
# IT Skills: insights & trends

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# OUTLINE

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

This analysis identifies key trends in the IT industry to guide IT Consultancy services company on essential skills for developers and businesses to stay competitive and aligned with the latest market demands:

- Focus on JavaScript, Python,  and cross-platform mobile development languages
- Prioritize SQL proficiency, NoSQL, and cloud-based databases
- Emphasize multi-language versatility and niche languages
- Target full-stack, web, mobile development, and big data analytics skills

# INTRODUCTION

This presentation aims to analyze IT industry trends and needs, focusing on programming languages, databases, and developer skills:

- Utilize publicly available data sources, using web scraping and also provided Developer's 2021 survey dataset
- Apply data ETL, visualization, and analysis using Python, Jupyter Notebook, SQLite, and IBM Cognos
- Generate insights and implications to guide strategic decision-making
- Provide actionable recommendations for IT Consultancy company re developers and businesses to stay competitive and adaptable

# Data used

**Data used in the research:**

- Publicly available data and datasets available at: www.ibm.com, www.coursera.org, www.Kaggle.com etc.
- Developer's 2021 survey dataset (subsets: Demographics, Technologies)

Data consistency and trustworthiness were verified, but cannot be 100% guaranteed.

Data has been cleaned and checked for obvious errors and omissions to better serve the needs of the analysis.

# METHODOLOGY

**Data ETL:**

- Python (Jupyter Notebook) for processing and transforming the data
- Manual data selection and checks
- SQL Lite (in connection to JN)

**Data Visualization:**

- Python libraries (e.g., Matplotlib, Seaborn) for creating charts and visualizations
- IBM Cognos for dashboards

**Data Analysis:**

- Python (for ETL, analysis, and visualization)
- Statistical methods used include:
  - Aggregation (e.g., groupby, sum, count)
  - Correlation (e.g., Pearson)
  - Decision trees

**Domain Knowledge:**

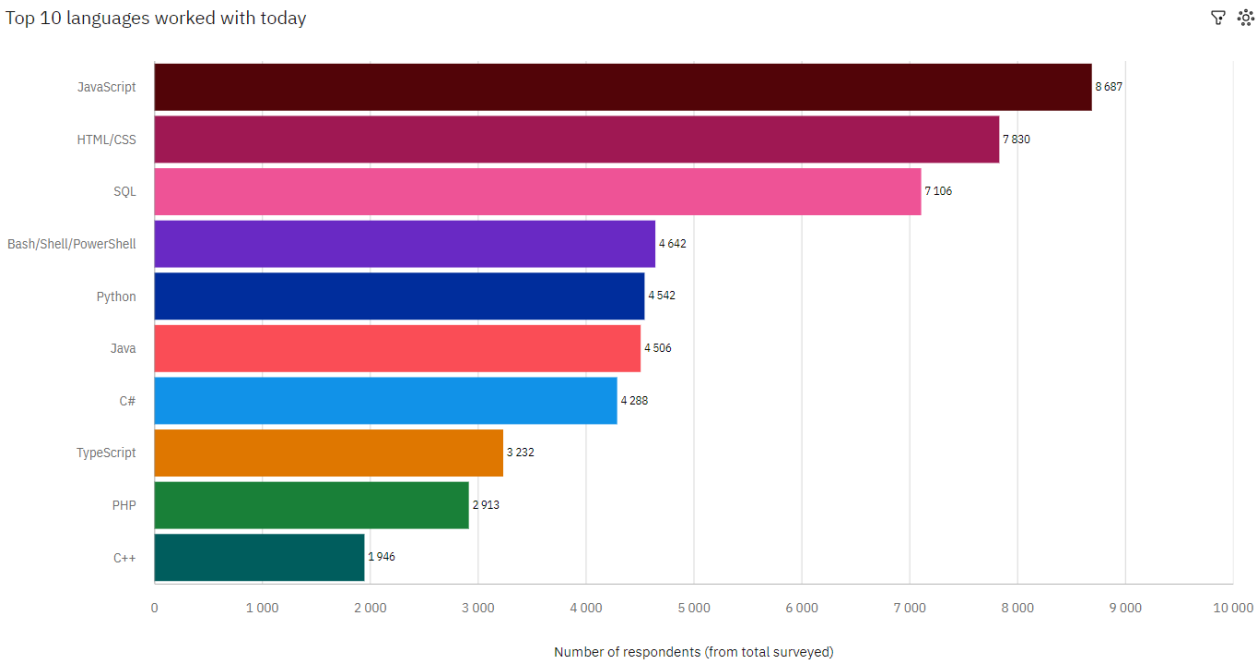
- Consideration of industry trends, market needs, and emerging technologies
- Evaluation of developer skill sets, programming languages, and tools in the context of current and future demand

# BRIEF RESPONDENT'S OVERVIEW

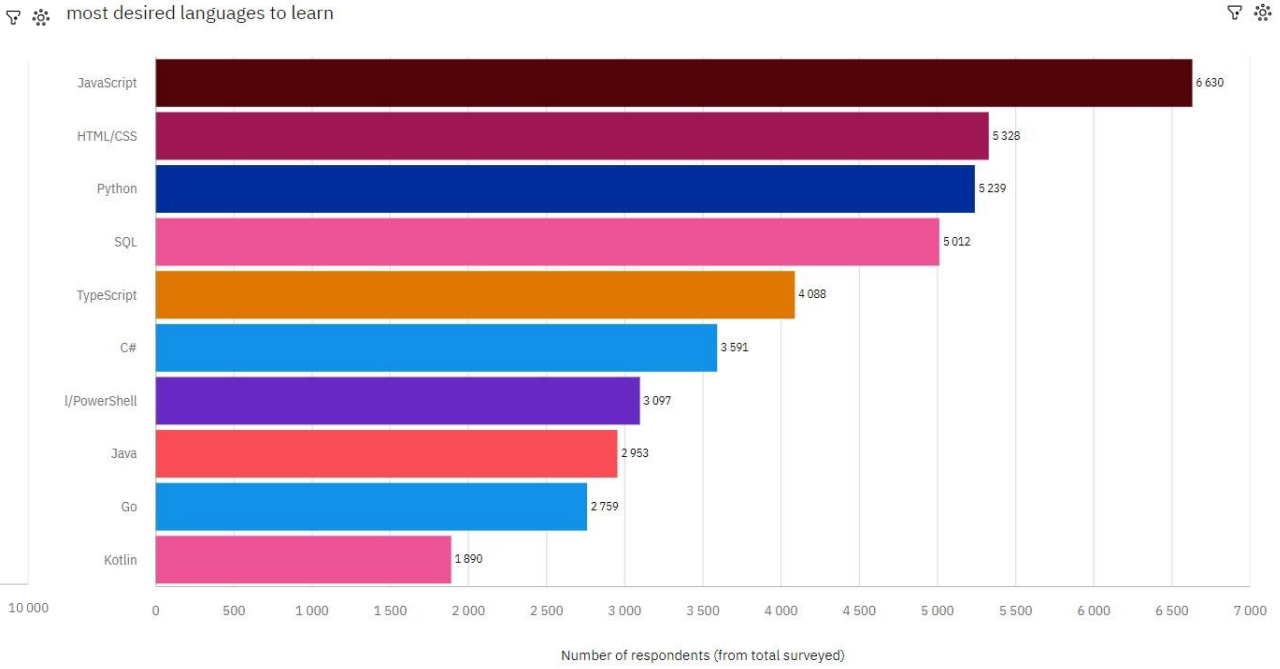
1. Diverse respondents: From various industries, roles, and experience levels.
2. Global representation: 75+ countries, mainly North America, Europe, and Asia.
3. Wide skill set: Proficient in multiple programming languages and databases.
4. Experience range: Mix of newcomers, mid-level, and seasoned professionals.
5. Active learners: 70% engaged in skill development, 50% completed courses/certifications.
6. Predominantly male (93% vs 7% female)

# PROGRAMMING LANGUAGE TRENDS

## Current Year




## Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

## Findings

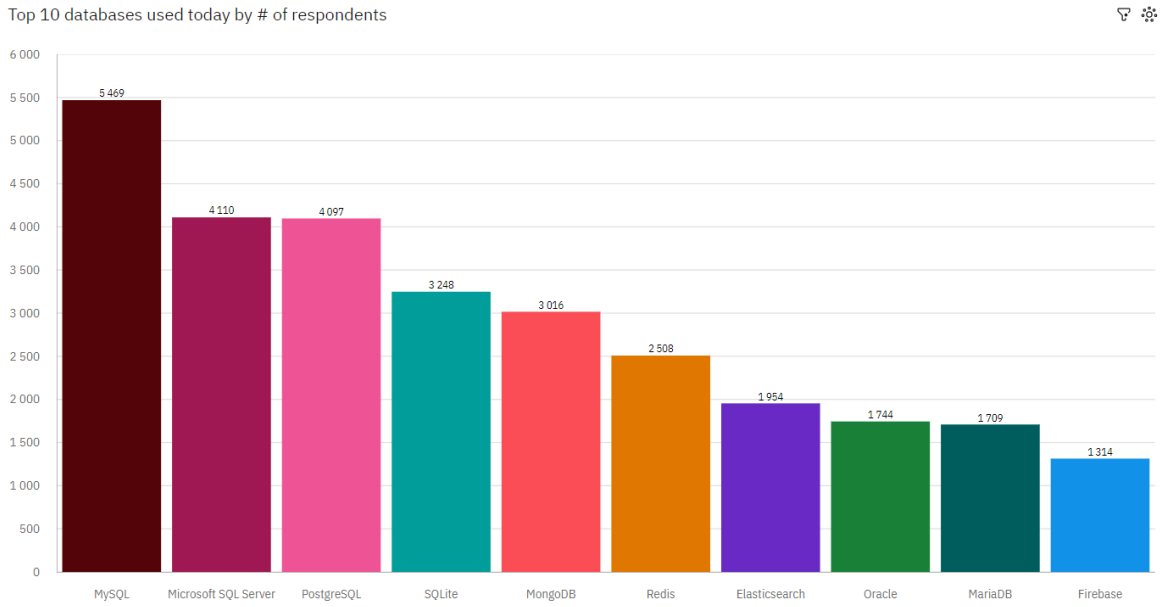
- JavaScript dominates web
- Python and R lead in data analytics
- Cross-platform mobile development languages are growing

## Implications

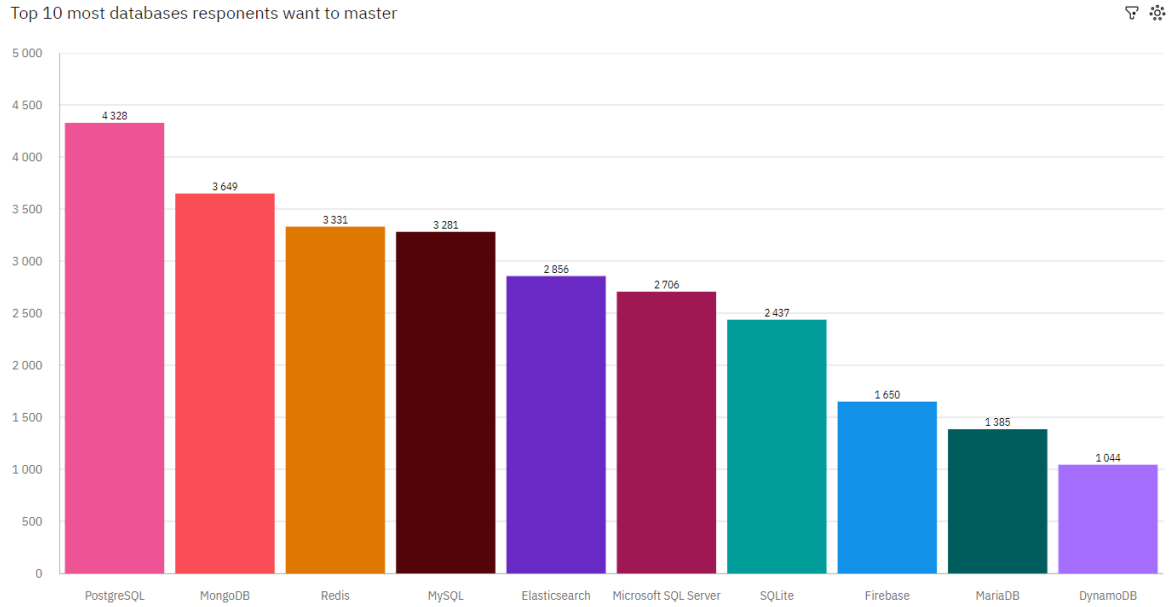
- Prioritize web development skills, especially in JavaScript and related libraries and frameworks, to meet the high demand for web developers.
- Invest in analytics capabilities by learning Python and R, as these languages provide essential tools for data manipulation, visualization, and machine learning.
- Focusing on mobile development versatility will be valuable for developers in the industry.

# DATABASE TRENDS

## Current Year




## Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

## Findings

- SQL remains crucial in database management
- NoSQL databases are gaining popularity
- Cloud-based databases on the rise

## Implications

- Maintain SQL proficiency, as it is still the most widely used database query language and essential for working with various relational databases.
- Diversify database skills by learning NoSQL databases such as MongoDB or Cassandra, which provide flexibility and scalability for handling unstructured data
- Adapt to cloud technologies by gaining knowledge of cloud-based databases like Amazon RDS or Google Cloud Spanner, as they offer improved scalability, cost-effectiveness, and ease of management.

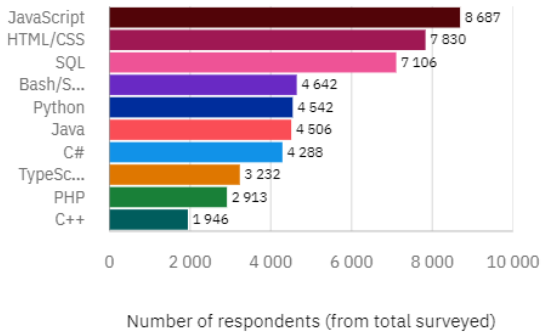
# DASHBOARD

The link is:

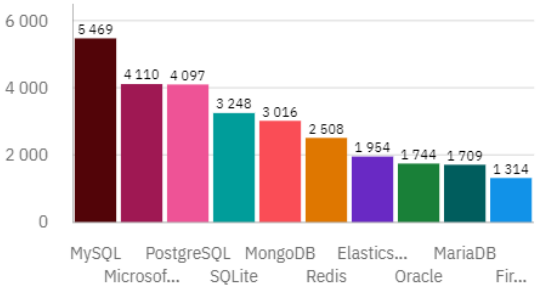
https://eu1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FCapstone%2Bproject&action=view&mode=dashboard&subView=model0000018809dd3da6_00000000

# DASHBOARD TAB 1

Top 10 languages worked with today

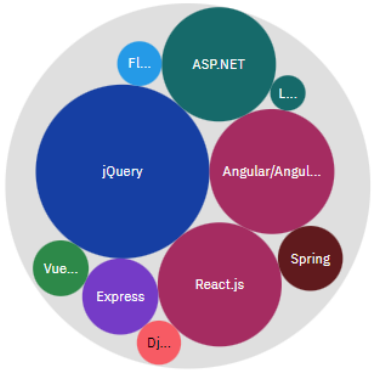



Top 10 databases used today by # of respondents




Most popular platforms to work with


Frameworks worked the most

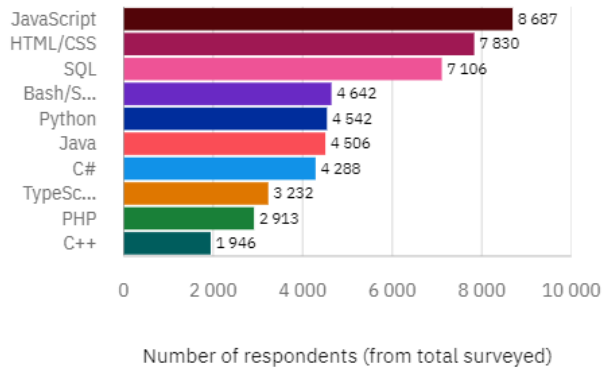



IBM Developer

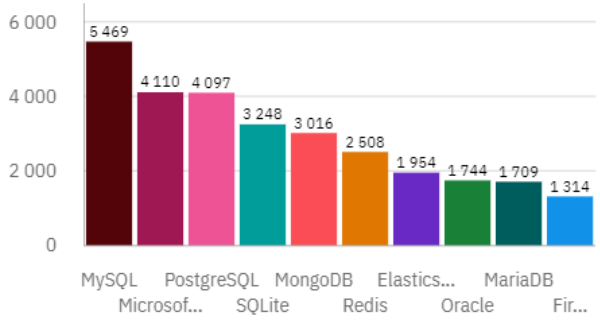
SKILLS NETWORK

# DASHBOARD TAB 2

Top 10 languages worked with today




Top 10 databases used today by # of respondents




Most popular platforms to work with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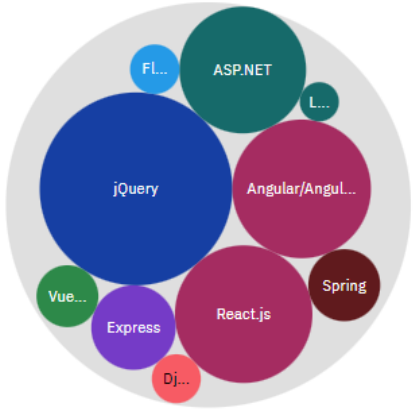


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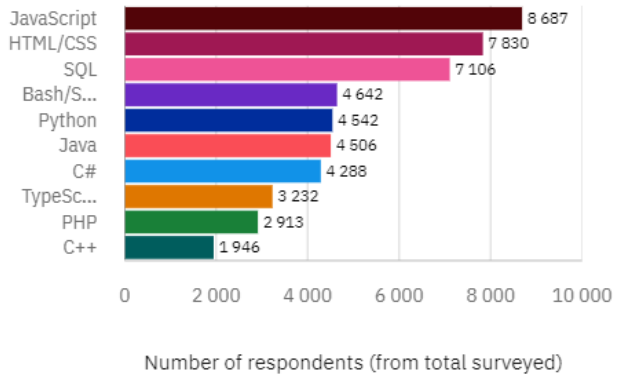
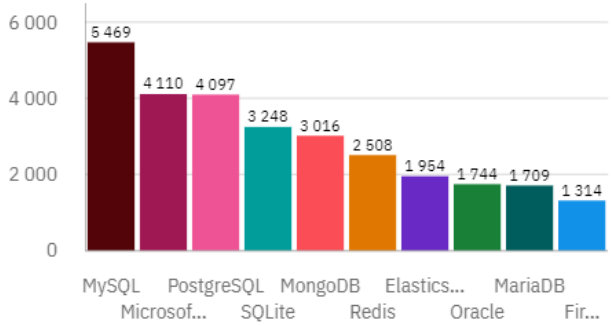
SKILLS NETWORK

# DASHBOARD TAB 3

Top 10 languages worked with today




Top 10 databases used today by # of respondents

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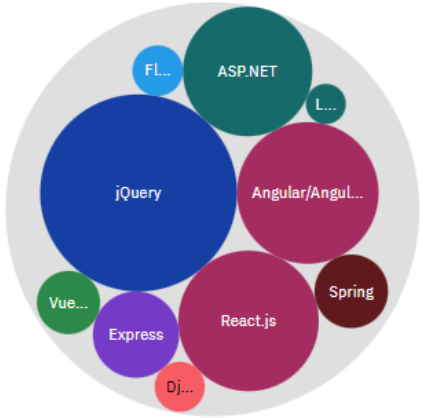
Frameworks worked the most




IBM Developer

SKILLS NETWORK

# DISCUSSION

Please feel free to ask questions or request clarifications if required.

# OVERALL FINDINGS & IMPLICATIONS

## Findings

- High correlation between languages indicates that developers often work within technology ecosystems
- Developers who are proficient in multiple languages tend to be more versatile and “employable”
- Niche languages such as Rust and Kotlin present unique opportunities

## Implications

- Companies and developers should consider the benefits of adopting specific technology ecosystems when making strategic decisions
- Encouraging language flexibility can provide a competitive advantage in the job market and project adaptability
- Exploring niche technologies and languages can give developers and companies a competitive edge in specific domains

# CONCLUSION

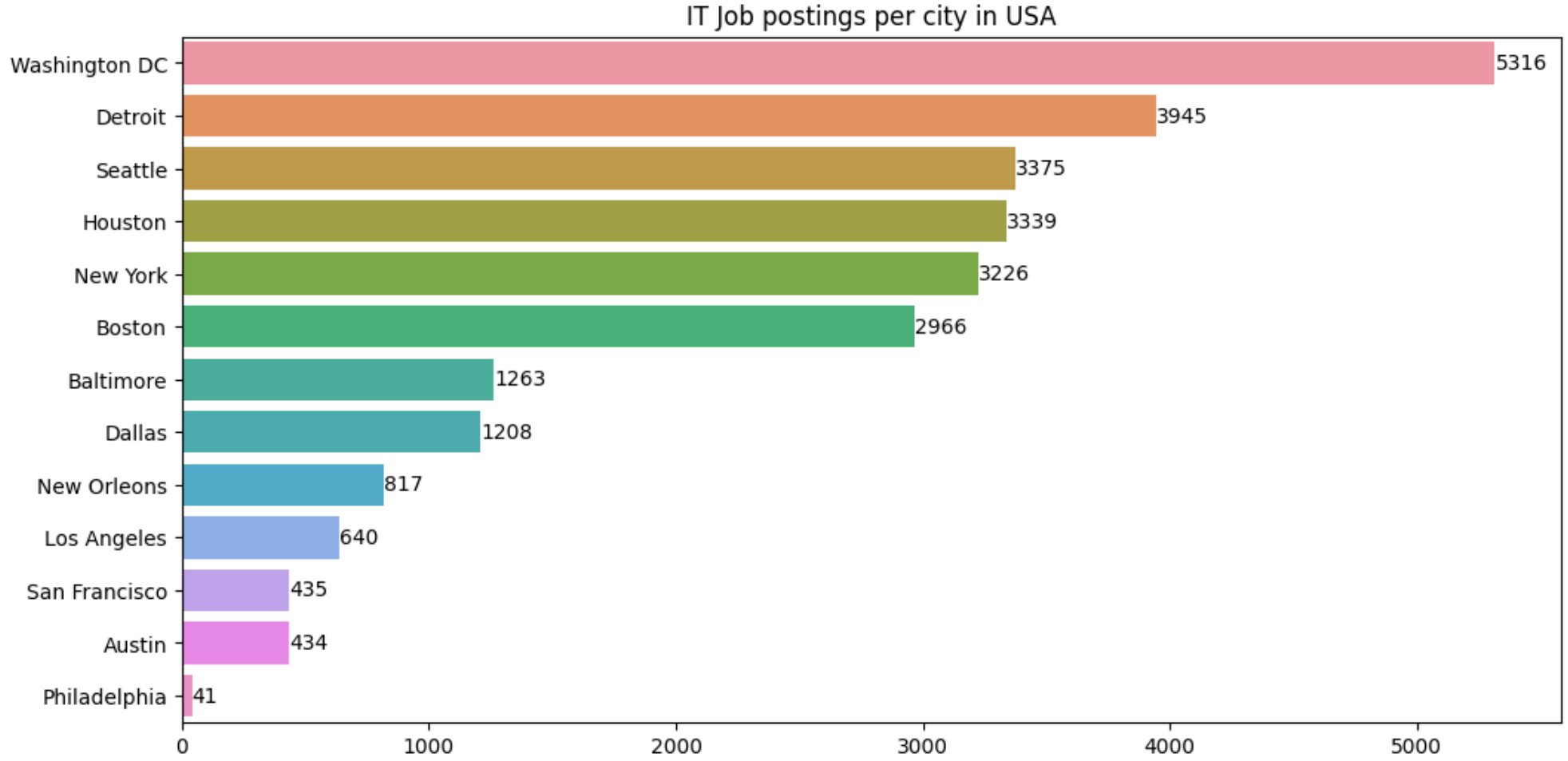
- Emphasize full-stack, web, and mobile development skills using popular languages and frameworks.
- Strengthen big data analytics capabilities using Python, R, and other relevant languages.
- Promote multi-language proficiency and adaptability within various technology ecosystems.
- Explore and capitalize on niche technologies and languages for unique opportunities in specific domains.

# APPENDIX

- For additional information please view my worksheet in JN where I coded quite a lot for this work:

https://github.com/GSHEVARD/Data-Analytics-Python-/blob/main/Capstone%20Project%20-%20NewCalculations.ipynb

# JOB POSTINGS



# POPULAR LANGUAGES