



IBM Data Analyst Capstone Project: 2019 Stack Overflow Developer Survey Results

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OUTLINE



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EXECUTIVE SUMMARY



- Most respondents are between 20 and 40 years old
- The survey shows a high male representation
- **Web Frameworks Desired for the Future:** React.js and Vue.js top the list, with Angular, ASP.NET, and jQuery also in demand.
- **Top Programming Languages:** JavaScript leads in usage, followed by HTML/CSS, SQL, Bash/Shell/PowerShell, Python, and Java.
- **Databases in Demand for the Future:** PostgreSQL and MongoDB are growing in popularity, followed by Redis, MySQL, and Elasticsearch.

INTRODUCTION



- In today's fast-paced tech industry, staying updated with current trends and anticipating future demands is crucial for professionals aiming to remain competitive.
- This presentation is based on insights derived from the 2019 Stack Overflow Developer Survey, one of the largest and most comprehensive surveys of developers worldwide.
- The survey, conducted annually, also provides valuable demographic information, offering a glimpse into the educational backgrounds, age distribution, and professional experiences of developers across the globe.
- Through dashboards and data visualizations, we will explore the skills and tools developers currently rely on and those they are eager to adopt in the coming years.

METHODOLOGY



- **Data Collection:** Extracted from 2019 Stack Overflow Developer Survey, focusing on current and desired technology trends.
- **Data Processing:** Filtered responses to highlight the top 10 entries across categories (Languages, Databases, Platforms, Web Frameworks).
- **Visualization and Interpretation:** Leveraged **IBM Cognos Analytics** for interactive dashboards, interpreting patterns and insights to forecast industry trends.
- **Reporting and Insights:** Summarized findings to support strategic decisions on technology adoption and alignment with developer trends.

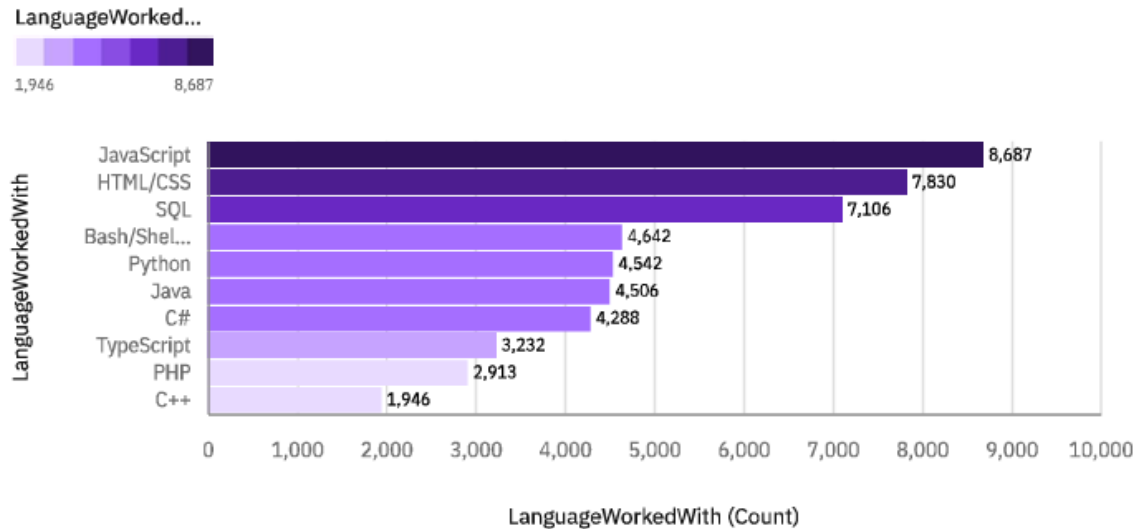
RESULTS



PROGRAMMING LANGUAGE TRENDS

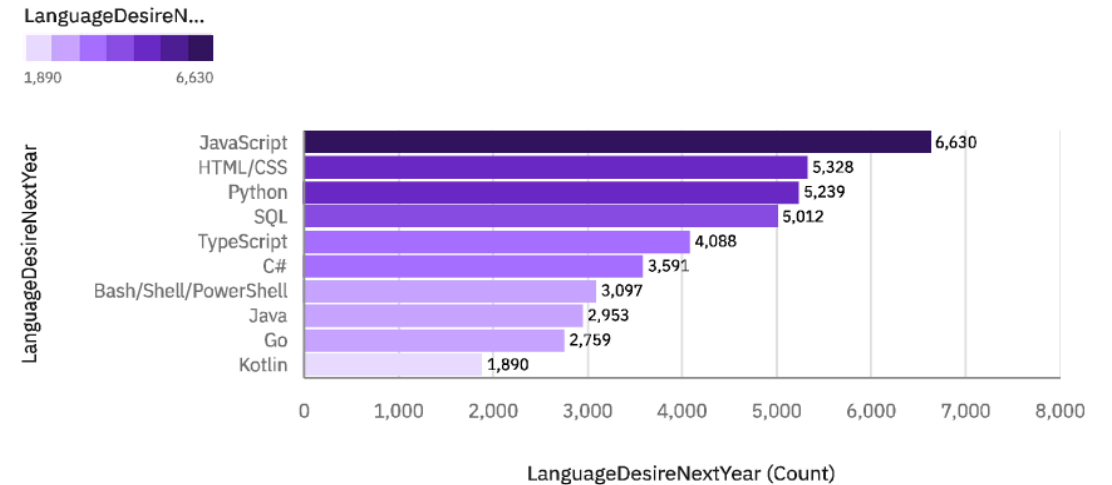
Current Year

Top 10 Language Worked With



Next Year

Top 10 Language Desire Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **JavaScript** is the most used and desired language, indicating its ongoing relevance in development.
- **Python's popularity** is growing, showing its significance in fields like data science and AI.
- **TypeScript** demand is increasing, suggesting developers are adopting it for scalable projects

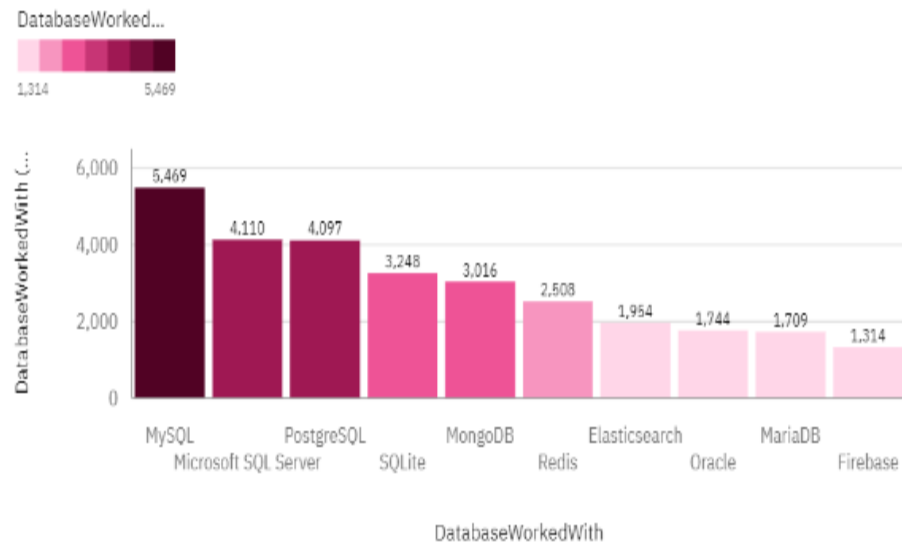
Implications

- Companies should prioritize **JavaScript-based frameworks** to stay competitive.
- Providing **Python** training would be advantageous for teams focusing on AI and data analysis.
- Adopting **TypeScript** could improve code quality and maintainability in large projects

DATABASE TRENDS

Current Year

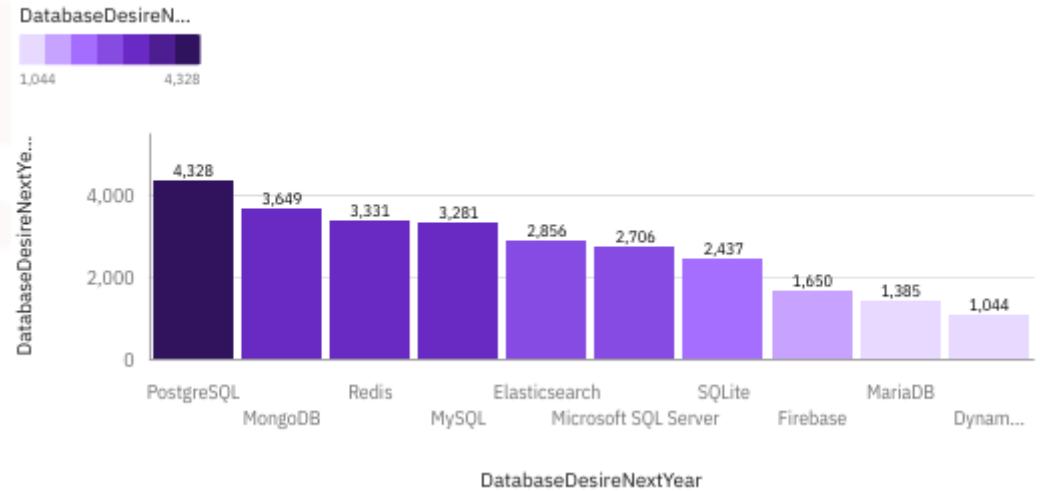
Top 10 Database Worked With



2

Next Year

Top 10 Database Desire Next Year



5

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **MySQL** is currently the most used database, but PostgreSQL has the highest demand for the next year.
- **MongoDB and Redis** are gaining interest, showing increased focus on NoSQL databases.
- Traditional databases like **Oracle and Microsoft SQL Server** are seeing less future interest compared to PostgreSQL and MongoDB

Implications

- Companies may benefit from investing in **PostgreSQL** to align with growing developer interest.
- Expanding knowledge and support for NoSQL databases like **MongoDB and Redis** could meet future data needs.
- Organizations relying on traditional databases might consider modernizing with **PostgreSQL or NoSQL** options to stay competitive.

DASHBOARD

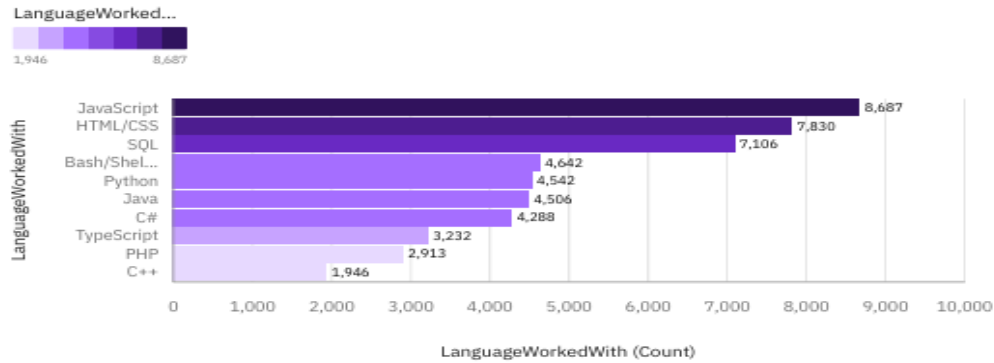


<https://github.com/Dicerdt1/IBM-Data-Analyst-Capstone-Project/tree/main>

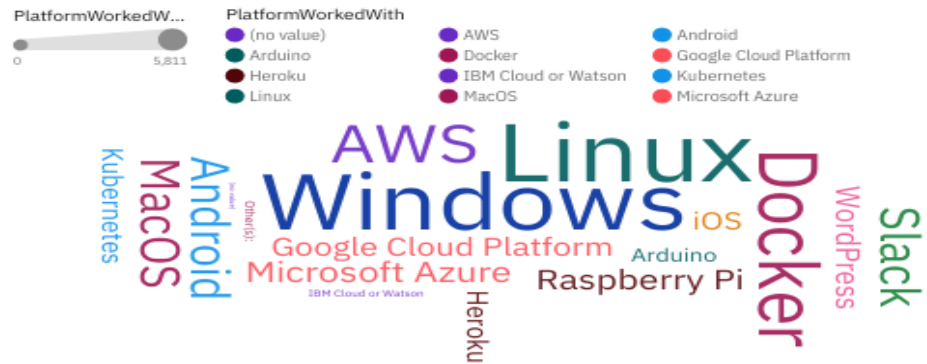
DASHBOARD TAB 1

Current Technology Usage

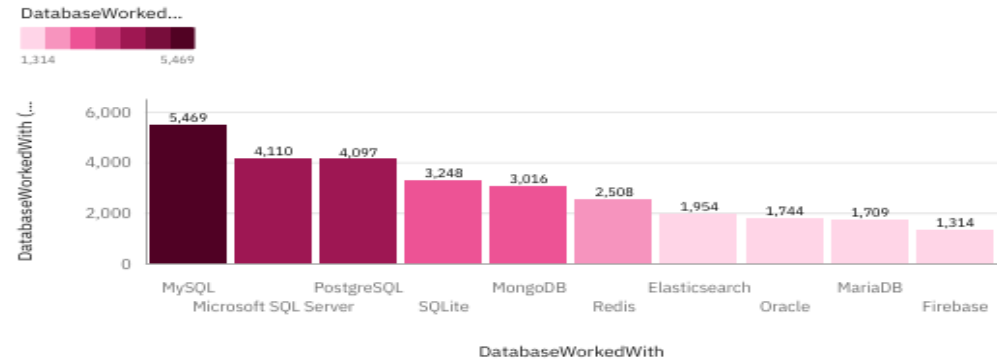
Top 10 Language Worked With



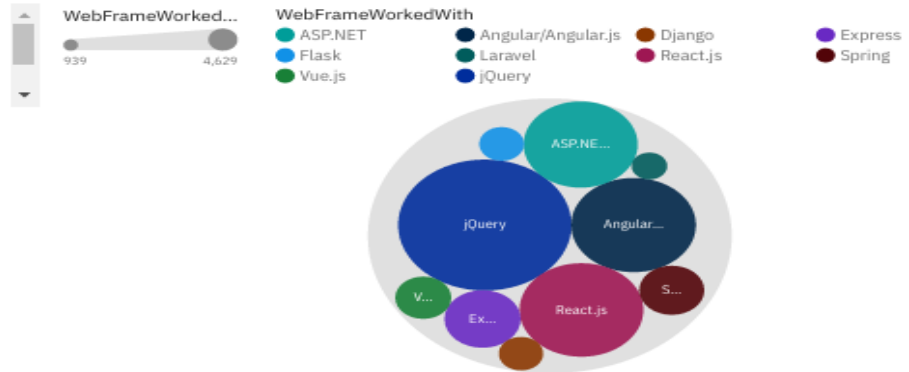
Platform Worked With



1 Top 10 Database Worked With



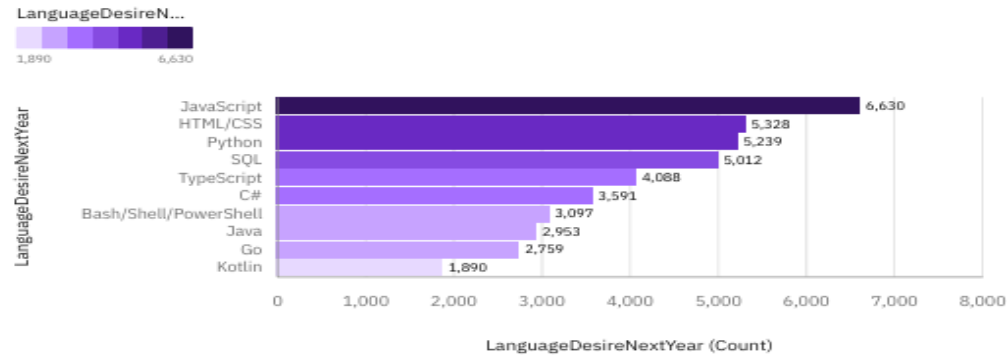
Top 10 WebFrame Worked With



DASHBOARD TAB 2

Future Technology Trend

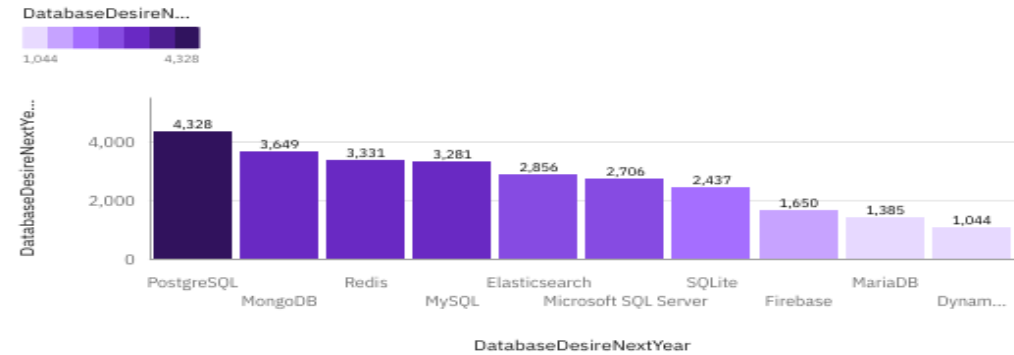
Top 10 Language Desire Next Year



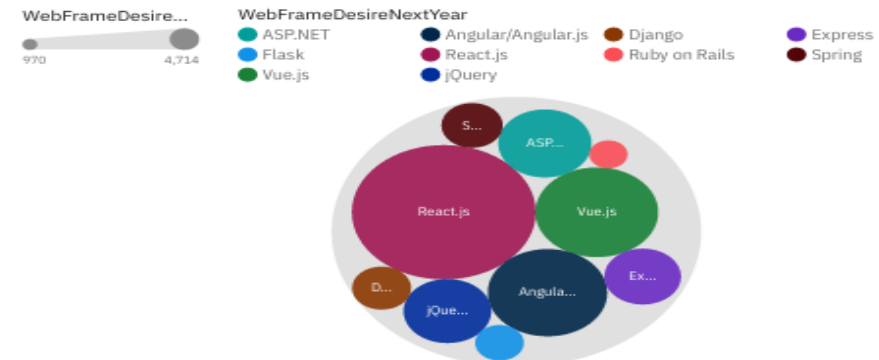
Platform Desire Next Year



4 Top 10 Database Desire Next Year



Top 10 WebFrame Desire Next Year



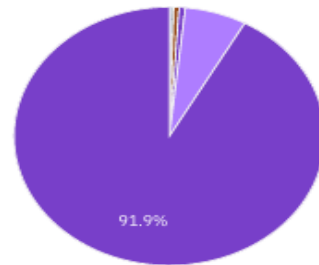
DASHBOARD TAB 3

Demographics

Respondent by Gender

Gender

- Woman;Man;Non-binary, genderq...
- Man;Non-binary, genderqueer, or ...
- Woman
- Woman;Man
- Non-binary, genderqueer, or gend...
- Man
- Woman;Non-binary, genderqueer,...
- (no value)

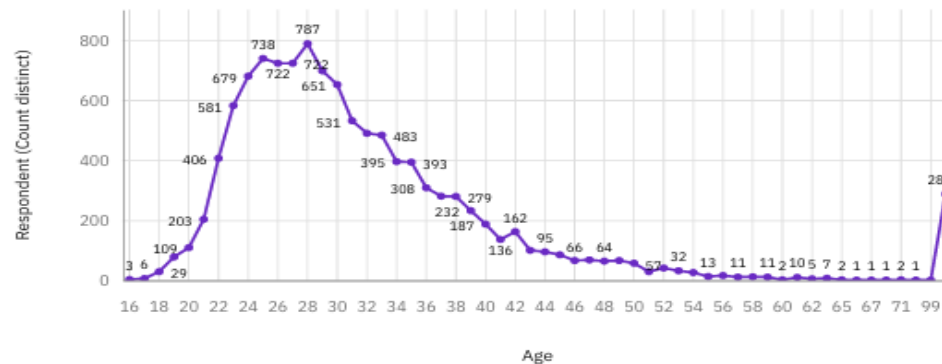


Respondent Count for Countries

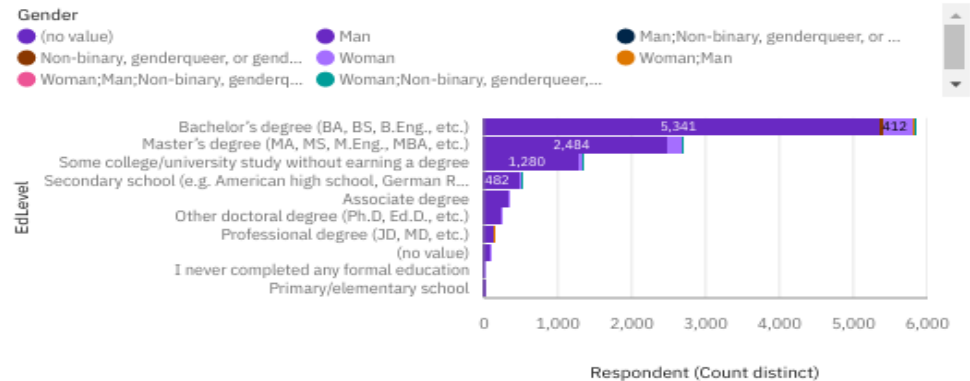
Respondent (Count)



Respondent by Age



Respondent Count by Gender, classified by Formal Education Level



DISCUSSION



- **Language Trends:** JavaScript remains dominant, but rising interest in Python and TypeScript suggests a shift towards languages that support data science, AI, and scalable web development.
- **Database Preferences:** While MySQL leads in current usage, PostgreSQL is the top choice for the future, reflecting a shift towards more versatile and scalable database solutions. The growing interest in NoSQL options (e.g., MongoDB, Redis) highlights the need for flexibility in data management.
- **Platform Evolution:** Developers continue to favor cross-platform environments, with Linux and Docker seeing steady growth. This trend underlines the importance of containerization and open-source platforms in modern development workflows.

OVERALL FINDINGS & IMPLICATIONS

Findings

- **JavaScript** remains highly popular, but the rising demand for Python and TypeScript suggests a growing focus on data science, AI, and scalable applications.
- **PostgreSQL** is becoming the preferred database, with NoSQL databases like **MongoDB and Redis** also gaining traction, indicating a shift towards more flexible and scalable data solutions.
- The popularity of **Linux and Docker** shows an industry trend towards open-source, cross-platform, and containerized development environments.

Implications

- Businesses should invest in training for **Python and TypeScript** to support data-driven projects and scalable development needs.
- Organizations may benefit from transitioning to **PostgreSQL and adopting NoSQL databases** to handle diverse data requirements more effectively.
- Embracing **Linux and Docker** can enhance development efficiency, making infrastructure more adaptable and aligned with modern industry practices.

CONCLUSION



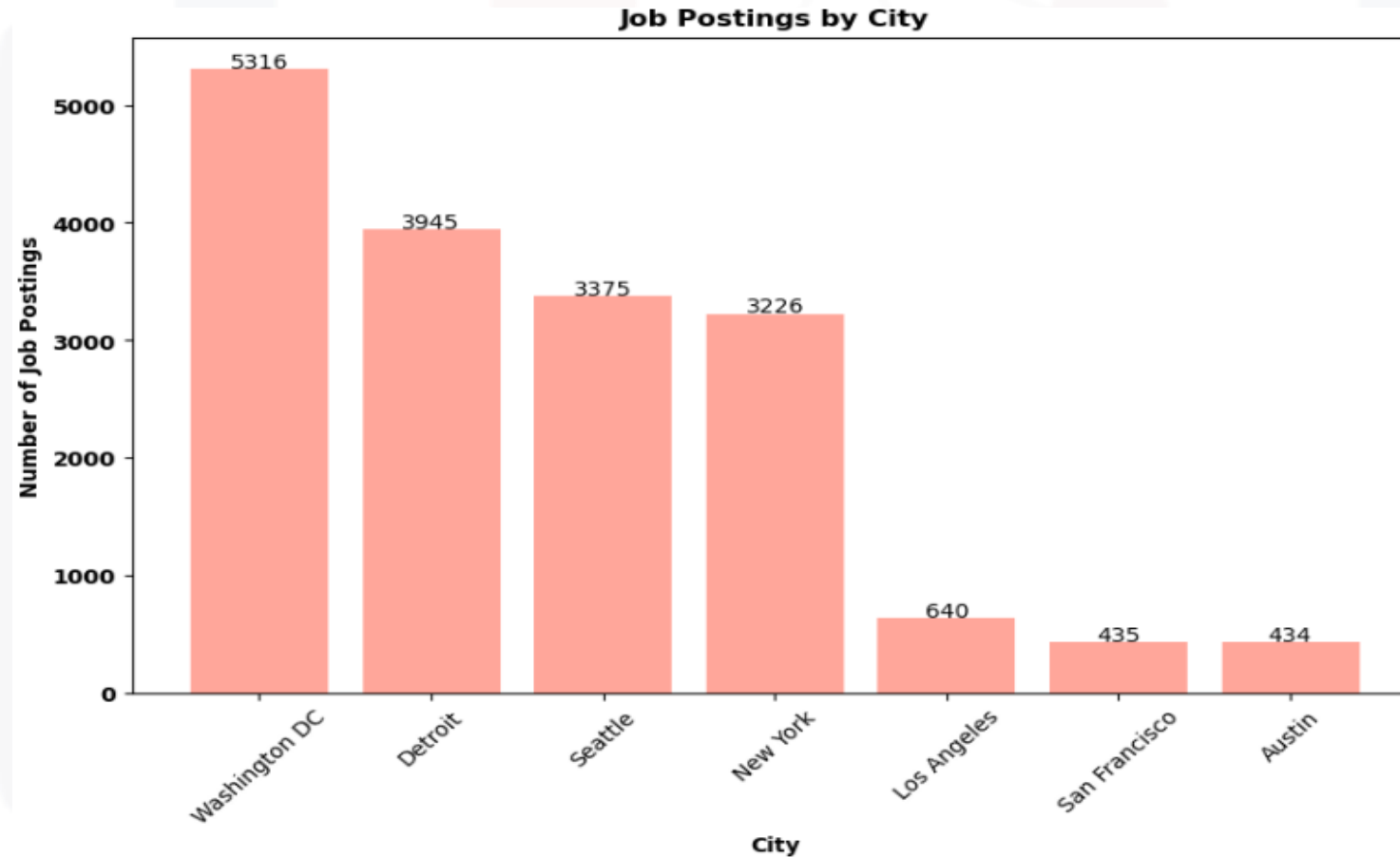
- The analysis reveals a significant shift in developer preferences towards tools and technologies that support scalability, flexibility, and modern application demands.
- JavaScript, Python, and TypeScript lead the language trends, suggesting that companies should prioritize these languages for future projects.
- PostgreSQL and NoSQL databases are becoming increasingly favored, reflecting the need for adaptable and robust data management solutions.
- The majority of respondents come from a diverse age range and educational background, highlighting the inclusivity of the developer community. Most hold a bachelor's degree, showing the importance of formal education in tech fields, though there's still substantial representation from self-taught developers.

APPENDIX



- A. JOB POSTINGS
- B. POPULAR LANGUAGES

A. JOB POSTINGS



B. POPULAR LANGUAGES

