



# IBM Data Analyst Capstone Project

## The 2019 Stack Overflow Developer Survey Results

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# OUTLINE

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- Introduction
- Methodology
- Results
  - Visualization – Charts
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- Discussion
  - Findings & Implications
- Conclusion
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# EXECUTIVE SUMMARY

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## ❑ Languages Trends

- ✓ **Current:** JavaScript, HTML/CSS, SQL, Bash/Shell/PowerShell.
- ✓ **Future:** JavaScript, Python, SQL, TypeScript.

## ❑ Database Trends

- ✓ **Current:** MySQL, Microsoft SQL Server, PostgreSQL, SQLite.
- ✓ **Future:** PostgreSQL, MongoDB, Redis, Elasticsearch.

## ❑ Platforms & Frameworks

- ✓ **Platforms:** Linux, Windows, Docker, Kubernetes.
- ✓ **Frameworks:** jQuery, Angular, React.js (React.js most desired next year).

## ❑ Demographics

- ✓ **Gender:** 93.5% male.
- ✓ **Age:** Mostly 20-30 years.
- ✓ **Education:** Bachelor's degree or higher.
- ✓ **Geography:** High respondent concentration in North America and Europe.

# INTRODUCTION

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- The Developer Survey is conducted annually by Stack Overflow to understand trends, technologies, and the developer community's preferences.
- Nearly 90,000 developers participated in the 2019 survey, making it the most comprehensive survey of people who code globally.
- The survey focuses on topics such as popular languages, databases, platforms, web frameworks, and developer demographics.
- The results aim to guide learning paths, hiring strategies, and technology adoption decisions across the industry.
- This presentation highlights key trends in languages, databases, platforms, and frameworks.
- Demographic insights, including gender, age, education, and geographical distribution, are also analyzed.

# METHODOLOGY

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- Data collected from nearly 90,000 developers worldwide through a structured survey.
- Survey questions focused on various topics, including languages, databases, platforms, and frameworks used by developers.
- Demographic data such as gender, age, education level, and geographical distribution were also captured.
- The responses were analyzed to identify current trends and future preferences in the developer community.
- Quantitative analysis was conducted to determine the most popular and desired technologies.
- Data visualization techniques were used to represent key findings clearly and effectively.

# RESULTS

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## Languages:

JavaScript, HTML/CSS, and SQL are the most widely used languages. JavaScript and Python are the most desired languages for next year.

## Databases:

MySQL and PostgreSQL are the most popular databases. PostgreSQL is the most desired database for the future, followed by MongoDB and Redis.

## Platforms:

Linux, Windows, and Docker are the most commonly used platforms. Docker and Kubernetes are highly desired for future use.

## Frameworks:

jQuery, Angular, and React.js dominate the current landscape. React.js is the most desired framework for next year.

## Demographics:

Majority of respondents are male (93.5%). Most respondents are between 20-30 years old.

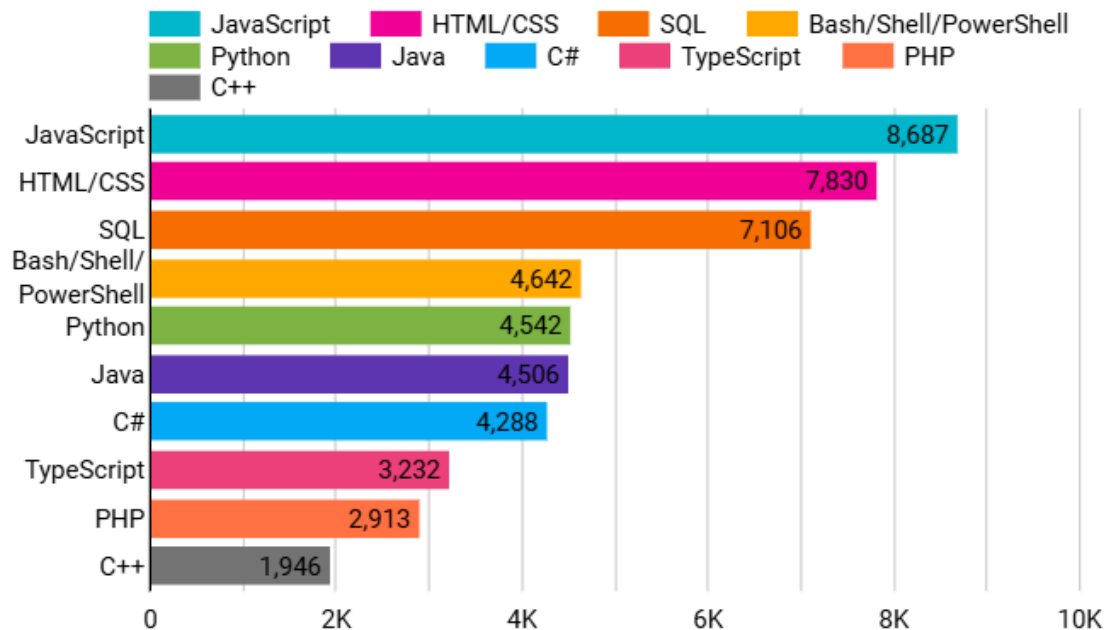
## Geography:

The highest concentration of respondents is in North America and Europe.

# PROGRAMMING LANGUAGE TRENDS

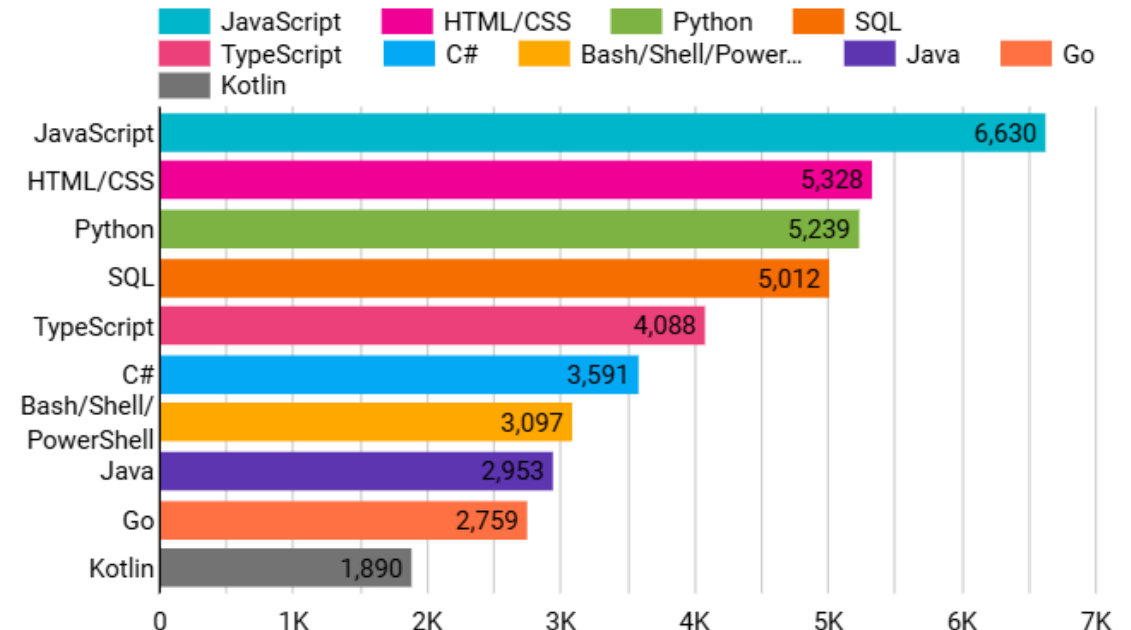
Current Year

Top 10 LanguageWorkedWith



Next Year

Top 10 LanguageDesireNextYear



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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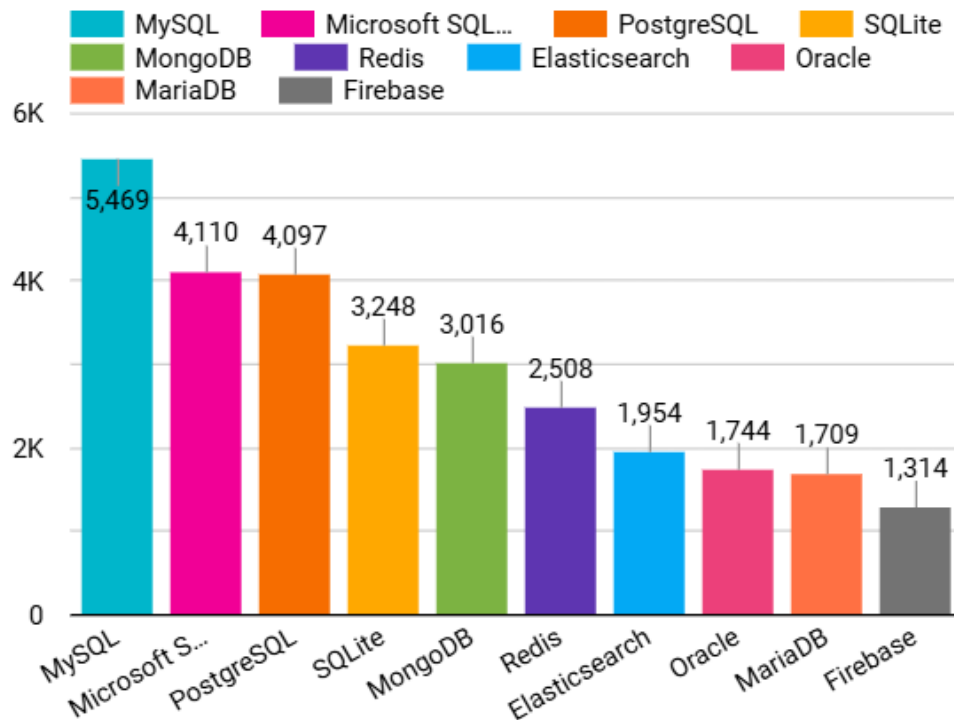
- ❑ JavaScript remains the most widely used programming language.
- ❑ Python shows strong growth and demand, surpassing Java in popularity.
- ❑ SQL maintains its importance for database interaction across industries.
- ❑ Developers should prioritize learning JavaScript and its frameworks for web development roles.
- ❑ Python's popularity highlights the growing need for skills in data science, AI, and automation.
- ❑ SQL's continued relevance emphasizes the importance of database management and querying skills in software development.



# DATABASE TRENDS

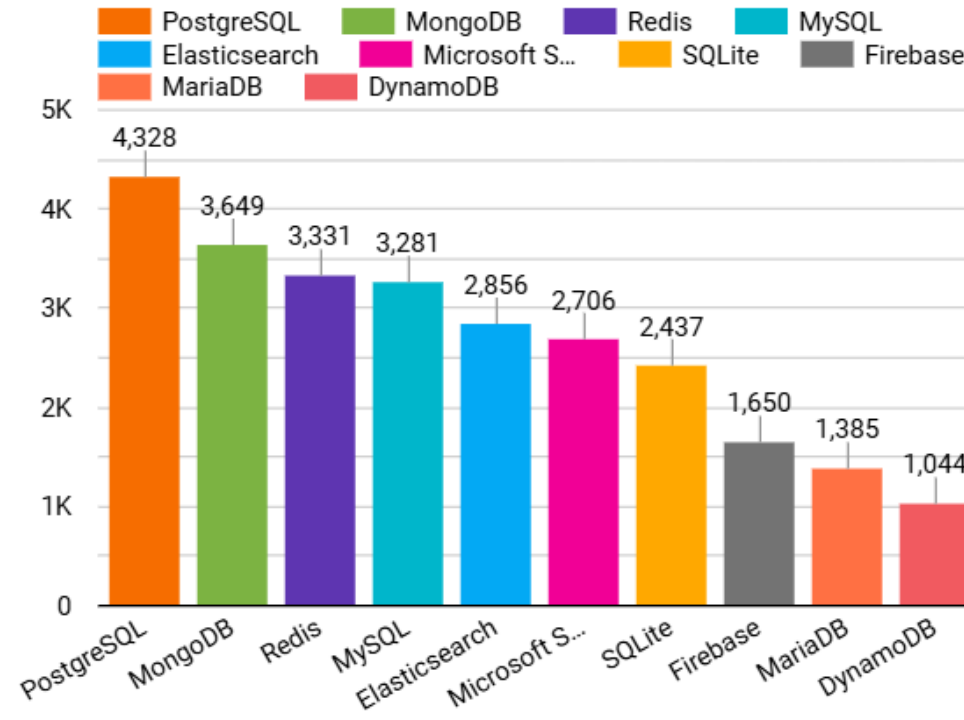
## Current Year

Top 10 Database Worked With



## Next Year

Top 10 Database Desired Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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- ❑ MySQL, PostgreSQL, and Microsoft SQL Server are the most widely used databases.
- ❑ PostgreSQL is the most desired database for future use.
- ❑ NoSQL databases like MongoDB and Redis show significant growth in popularity.
- ❑ Knowledge of relational databases, especially MySQL and PostgreSQL, remains essential for backend development.
- ❑ The increasing demand for PostgreSQL highlights the importance of learning advanced features of this database.
- ❑ The rise of NoSQL databases emphasizes the need for developers to gain expertise in flexible, schema-less database systems.

# DASHBOARD

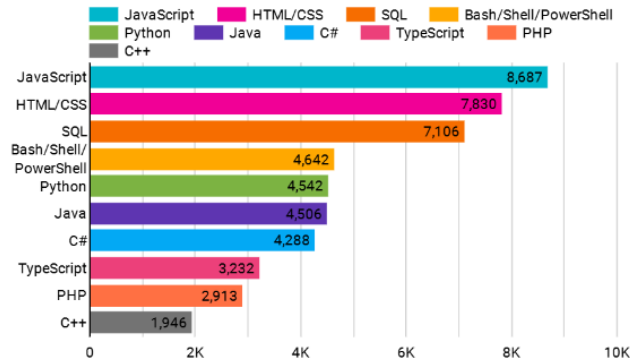
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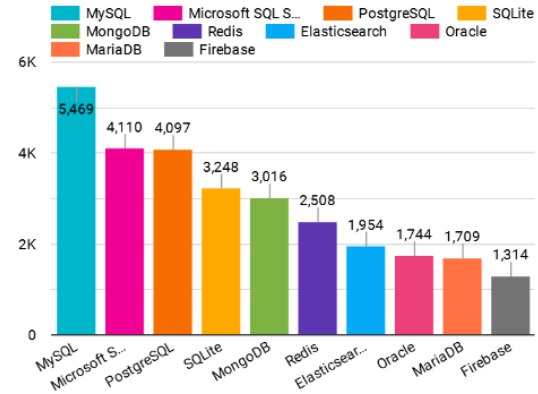
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# DASHBOARD TAB 1

Top 10 LanguageWorkedWith



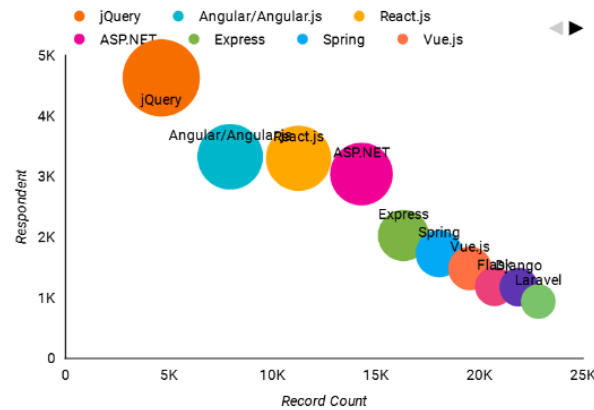
Top 10 DatabaseWorkedWith



PlatformWorkedWith

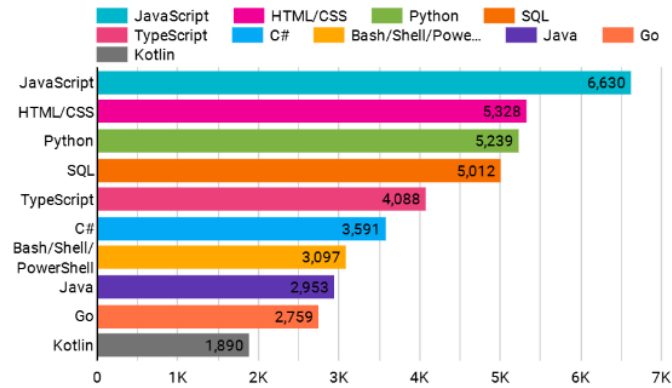


Top 10 WebFrameWorkedWith

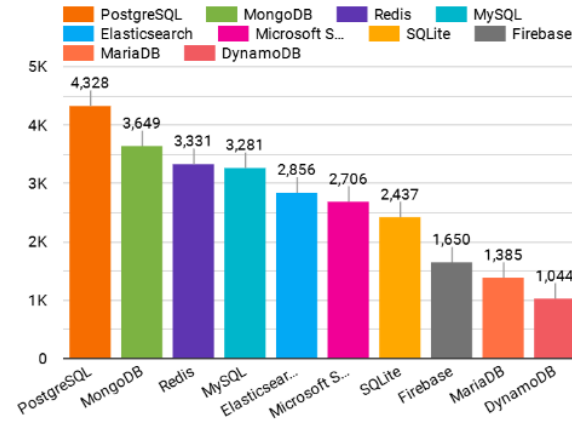


# DASHBOARD TAB 2

Top 10 LanguageDesireNextYear



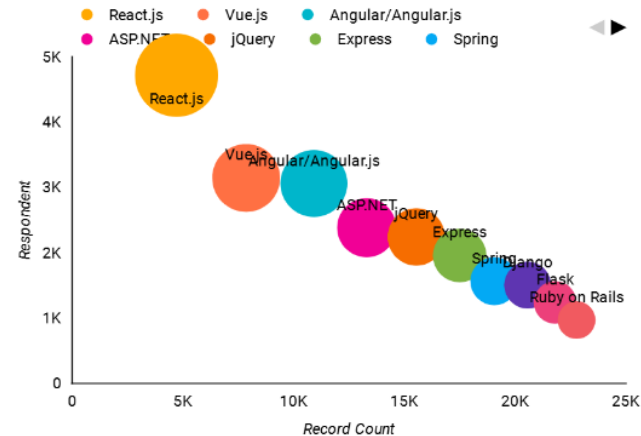
Top 10 DatabaseDesireNextYear



PlatformDesireNextYear

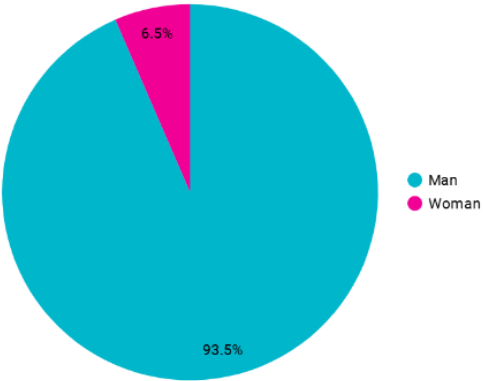


Top 10 WebFrameDesireNextYear

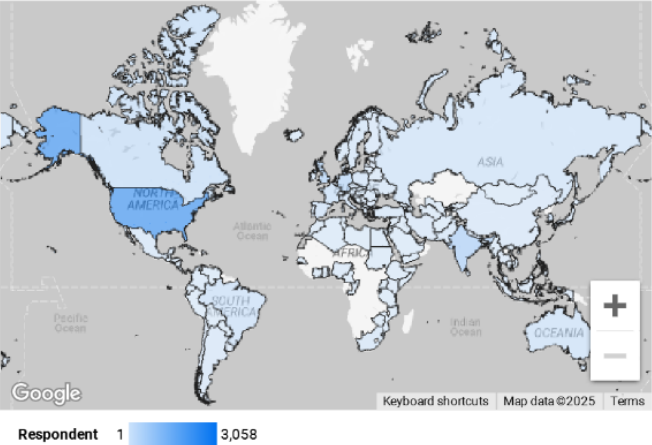


# DASHBOARD TAB 3

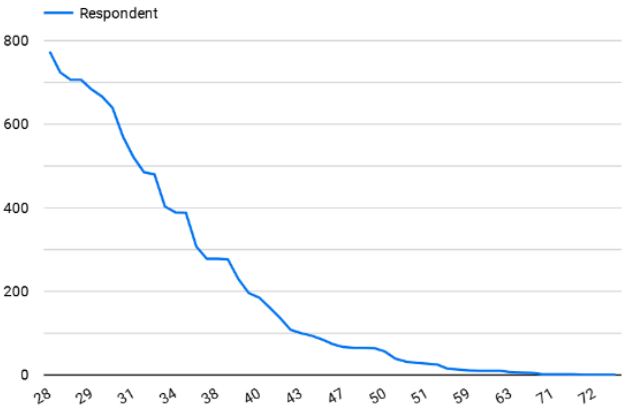
Respondent classified by Gender



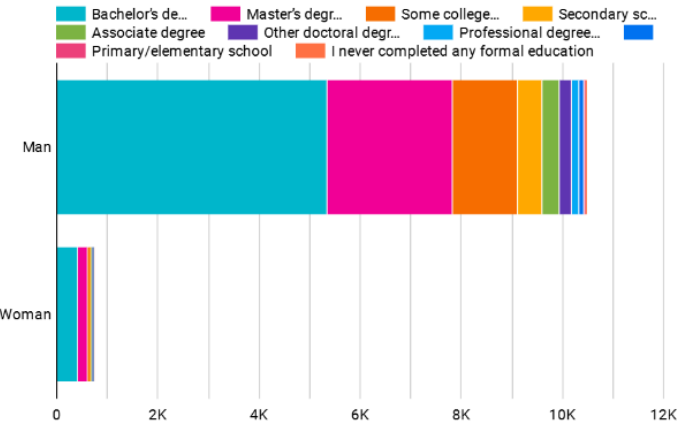
Respondent Count for Countries



Respondent Count by Age

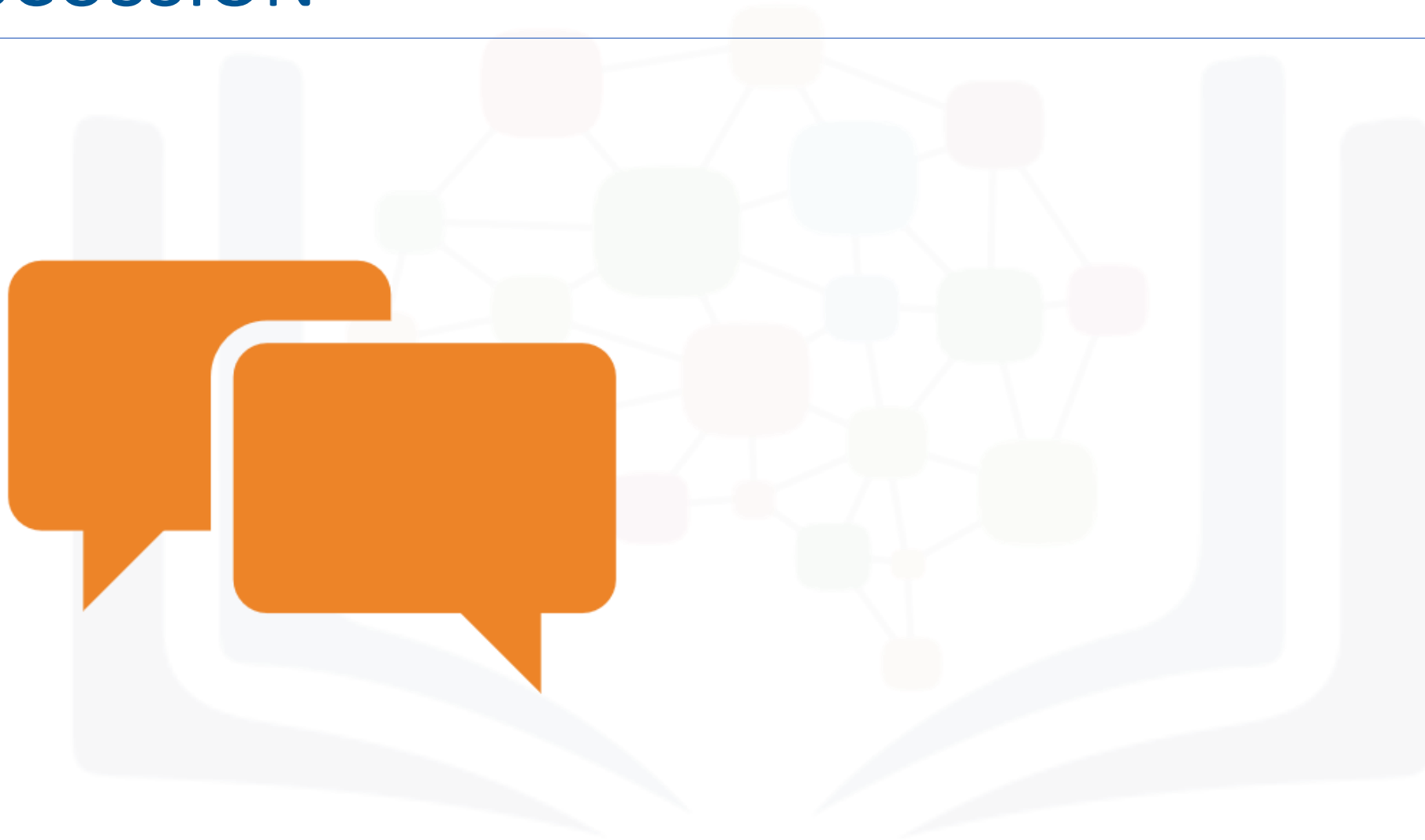


Respondent Count by Gender, Education Level



# DISCUSSION

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# OVERALL FINDINGS & IMPLICATIONS

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- ❑ JavaScript remains the dominant language, with Python and SQL showing high demand and usage.
- ❑ PostgreSQL, MySQL, and MongoDB are leading databases, with PostgreSQL being the most desired.
- ❑ Linux, Docker, and Kubernetes are key platforms for developers, reflecting a shift towards cloud-native technologies.
- ❑ React.js, Angular, and jQuery are the most commonly used web frameworks, with React.js being the most desired for future use.
- ❑ The majority of developers are aged 20-30, hold a bachelor's degree or higher, and are predominantly male.
- ❑ Developers should focus on mastering JavaScript, Python, and SQL to stay competitive in the job market.
- ❑ With the growing adoption of PostgreSQL and NoSQL databases, backend developers should gain expertise in both relational and non-relational databases.
- ❑ Familiarity with cloud platforms, containerization, and orchestration tools such as Docker and Kubernetes is crucial for modern development.
- ❑ Learning React.js and keeping up with modern web frameworks can enhance employability in front-end roles.
- ❑ There's a need to address gender disparity and increase diversity in the developer community.



# CONCLUSION

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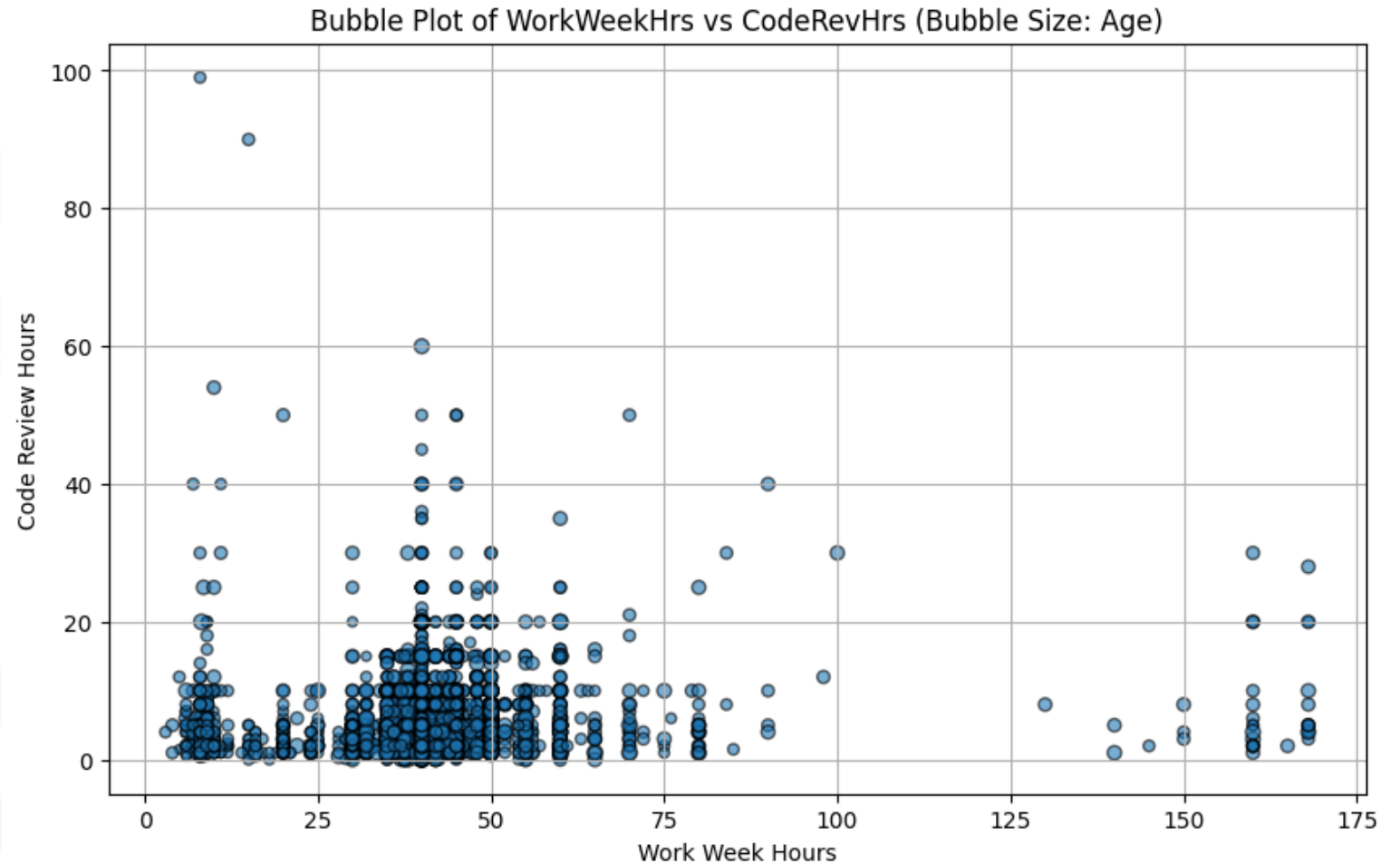


- ❑ The survey results reveal key trends in programming languages, databases, platforms, and frameworks that are shaping the future of software development.
- ❑ JavaScript, Python, and React.js continue to dominate the development landscape, while PostgreSQL and Docker see increasing demand.
- ❑ Developers need to stay adaptable by learning emerging technologies, especially in cloud-native and NoSQL solutions.
- ❑ The analysis also highlights demographic trends, emphasizing the need for more inclusivity and diversity in the developer community.
- ❑ Continuous learning, along with a focus on both technical and soft skills, is critical for developers to remain competitive in an ever-evolving tech industry.

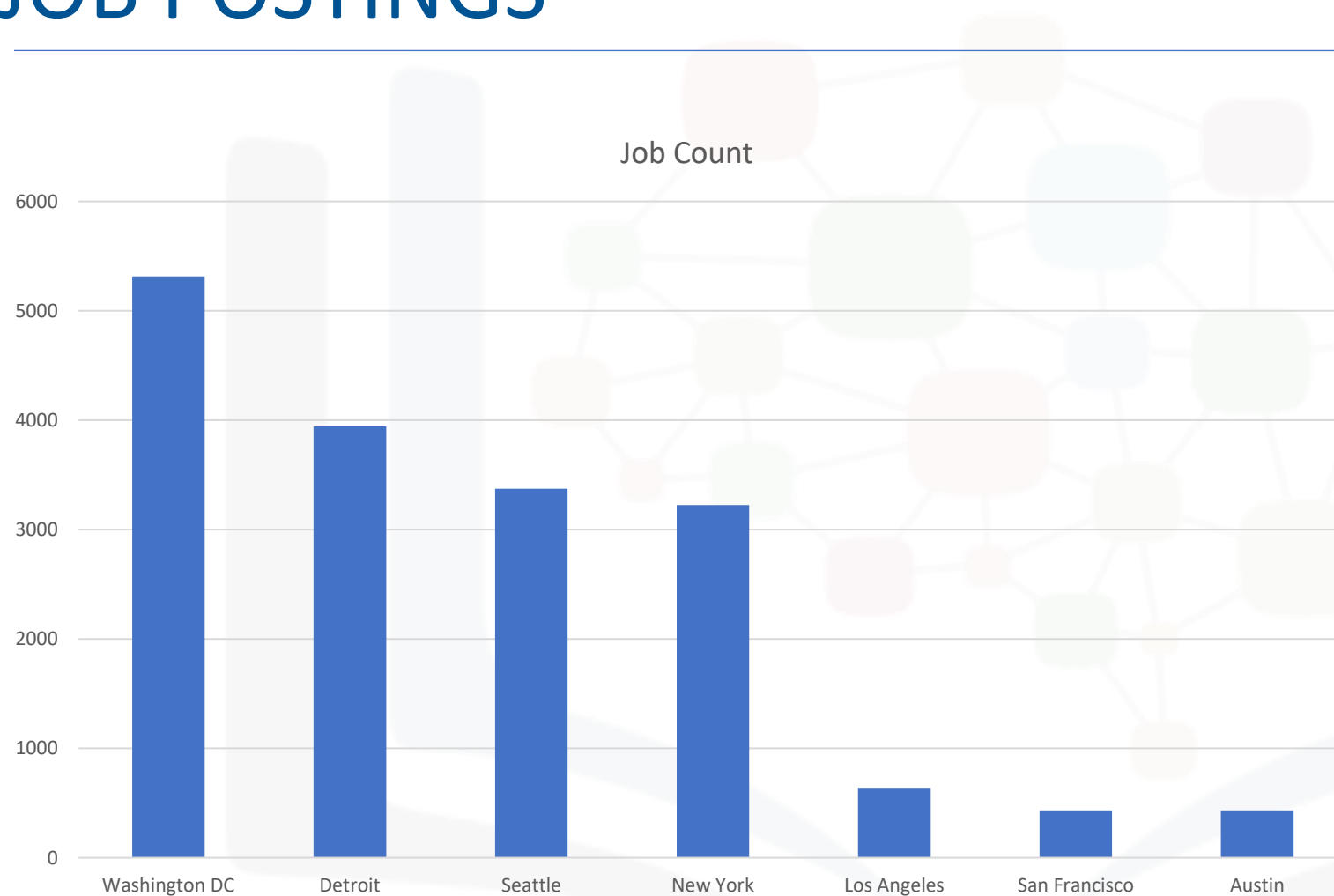
# APPENDIX



# APPENDIX



# JOB POSTINGS



# POPULAR LANGUAGES

