
# Developer survey analysis

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# OUTLINE

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

- The project is designed to illuminate the dynamic of relevance of top languages and databases
- The languages and databases that dominate across the board
  - Javascript among Developers
  - Python among Non-developers
  - PostgreSQL has been gaining popularity among both developers and non-developers
- Similarities and differences in the database use between Developers and Non-developers

# INTRODUCTION

- The analysis is focused on pointing out the differences and similarities of use of languages and databases between Developers and non-developers
- Knowing the trends between Developers and Non-developers can be helpful for both the beginners and professionals alike
- What language is on the rise among the Developers and Non-developers?
- What database is on the rise among the Developers and Non-developers?

# METHODOLOGY

- Data sourced by Stack Overflow.
- This randomized subset contains around 1/10$^{th}$ of the original data set Point3
- The methods for exploring and cleaning data:
  - Removing duplicates
  - Imputing missing values
  - Normalizing data

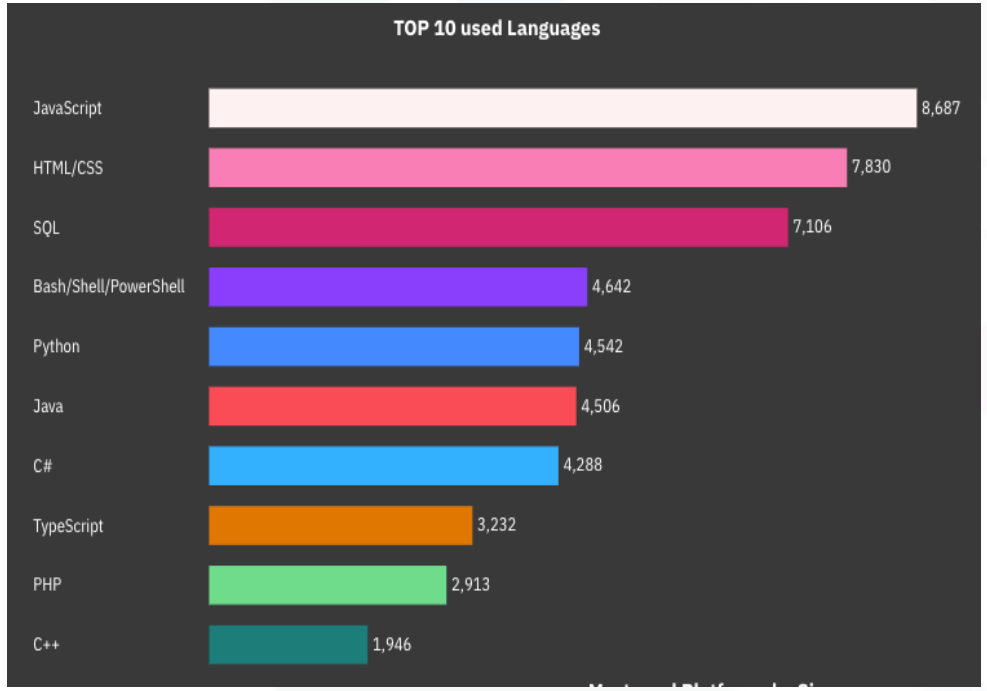
# RESULTS

IBM Dashboard and Python Seaborn library are used to visualize data.
Here are the results apparent from the visualizations below:

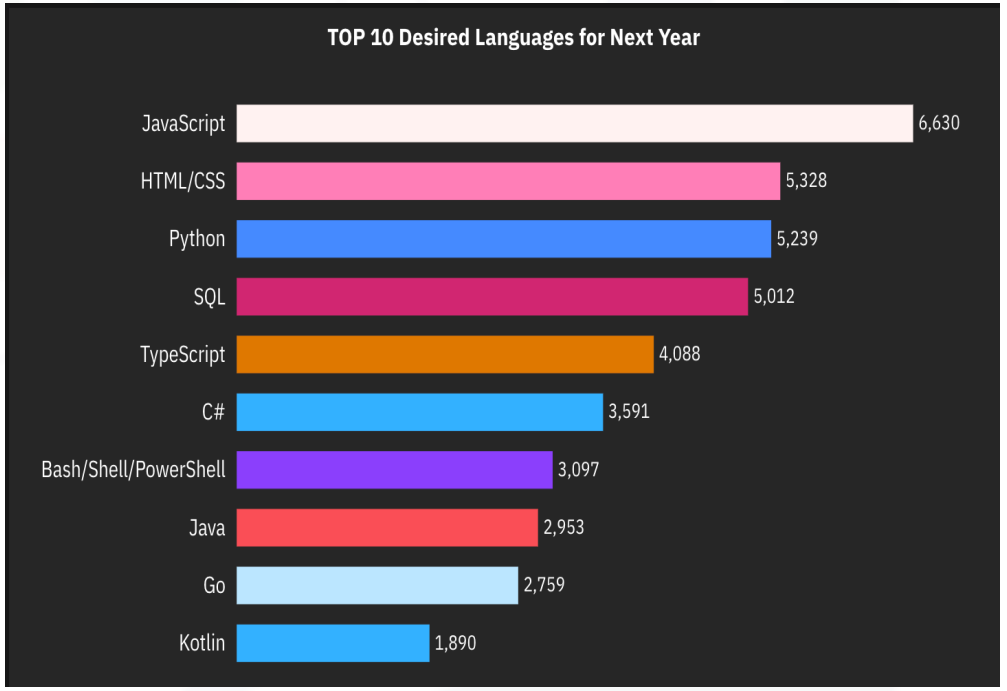
- **JavaScript**: It remains the top language among developers and has risen from fourth to second most desired among non-developers, indicating broader interest.
- **Python**: Interest in Python is growing among both developers and non-developers, emphasizing its role in diverse applications from web development to data analysis.
- **PostgreSQL vs. MySQL**: PostgreSQL is increasingly preferred over MySQL among both groups, likely due to its superior performance, scalability, and feature set for complex data handling.

# PROGRAMMING LANGUAGE TRENDS

## Current Year

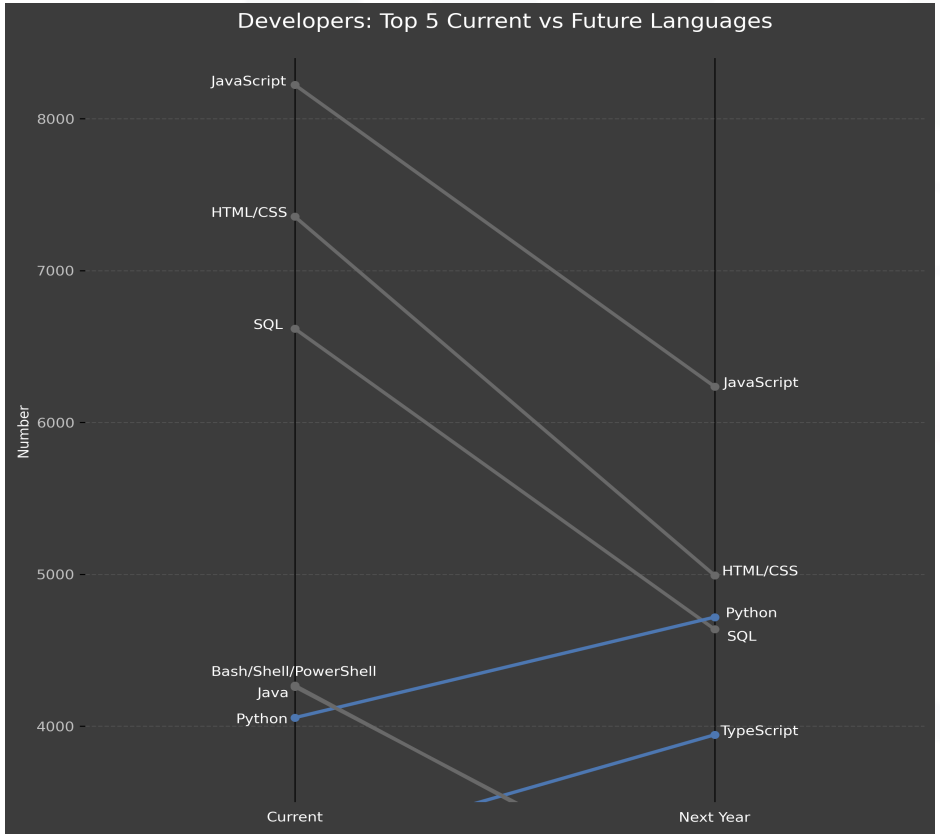



## Next Year

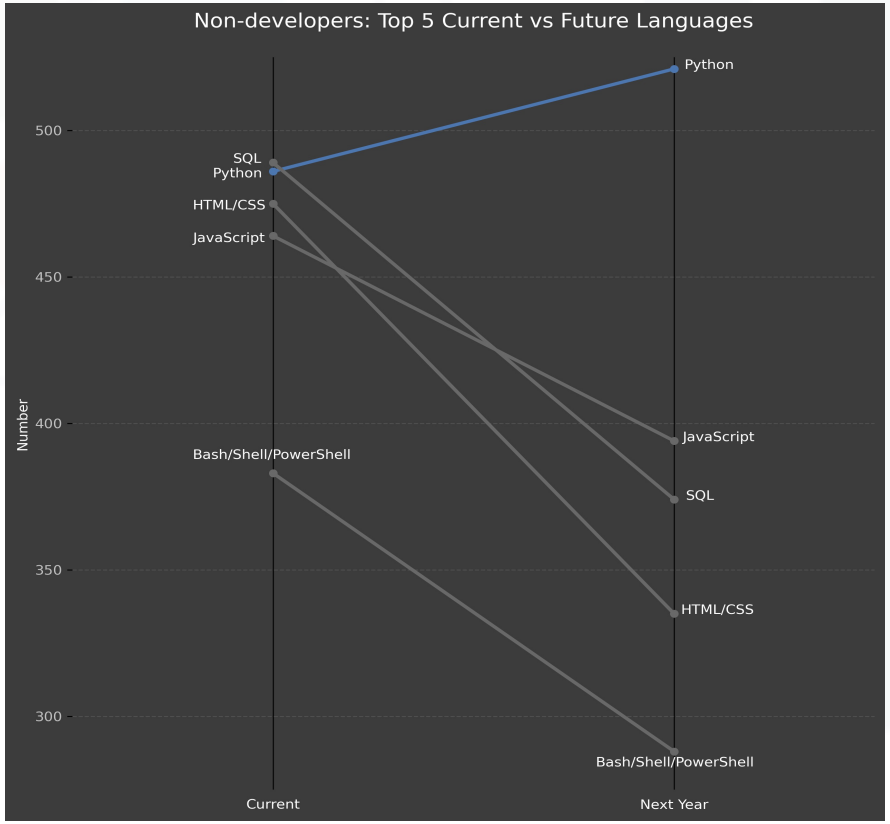


# PROGRAMMING LANGUAGE TRENDS

## Developers




## Non-developers



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- Difference between Developers and Non-developers:

  1) **SQL** is the most used language currently among non-developers, likely due to its heavy use in data management and analytics.

  2) **JavaScript** holds the top spot among developers, emphasizing its centrality in web development.

- Similarity between Developers and Non-developers:

  1) **Python and TypeScript** are increasing in popularity across both groups, showing broadening appeal for their versatility and advanced capabilities.

  **2) Other languages** are experiencing a relative decline in interest compared to these two.

Implications:

**1. Training:**

•Focus on SQL for non-developers and JavaScript for developers.

•Include Python and TypeScript due to their growing popularity.

**2. Hiring:**

•Prioritize JavaScript and SQL proficiency.

•Value adaptability with Python and TypeScript.

**3. Investments:**

•Support tools for JavaScript, SQL, Python, and TypeScript to enhance productivity.

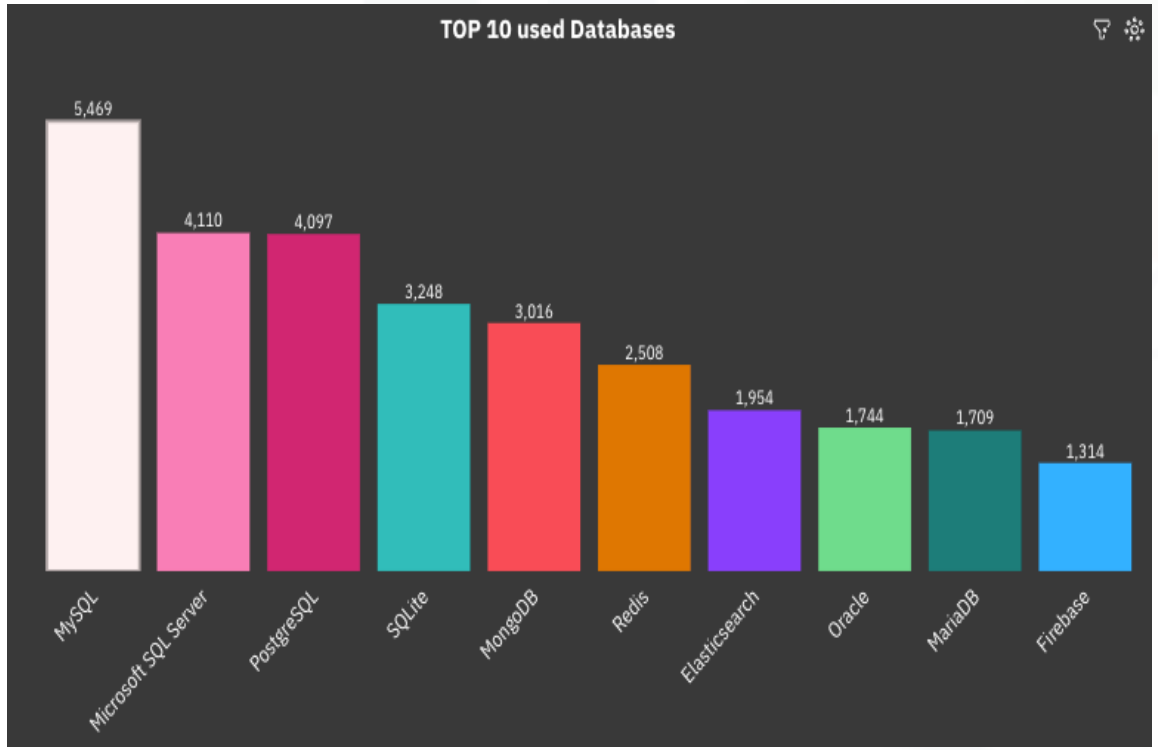
**4. Strategy:**

•Adjust to shifts in programming language trends.

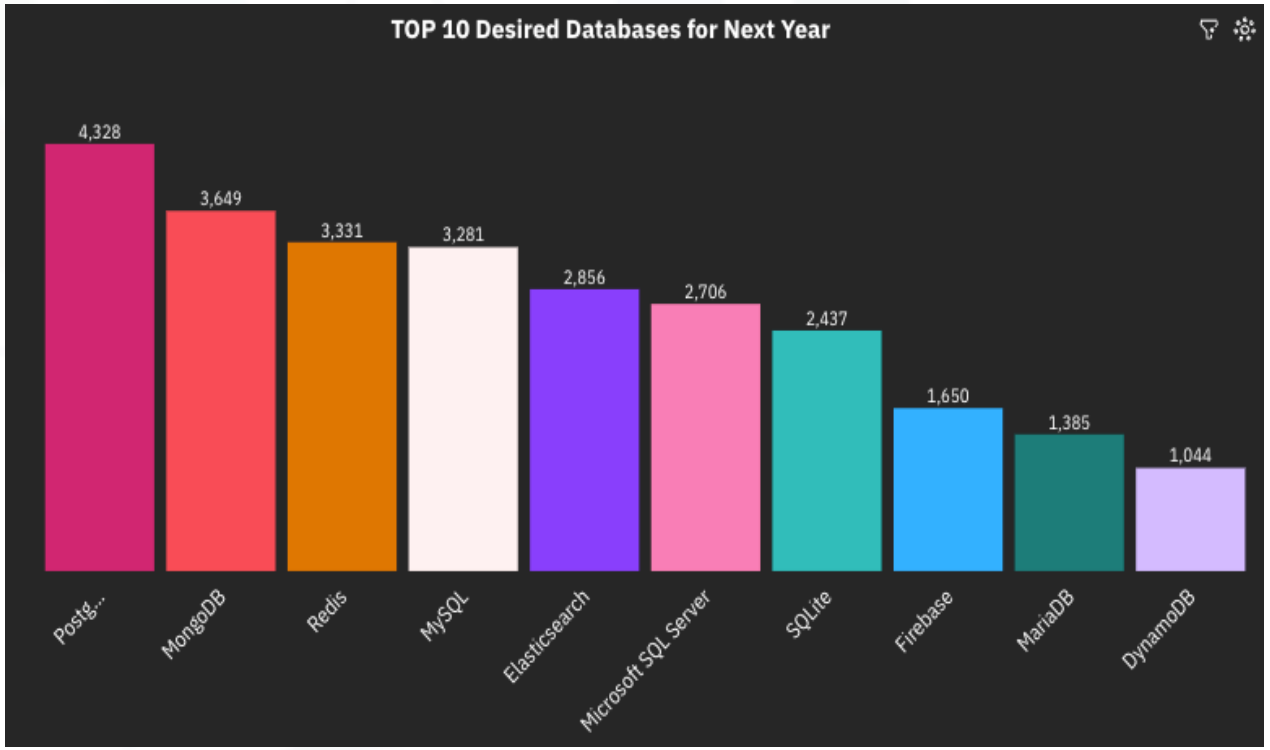
•Reallocate resources towards emerging languages.

# DATABASE TRENDS

## Current Year

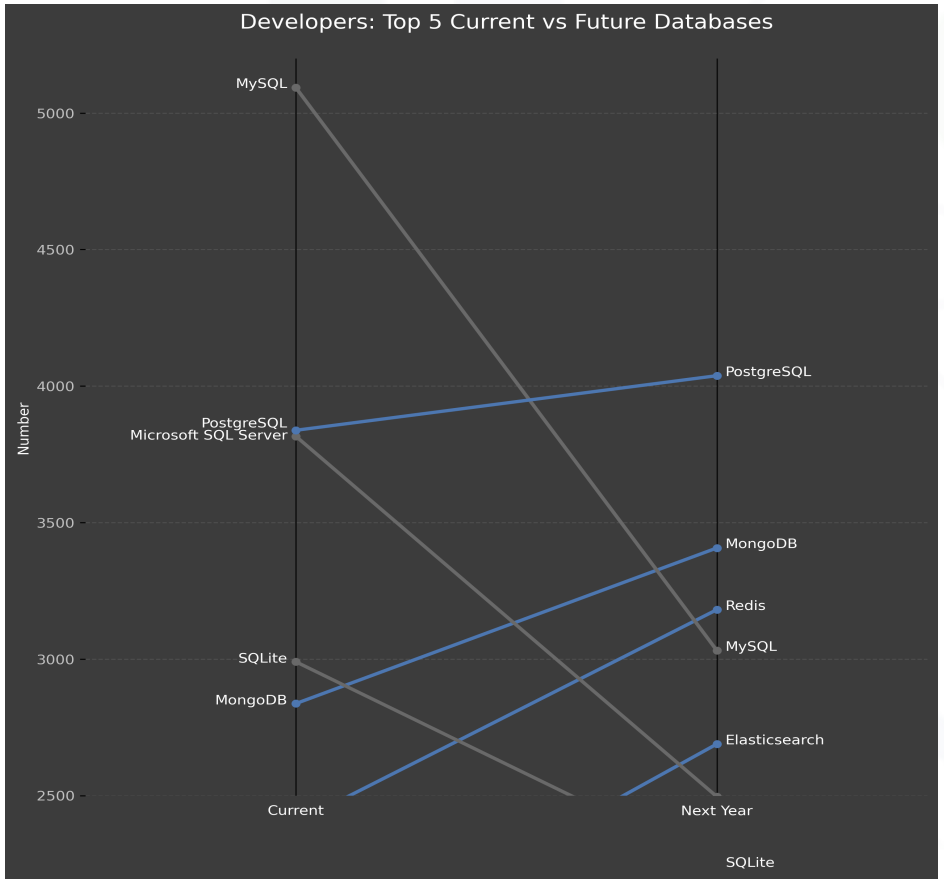



## Next Year

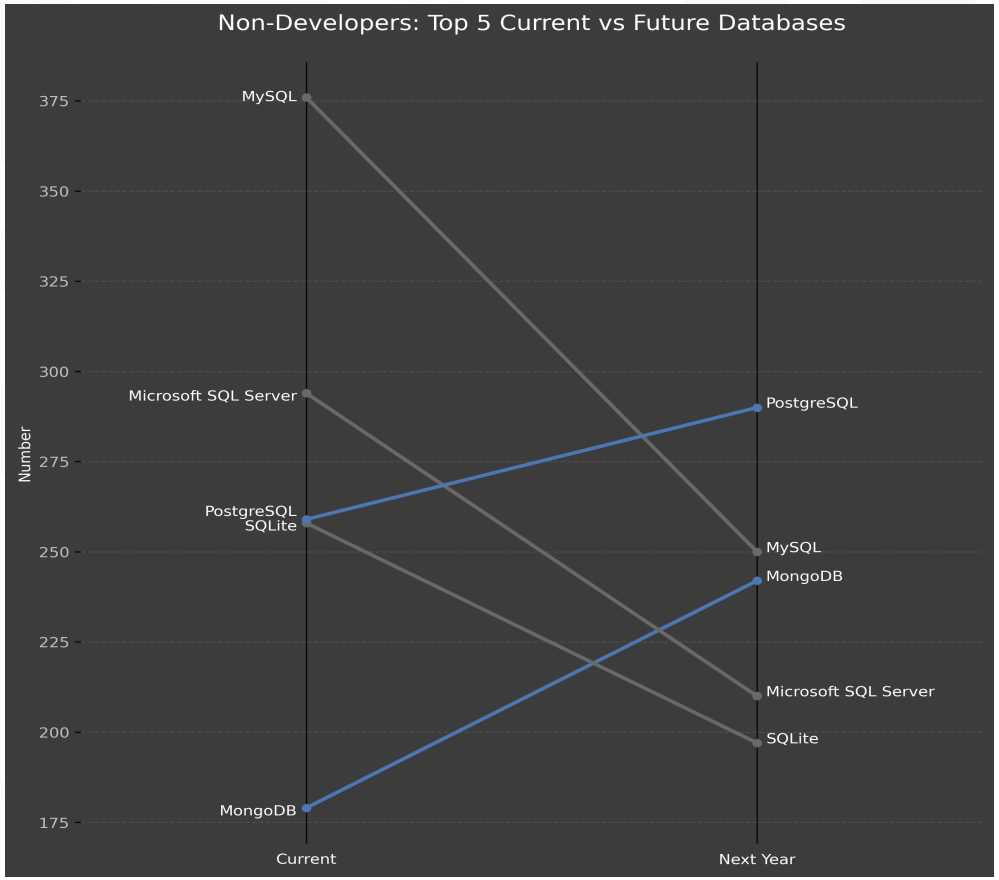


# DATABASE TRENDS in Top 5

## Current Year




## Non-developers




IBM Developer

SKILLS NETWORK

# DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- Similarities Between Developers and Non-developers:

  **1) MongoDB and PostgreSQL**: Both databases are seeing increased interest for the next year across both groups, suggesting their growing appeal due to robust features and scalability.

  **2) MySQL**: There is a noticeable decrease in interest In MySQL, possibly due to perceived limitations in handling complex queries and large datasets compared to alternatives.

- Notable Trends Among Developers:

  **Elasticsearch**: This search engine has entered the top 5 desired databases for the next year among developers, reflecting its strong capabilities in search and data analytics.

## Implications

**1. Training and Tools:**

•Increase support for MongoDB and PostgreSQL, reflecting their rising popularity and scalability.

•Consider reducing emphasis on MySQL due to declining interest.

**2. Strategy and Focus:**

•Integrate Elasticsearch training and resources, particularly for developers, to leverage its analytics strengths.

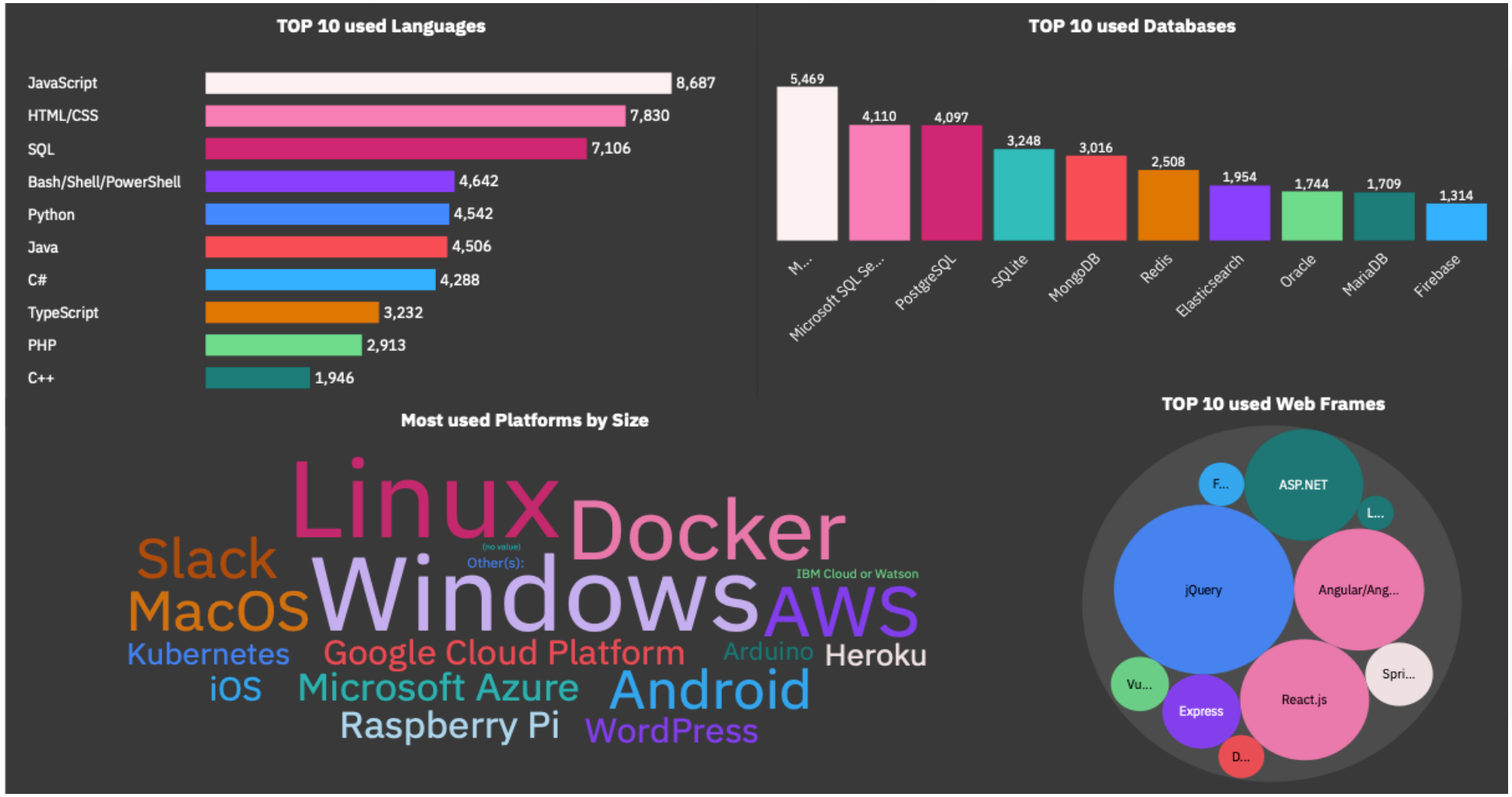
**3. Resource Allocation:**

•Redirect investments from less favored technologies like MySQL to emerging tools such as Elasticsearch.

# DASHBOARD

https://github.com/feelgd777/IBM-dash?tab=readme-ov-file

# DASHBOARD TAB 1



# DASHBOARD TAB 2

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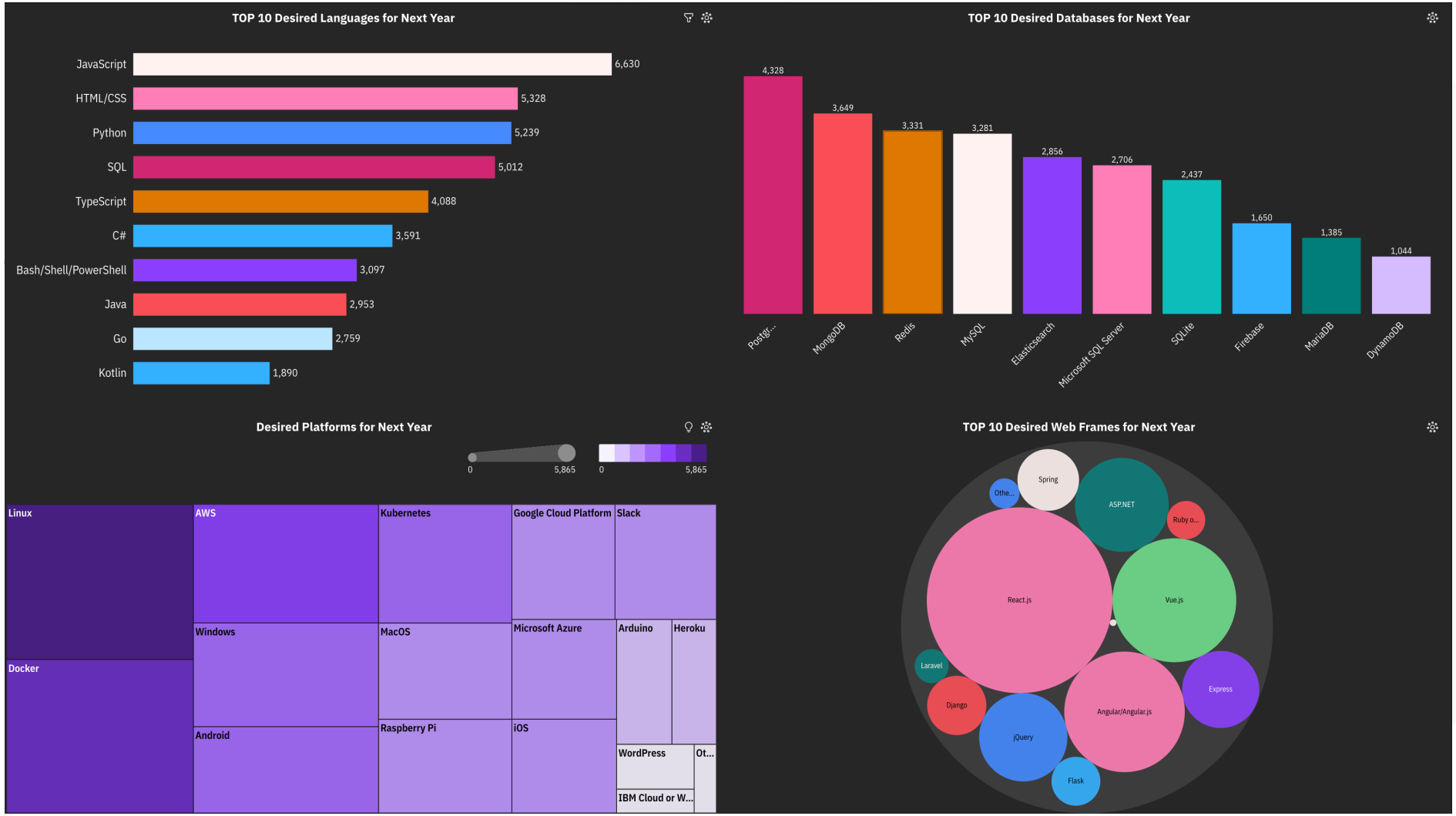
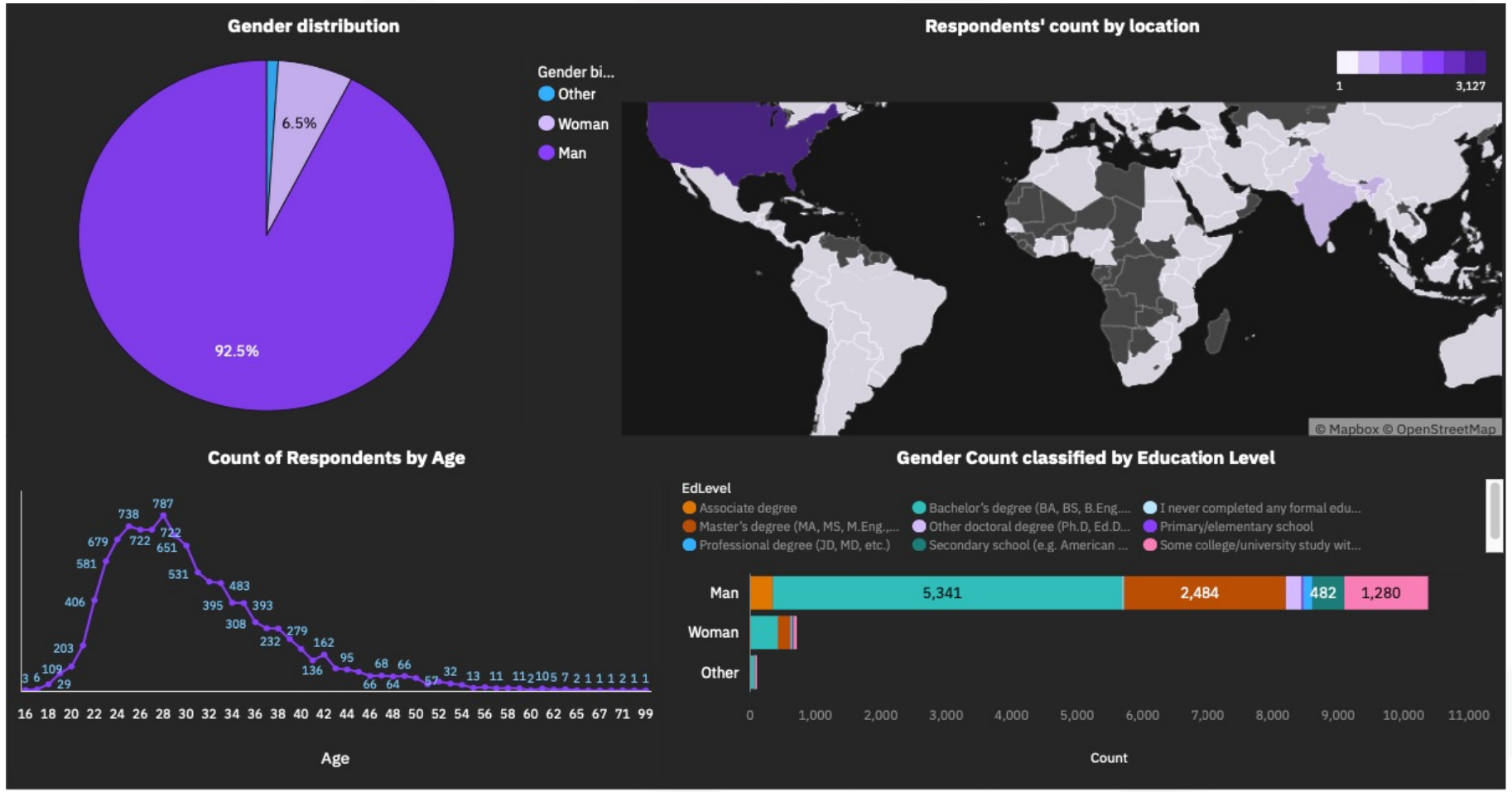


# DASHBOARD TAB 3



# Discussion

## Discussion: Overall Findings and Implications

- ***Overall Findings:***

1. **MongoDB and PostgreSQL:** Both databases are favored across developers and non-developers for their robust features and scalability, indicating a broad consensus on their utility.
2. **MySQL:** There is a decrease in interest in MySQL, likely due to its limitations with complex queries and large datasets.
3. **Elasticsearch:** This search engine is increasingly popular among developers for its strong capabilities in search and data analytics.

- ***Implications:***

1. **Training and Tools:**
    1. Enhance training resources for MongoDB and PostgreSQL to capitalize on their growing appeal.
    2. Consider phasing out MySQL in training programs where more advanced alternatives are preferred.
2. **Strategy and Focus:**
    1. Emphasize Elasticsearch in development-focused training and tools to support its use in advanced search and data handling tasks.
3. **Resource Allocation:**
    1. Prioritize funding and support for technologies showing growth (MongoDB, PostgreSQL, Elasticsearch) and reassess or reduce investment in declining technologies like MySQL.

- These findings and implications suggest a need to adjust technical training, strategic focus, and resource allocation to align with current trends and anticipated needs in database and search engine technologies.

# OVERALL FINDINGS & IMPLICATIONS

## Findings:

### Programming Languages:

- **Python and TypeScript** are on the rise, gaining popularity for next year.
- **JavaScript** remains the top choice among developers.
- **SQL** is most popular with non-developers.

### Databases:

- **MongoDB and PostgreSQL** are seeing increased interest from both groups.
- **MySQL** is declining in popularity.
- **Elasticsearch** is now a top-five desired database among developers.

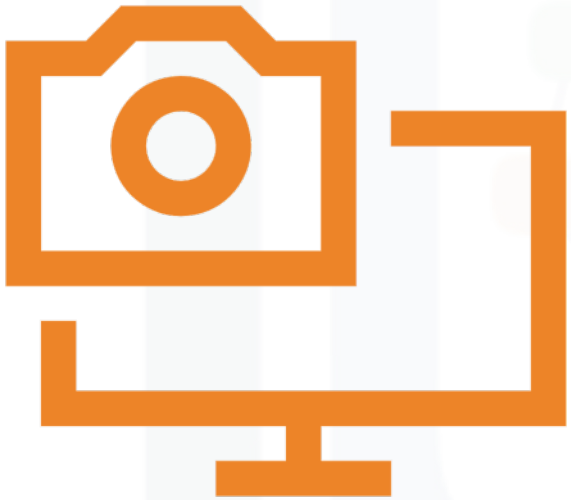
## Implications

- **Technology Strategy**: Adapt technology strategies and education to emphasize rising languages like Python and TypeScript, and growing databases like MongoDB and PostgreSQL.
- **Skill Development**: Professionals should focus on these trending technologies for better job opportunities.
- **Investment in Training**: Organizations might need to reallocate training resources to cover these emerging technologies effectively.

# CONCLUSION

- **Rising Technologies**: Python, TypeScript, MongoDB, and PostgreSQL are experiencing growing interest, indicating a shift towards more versatile and scalable technologies.
- **Declining Interest**: Interest in MySQL is decreasing, suggesting it may be perceived as less capable in handling complex and large-scale data needs compared to its alternatives.
- **Emerging Preference**: Elasticsearch's rise among developers highlights its strength in search capabilities and data analytics.
- **Adaptation Required**: Organizations should consider adapting their technology strategies and training programs to align with these trends, enhancing their capabilities in the trending technologies.
- **Professional Development**: IT professionals should focus on acquiring skills in these rising technologies to stay relevant and competitive in the job market.

# APPENDIX



### A. Trending Programming Languages

- **Python**: Widely used in data science, AI, and web development. Known for its ease of learning and comprehensive libraries.
- **TypeScript**: Enhances JavaScript with type safety and is preferred for larger projects that require maintainable code.

### B. Declining and Rising Database Technologies

- **PostgreSQL**: Gaining preference due to its advanced features, such as support for complex data types and robust transactional integrity.
- **MongoDB**: Increasingly popular for its flexibility with document-oriented storage and high scalability.
- **MySQL**: Declining interest might be due to its comparative limitations in scalability and complex transaction handling.
- **Elasticsearch**: Recognized for its efficiency in handling large volumes of data and its powerful search capabilities.

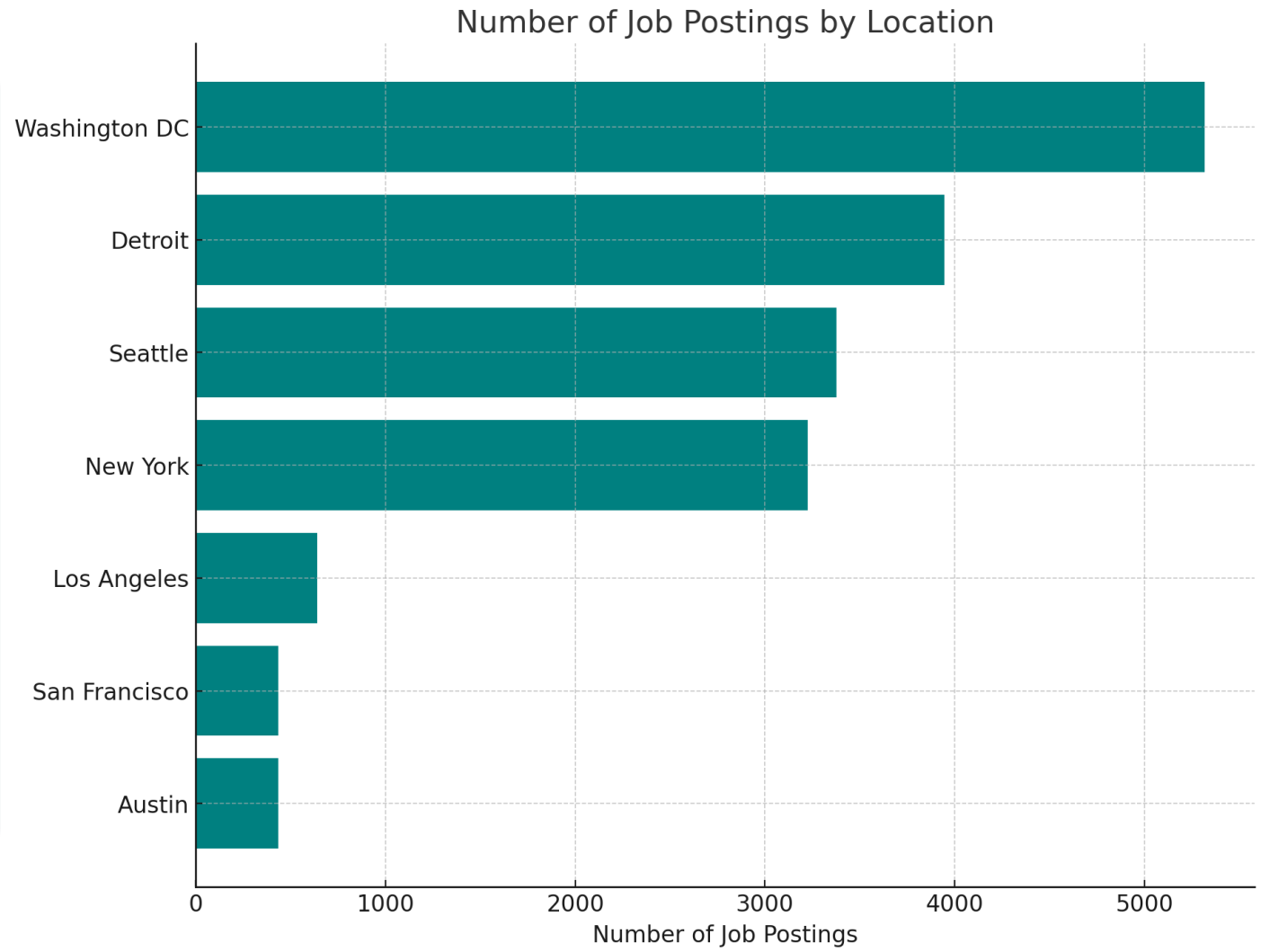
### C. Technological Implications for Industries

- **Tech Industry**: Needs to integrate more Python and TypeScript into development cycles.
- **Education Sector**: Should update curricula to include more content on rising databases like PostgreSQL and MongoDB to prepare students for industry demands.
- **Business Sector**: Should consider investing in training for current employees to bridge the skill gap in new technologies.

### D. Professional Development Advice

- **Skill Enhancement**: Professionals are advised to learn Python and TypeScript due to their increasing popularity and wide application range.
- **Certification Opportunities**: Seeking certifications in PostgreSQL, MongoDB, and Elasticsearch could provide a competitive edge.

# JOB POSTINGS



# POPULAR LANGUAGES