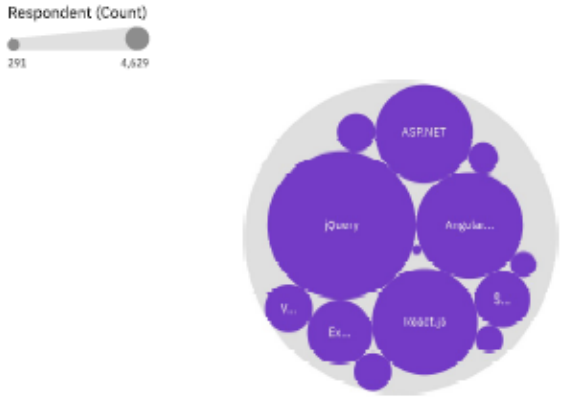


Current Top 10 DatabaseWorkedWith by Respondent

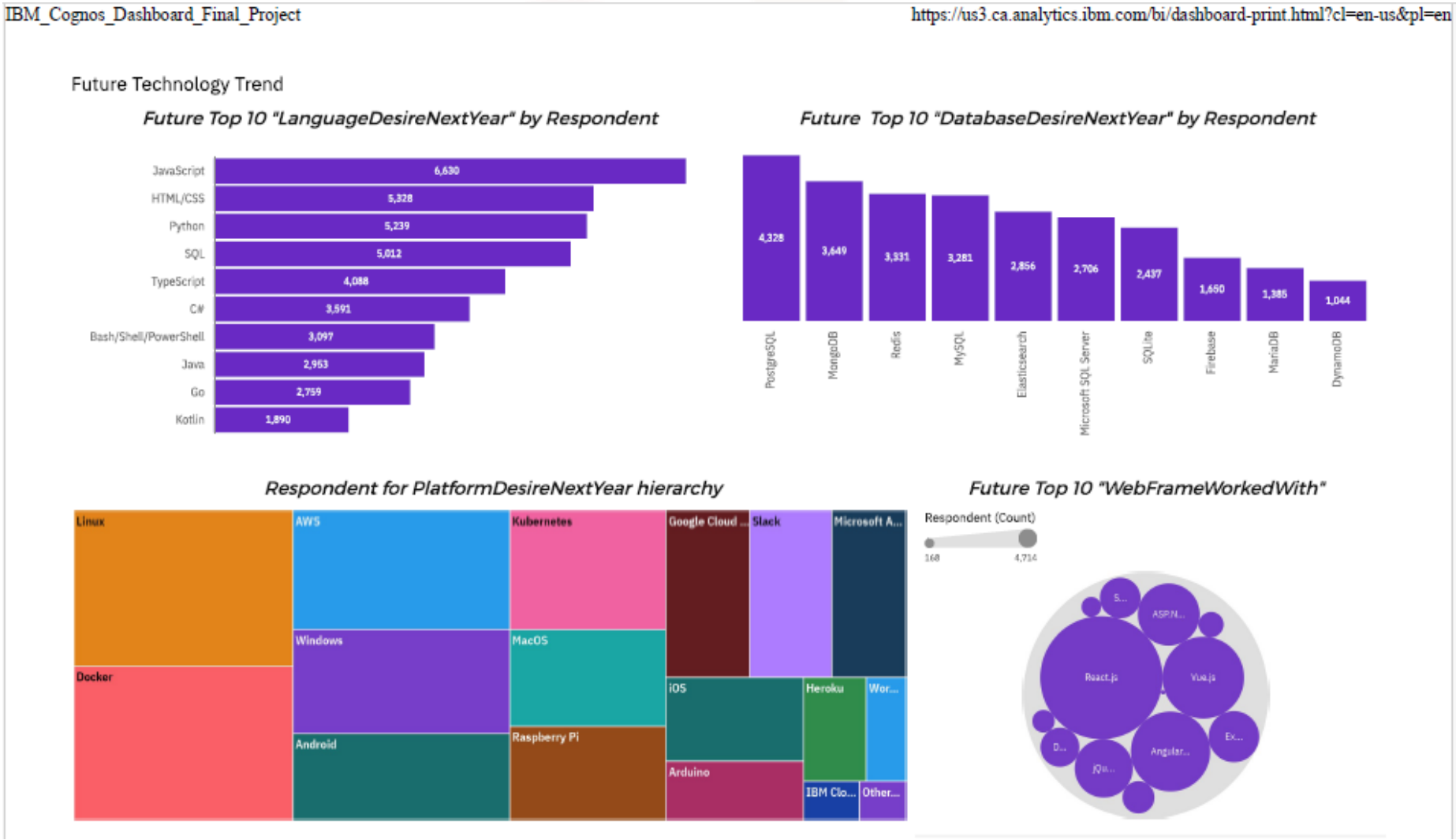


Current Top "PlatformWorkedWith" by Respondent

Current Top 10 "WebFrameWorkedWith" by Respondent



DASHBOARD TAB 2

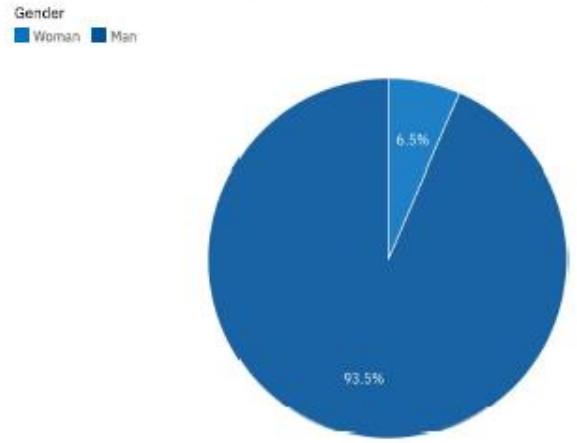


DASHBOARD TAB 3

IBM_Cognos_Dashboard_Final_Project https://us3.ca.analytics.ibm.com/bi/dashboard-print.html?cl=en-us&pl=en

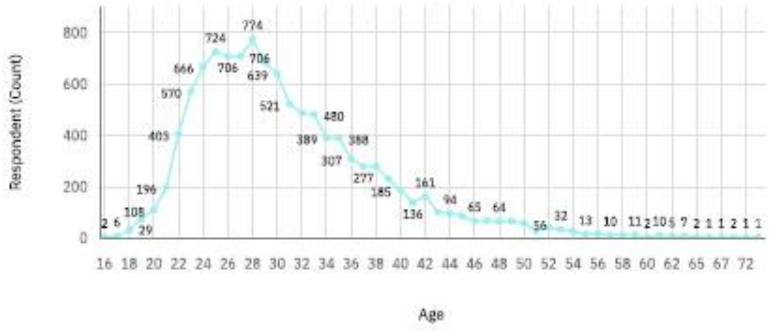
Demographics

Respondent classified by Gender

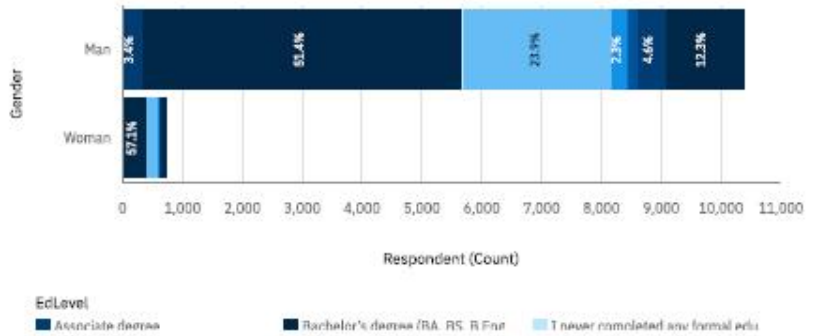


Respondent Count for Countries

Respondent Count by Age



Respondent by Gender colored by EdLevel



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

OVERALL FINDINGS & IMPLICATIONS

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.

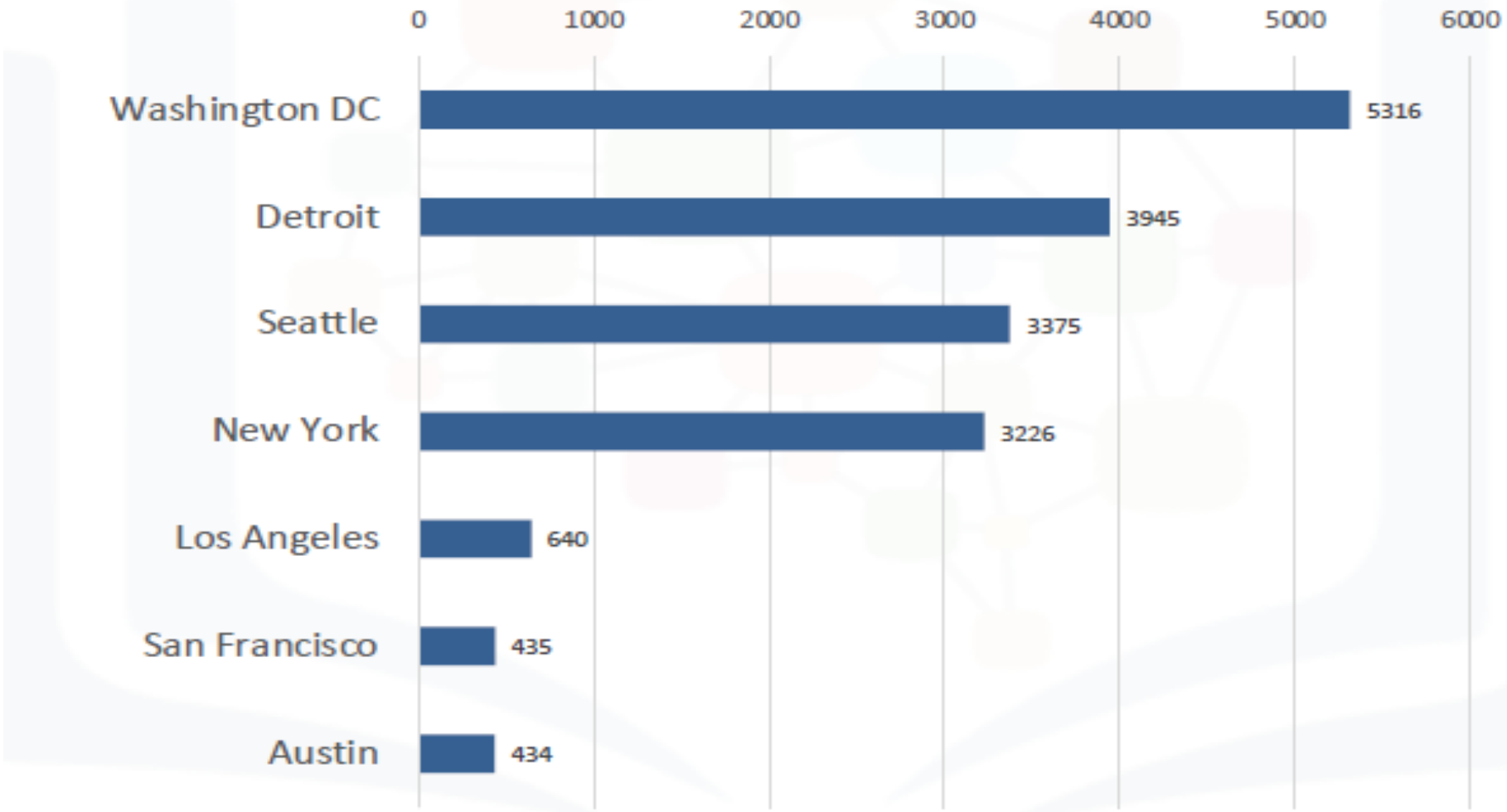
CONCLUSION

- 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,
  - a keen understanding of diverse programming languages
  - database systems becomes essential to meet the demands of modern applications
  - ensure optimal outcomes in software development projects.

APPENDIX

1. Job Postings Chart
2. Popular Languages Chart

JOB POSTINGS



POPULAR LANGUAGES