



# Emerging IT Skills Report: Trends in Programming, Databases, and Development Tools

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# OUTLINE

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

# EXECUTIVE SUMMARY

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- Collecting data on top programming skills from job postings, training portals, and surveys
- Analyzing data to identify emerging trends in IT skills
  - The top programming languages in demand
  - The top database skills in demand
  - The popular Integrated Development Environments (IDEs)
- Preparing data through cleaning and wrangling techniques
- Visualizing key insights using Google Looker dashboards
- Presenting findings on current and future skill requirements

# INTRODUCTION

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- The IT industry constantly evolves, requiring new skills to stay competitive
- Identifying the most in-demand programming and database skills is crucial for future growth
- The project aims to analyze data from job postings, training portals, and surveys
- Focus areas include:
  - The current demand for programming languages, databases, and IDEs
  - Predicting future skill trends to guide IT professionals and businesses

# METHODOLOGY

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- Data Collection from job postings, training portals, and surveys
- Web Scraping and API integration for acquiring data
- Data Wrangling to clean and prepare data for analysis
- Exploratory Data Analysis (EDA)
- Handling missing data and outliers
- Identifying trends in programming languages, databases, and IDEs
- Data Visualization and Dashboard Creation using Google Looker
- Presenting insights on current and future skill requirements

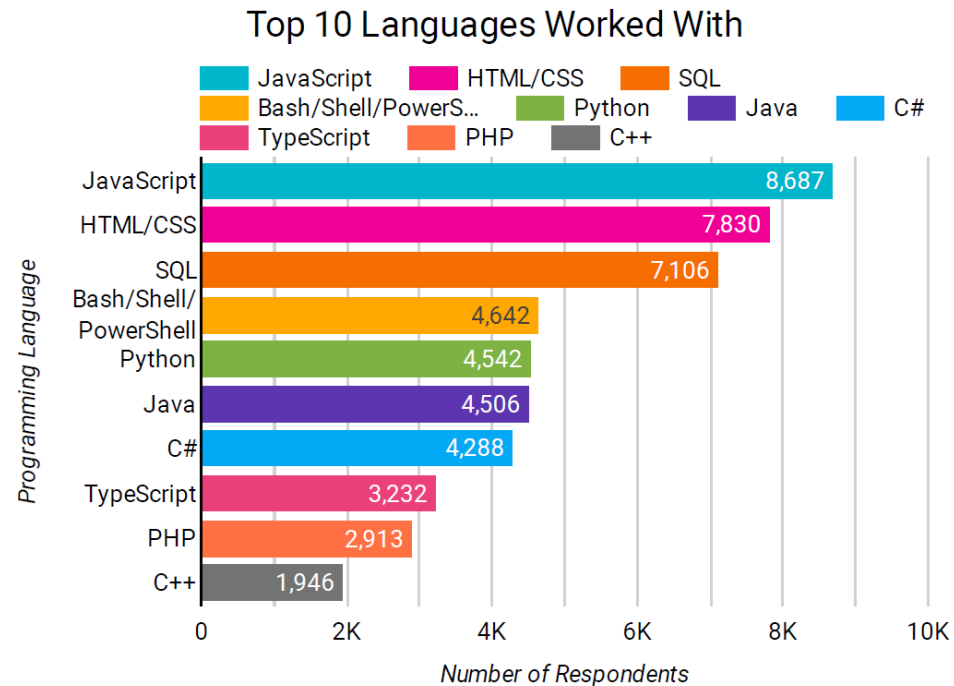
# RESULTS

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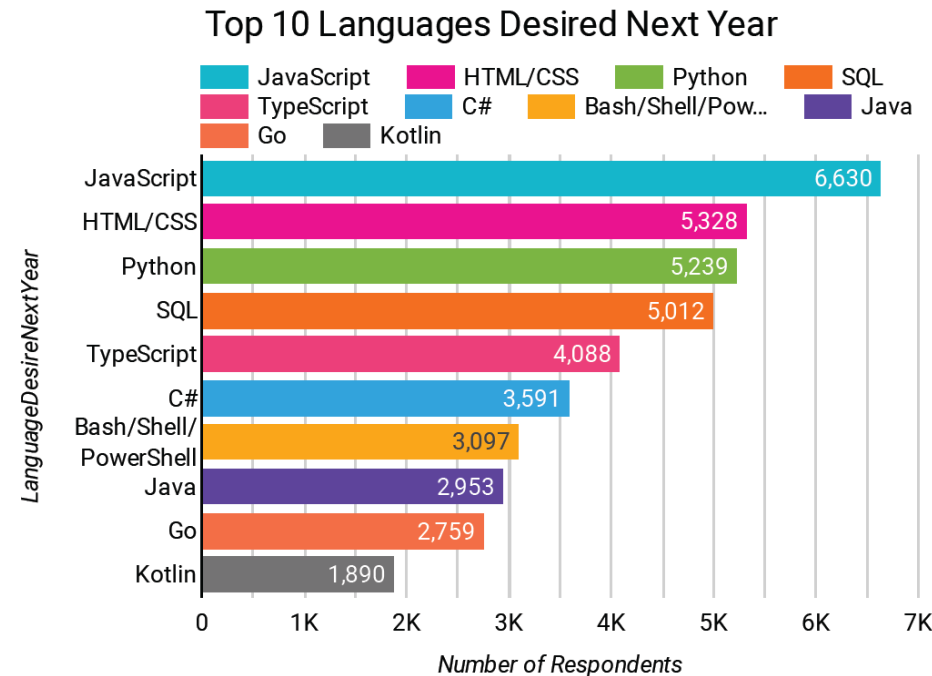


# PROGRAMMING LANGUAGE TRENDS

## Current Year



## Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- JavaScript remains the most popular language currently, with 8,687 respondents working with it, and it continues to be the most desired language for next year, with 6,630 respondents expressing interest
- Python ranks fifth in current usage but rises to third place in future demand, with 5,239 respondents looking to use it next year.
- TypeScript shows significant growth, moving from eighth place in current usage to fifth place in next year's desired languages.

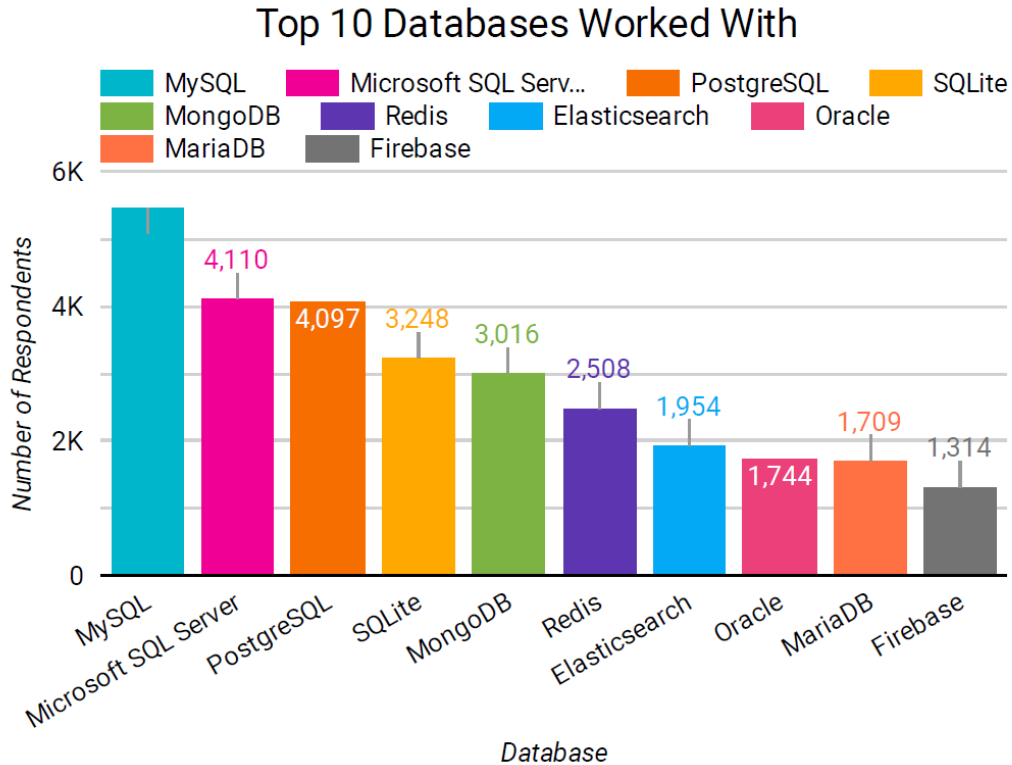
## Implications

- JavaScript will maintain its dominant position in the tech landscape, ensuring high demand for web and full-stack developers.
- The increased demand for Python suggests a rising focus on data science, AI, and machine learning applications in the coming years.
- The growing popularity of TypeScript highlights a shift towards type-safe development in JavaScript environments, which could lead to more demand for expertise in modern JavaScript frameworks.

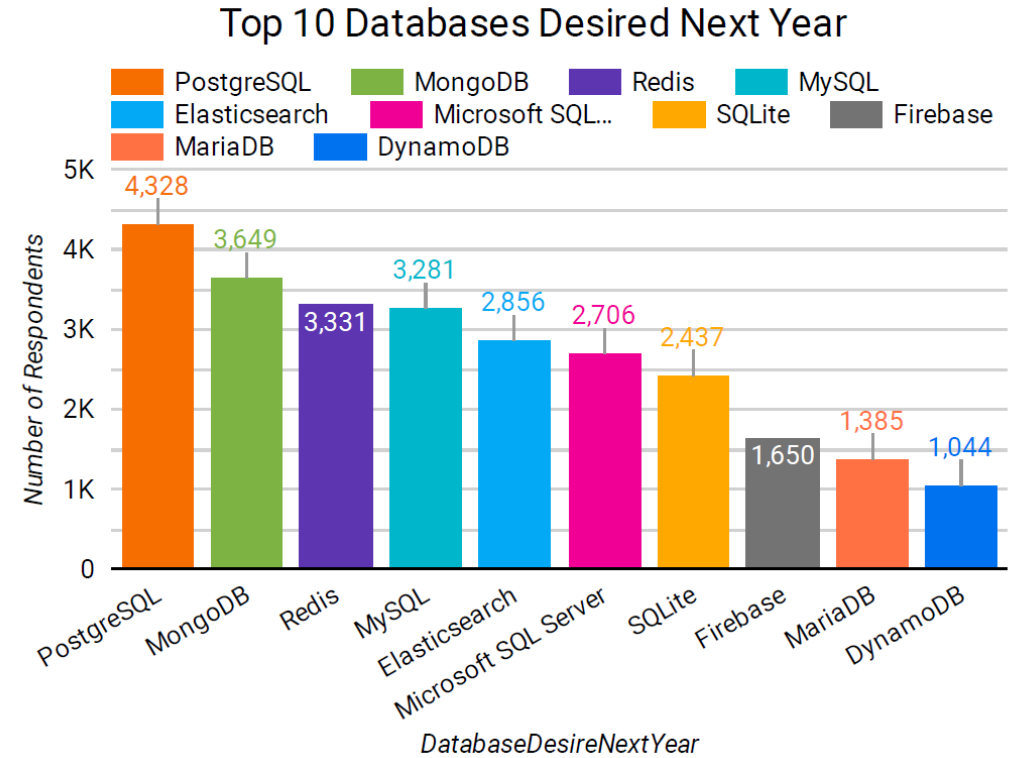


# DATABASE TRENDS

## Current Year



## Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- MySQL is the most commonly used database today, with 5,469 respondents using it, but it is expected to be overtaken by PostgreSQL as the most desired database for next year, with 4,328 respondents preferring it.
- MongoDB and Redis are also in high demand, with 3,649 and 3,331 respondents looking to use them next year.
- Microsoft SQL Server currently holds a strong position, but its future demand is slightly lower compared to other databases like Elasticsearch and SQLite.

## Implications

- PostgreSQL's rise in popularity suggests a growing need for more advanced, flexible, and scalable relational databases, making it a crucial skill for backend developers.
- The demand for MongoDB and Redis indicates the increased use of NoSQL databases in real-time data processing and unstructured data storage.
- As MySQL remains highly used, traditional relational database skills will still be valuable, but developers should also focus on learning more specialized databases like PostgreSQL and Elasticsearch.

# DASHBOARD

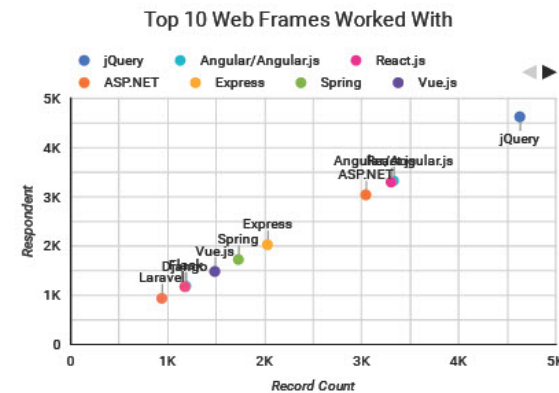
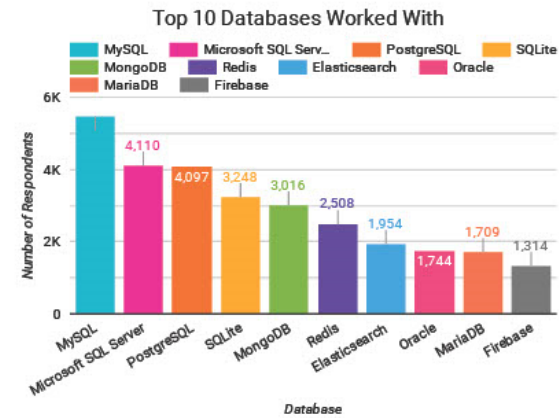
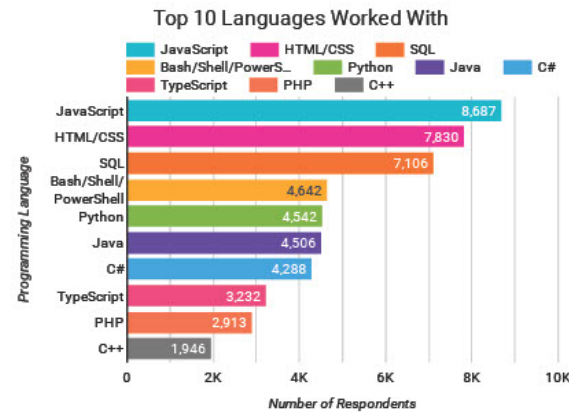
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[<https://github.com/JerryTYan/ibm-data-analyst-capstone-project/blob/main/Module%205/Dashboard.pdf>](https://github.com/JerryTYan/ibm-data-analyst-capstone-project/blob/main/Module%205/Dashboard.pdf)

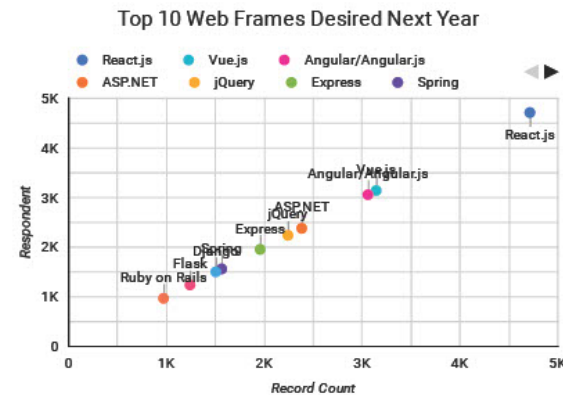
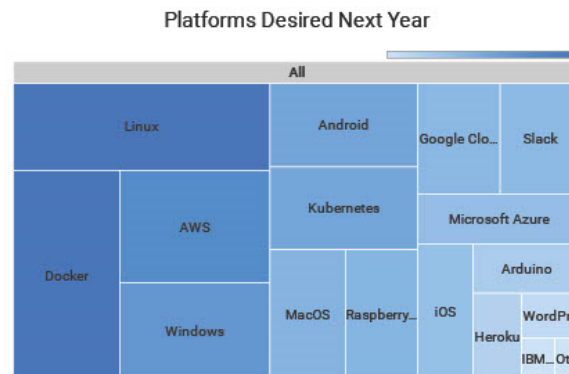
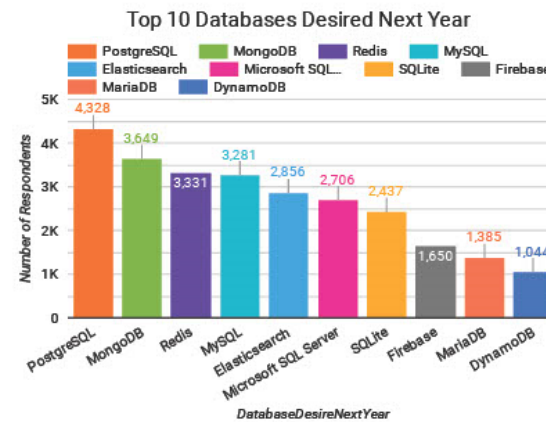
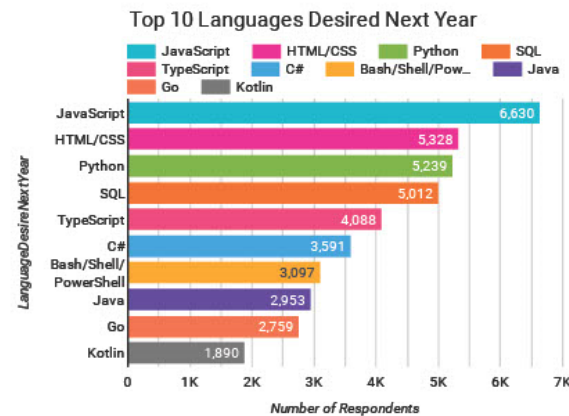
# DASHBOARD TAB 1

## Current Technology Usage



# DASHBOARD TAB 2

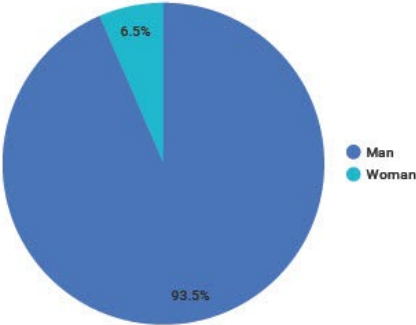
## Future Technology Usage



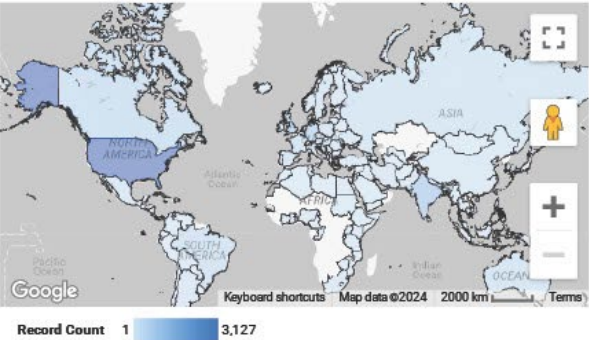
# DASHBOARD TAB 3

## Demographics

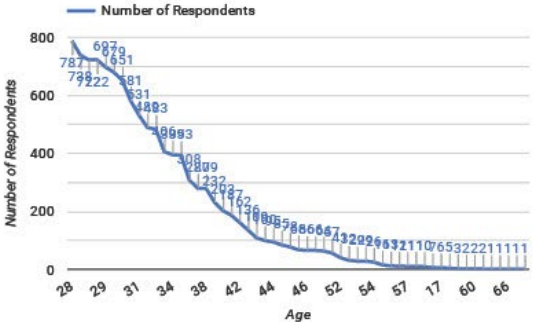
Respondents By Gender



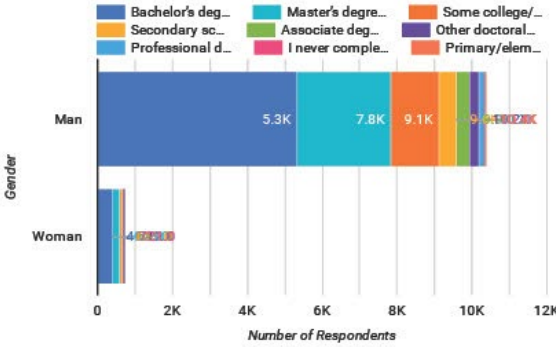
Respondent Count By Country



Respondent Count By Age



Respondent Count by Gender, classified by Formal Education Level



# DISCUSSION

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# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- JavaScript remains the most widely used programming language, and it is also the most desired language for the future, ensuring its continued dominance in the web development space.
- PostgreSQL is expected to surpass MySQL as the most desired database, indicating a shift toward more advanced and flexible database systems in the next year.
- The demand for modern web frameworks such as React.js is increasing, with jQuery remaining a popular choice but slowly being replaced by newer technologies.

## Implications

- JavaScript will continue to be a critical skill for developers, making it essential for organizations to focus on training and retaining JavaScript experts.
- The growing interest in PostgreSQL suggests that developers and companies are looking for more scalable and feature-rich database solutions, making expertise in PostgreSQL valuable for backend developers.
- The shift toward frameworks like React.js and Vue.js indicates a broader trend toward component-based development, signaling that developers need to focus on mastering these newer frameworks for front-end development.



# CONCLUSION

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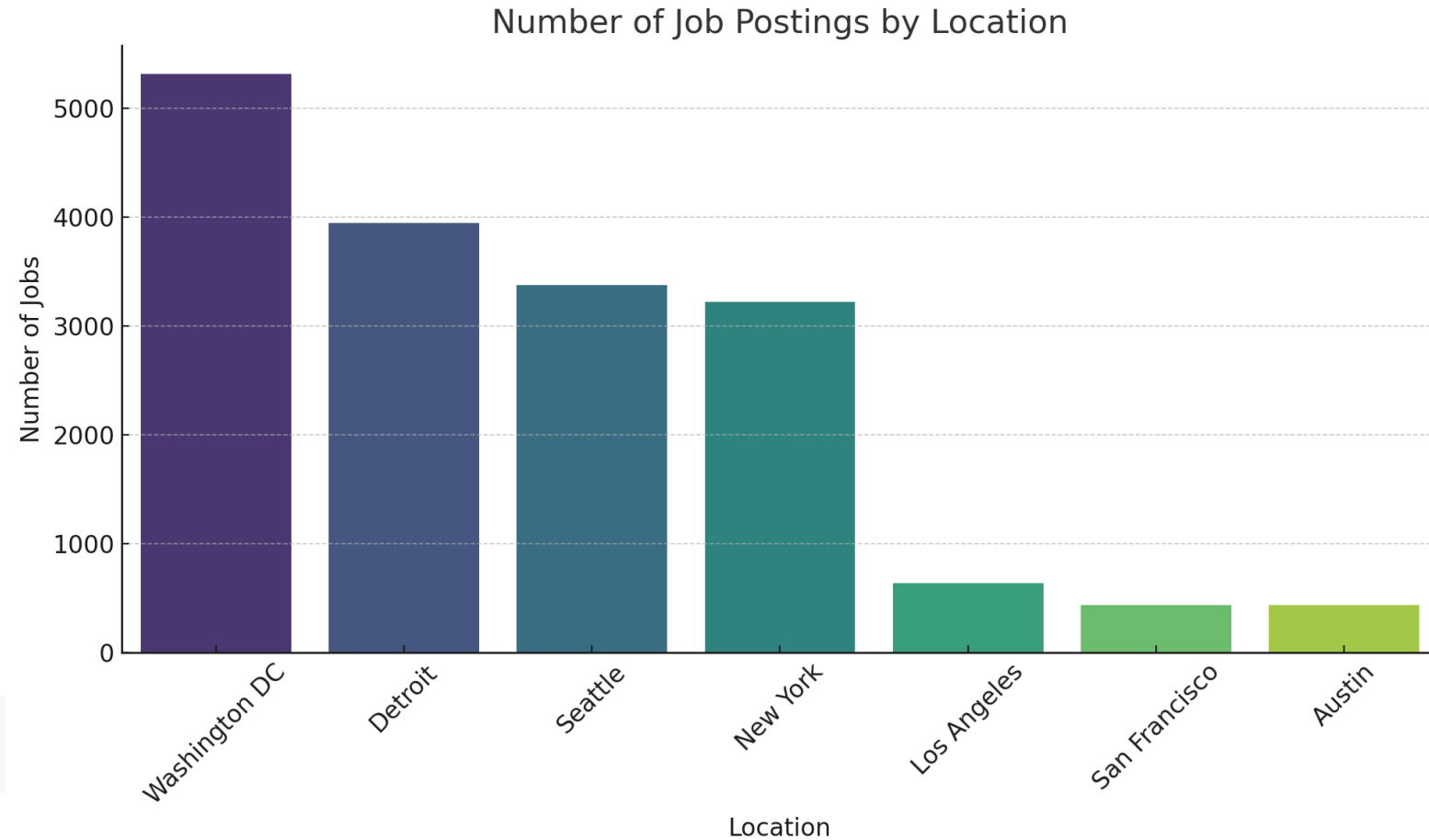
- JavaScript will continue to dominate as the most widely used and desired programming language next year.
- PostgreSQL is expected to surpass MySQL as the most in-demand database technology.
- React.js is set to become the leading web framework, with increasing adoption over the next year.
- The majority of IT professionals remain male, with men representing 93.5% of the respondents in the data.

# APPENDIX

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# JOB POSTINGS



# POPULAR LANGUAGES

