STACK OVERFLOW DEVELOPER SURVEY 2019

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OUTLINE

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

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EXECUTIVE SUMMARY

- Contextualizing the data and defining analysis objective

- Methodology
  - Data Collection
  - Data Analysis
  - Data Visualization

- Result Presentation with Charts and Trend Analysis

- Key Findings and their implications

- Conclusion

INTRODUCTION

- Stack Overflow Developer Survey 2019 is one of the largest annual surveys in the developer community, capturing insights from a diverse range of professionals and enthusiasts worldwide.

- The survey aims to understand developers' trends, tools technologies, and work environments.

- With over 900,000 responses from developer across the globe, covering topics like programming, developers' demographics and career satisfaction.

- Survey data will provide valuable data for developers, employers, and industry analysts – offering insights into the evolving technology landscape and guides decision-making for businesses and developers.

METHODOLOGY

- Data Collection & Analysis Objective
  - APIs & Web scraping
- Data Exploration
- Data Wrangling
- Exploratory Data Analysis
  - Handling missing and duplicate values
  - Data Distribution Analysis
  - Handling Data outliers
  - Correlations
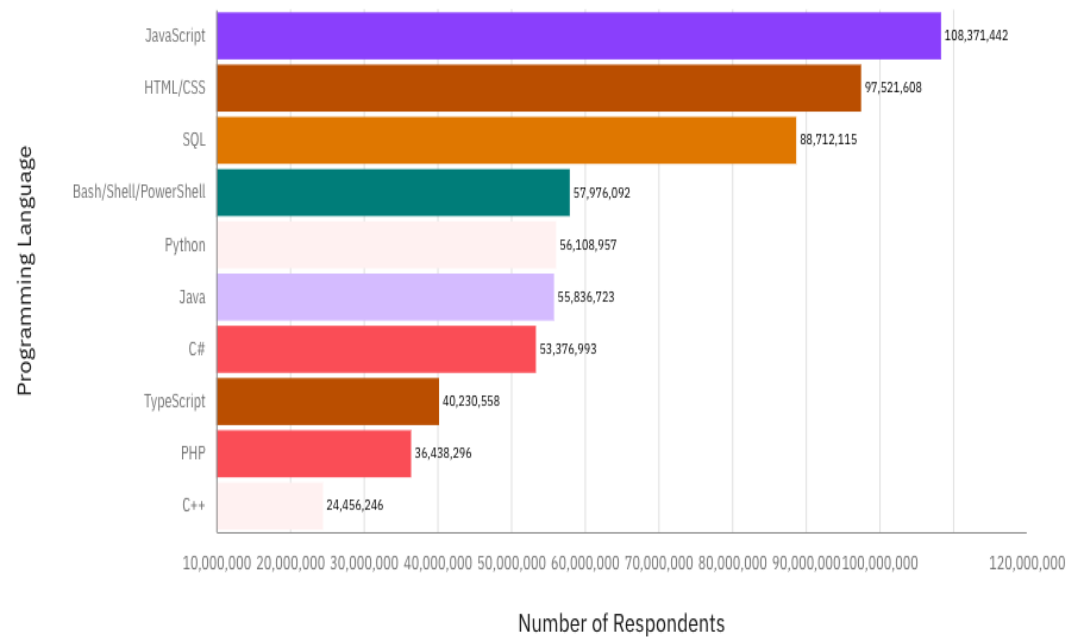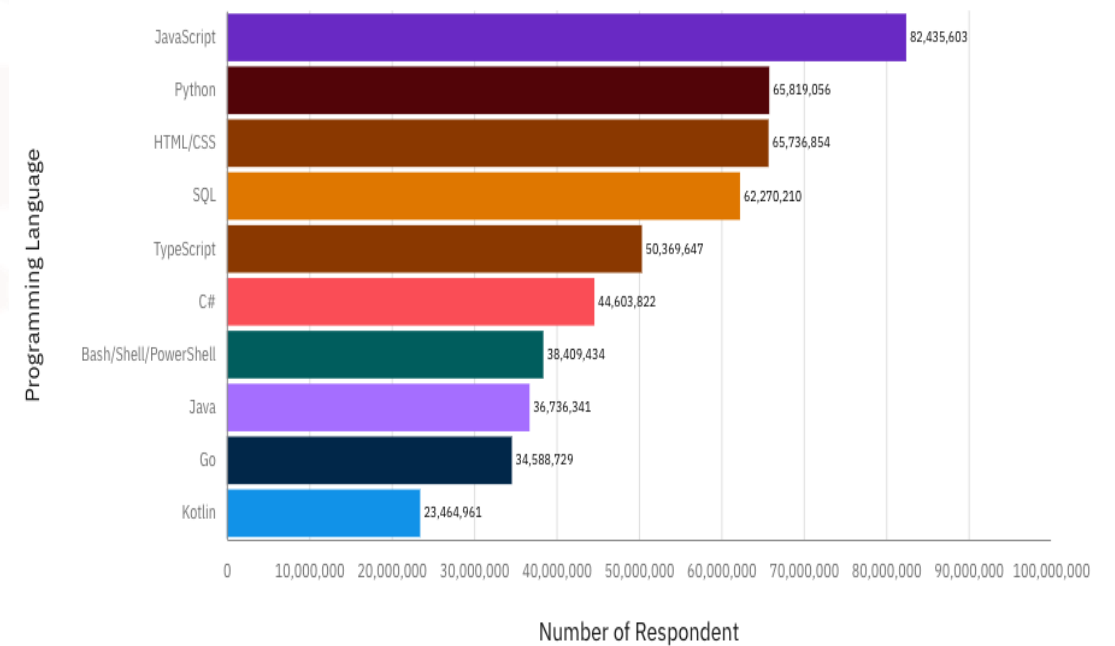- Data Visualization
- Dashboard

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RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 Language Worked With

Programming Language	Number of Respondents
JavaScript	108,371,442
HTML/CSS	97,521,608
SQL	88,712,115
Bash/Shell/PowerShell	57,976,092
Python	56,108,957
Java	55,836,723
C#	53,376,993
TypeScript	40,230,558
PHP	36,438,296
C++	24,456,246

Next Year

Top 10 Language To Learn Next Year

Programming Language	Number of Respondent
JavaScript	82,435,603
Python	65,819,056
HTML/CSS	65,736,854
SQL	62,270,210
TypeScript	50,369,647
C#	44,603,822
Bash/Shell/PowerShell	38,409,434
Java	36,736,341
Go	34,588,729
Kotlin	23,464,961

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- With over 108 million respondents working with it, JavaScript continues to be the most widely used language, indicating its crucial role in web development and its versatility in various frameworks like React, Node.js, and Angular.

- Ranking second and third, HTML/CSS (97 million) and SQL (88 million) highlight the importance of front-end development skills and database management knowledge in the developer community.

- Python appears in the top five, showing that it remains a go-to language for data science, machine learning, web development, and general-purpose programing.

- JavaScript continues to lead with over 82 million respondents indicating an interest in learning it. Python follows closely, showing its sustained relevance across multiple domains.
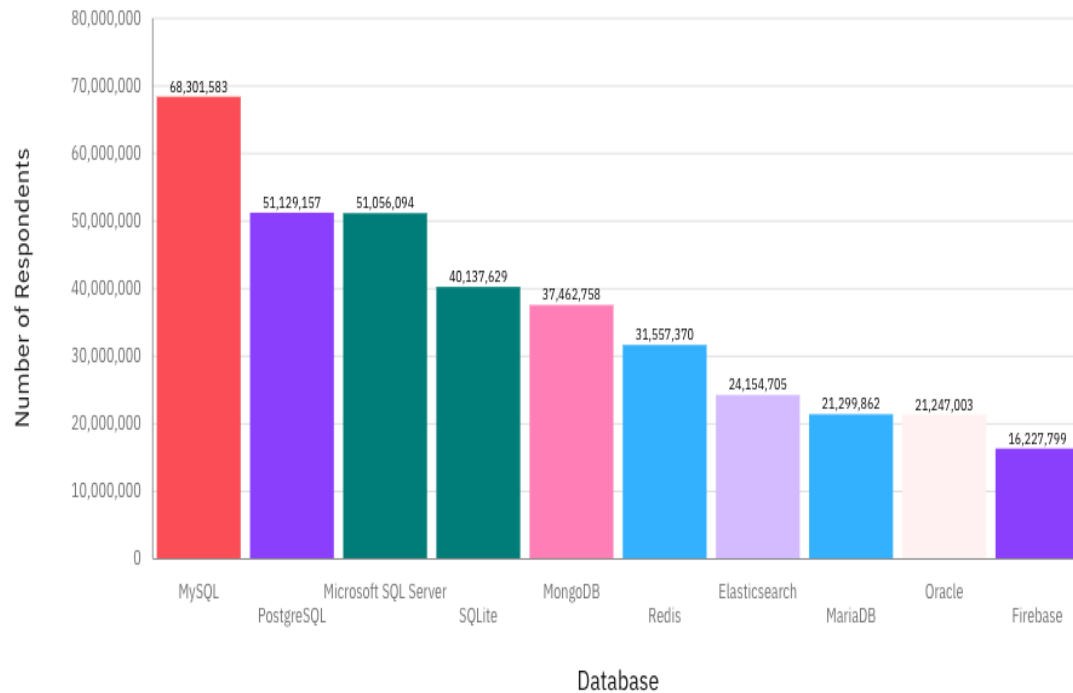
Implications

- The heavy use of JavaScript, HTML/CSS, and SQL suggests a strong focus on web technologies and backend databases in the current developer ecosystem. Meanwhile, Python's prominence reflects the ongoing interest in data science and automation fields.

- The desire to learn JavaScript, Python, and TypeScript reflects a continuous need for versatile and modern languages in web development, data science, and server-side applications.

- Interest in Go and Kotlin indicates a trend towards languages that support high performance, concurrency, and app development, suggesting that developers and businesses are preparing for more scalable and robust technology environments.
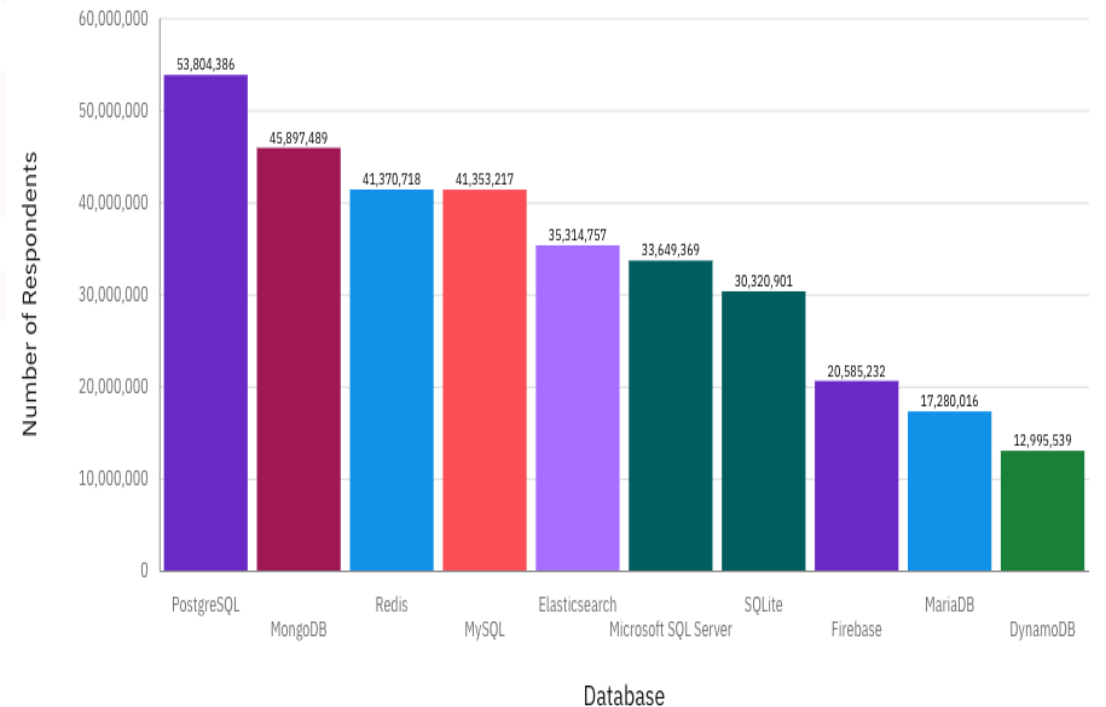
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DATABASE TRENDS

Current Year

Next Year

Top 10 Databases Worked With

Top 10 Database to Learn Next Year

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is the most widely used database, with approximately 68 million respondents. Its popularity is likely due to its open-source nature, flexibility, and robust community support, making it a preferred choice for many web applications.

- PostgreSQL (51 million) and Microsoft SQL Server (51 million) are also widely used, indicating a balanced interest in both open-source (PostgreSQL) and proprietary (Microsoft SQL Server) database solutions.

- Databases like MongoDB (37 million) and Redis (31 million) show significant usage, highlighting a growing need for flexible data models (NoSQL) and high-performance, in-memory data storage.

- PostgreSQL ranks highest for databases developers want to learn, with around 53 million respondents. This indicates a strong interest in mastering advanced features and the flexibility provided by this open-source database.

Implications

- The continued reliance on traditional SQL databases like MySQL and PostgreSQL suggests they remain fundamental for data management in various applications. The significant use of NoSQL databases like MongoDB and in-memory databases like Redis indicates an industry trend towards handling large-scale, flexible, and real-time data processing requirements.

- The focus on learning PostgreSQL and NoSQL databases like MongoDB and Redis signifies a push toward more versatile, scalable, and high-performance data management solutions. This trend suggests developers are preparing to address complex data requirements, including unstructured data handling, cloud storage, and real-time processing, which are increasingly crucial in modern software development.
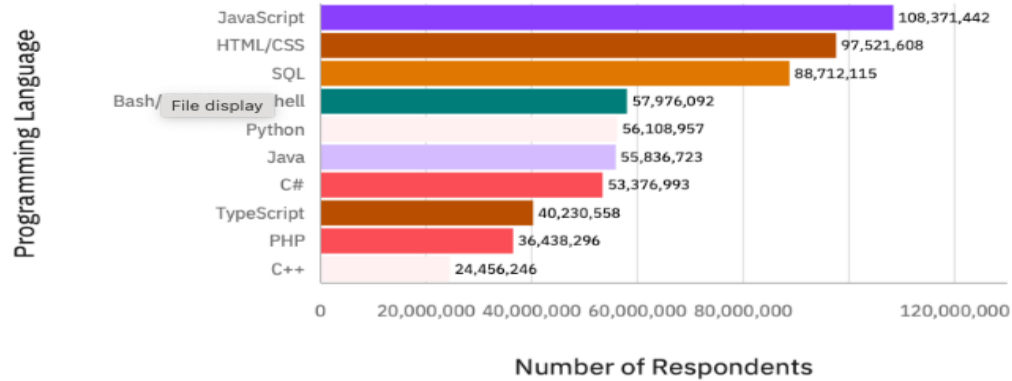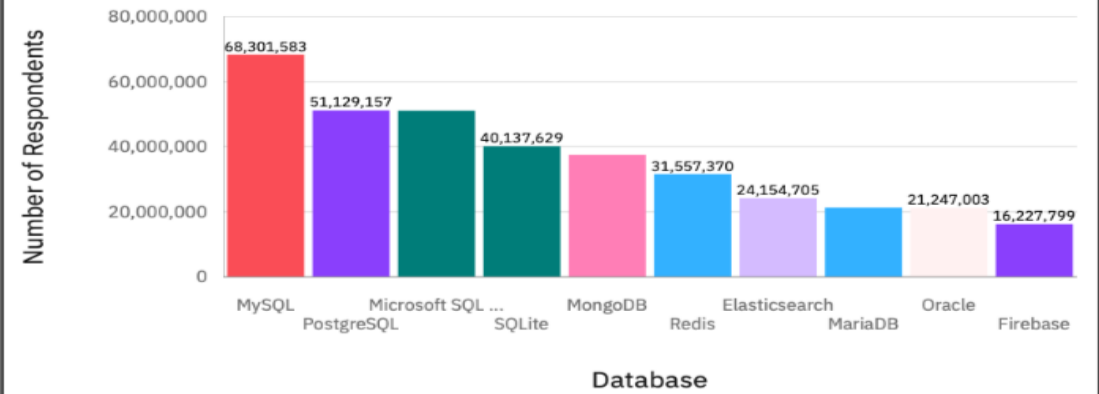
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DASHBOARD

Cognos dashboard

DASHBOARD TAB 1

Top 10 Language Worked With

Programming Language	Number of Respondents
JavaScript	108,371,442
HTML/CSS	97,521,608
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Bash/ File display hell	57,976,092
Python	56,108,957
Java	55,836,723
C#	53,376,993
TypeScript	40,230,558
PHP	36,438,296
C++	24,456,246

Top 10 Databases Worked With

Database	Number of Respondents
MySQL	68,301,583
PostgreSQL	51,129,157
Microsoft SQL ...	
SQLite	40,137,629
MongoDB	
Redis	31,557,370
Elasticsearch	24,154,705
MariaDB	21,247,003
Oracle	
Firebase	16,227,799

Top 10 Platform Worked With

Microsoft Azure
AWS
Slack
Windows
Linux
WordPress
Docker
MacOS
Raspberry Pi
Android

Top 10 Web Frame Worked With

F...
ASP.NET
jQuery
Angular/An...
Vu...
Expr...
React.js
Spr...
D...

DASHBOARD TAB 2

Future Tech

Top 10 Language To Learn Next Year

Programming Language	Number of Respondent
JavaScript	82,435,603
Python	65,819,056
HTML/CSS	65,736,854
SQL	62,270,210
TypeScript	50,369,647
C#	44,603,822
Bash/Shell/PowerShell	38,409,434
Java	36,736,341
Go	34,588,729
Kotlin	23,464,961

Top 10 Database to Learn Next Year

Database	Number of Respondents
PostgreSQL	53,804,386
MongoDB	45,897,489
Redis	41,370,718
MySQL	41,353,217
Elasticsearch	35,314,757
Microsoft SQL Ser...	33,649,369
SQLite	30,320,901
Firebase	20,585,232
MariaDB	17,280,016
Dyna...	12,995,539

Platform to Explore Next Year

Linux, Docker, AWS, Windows, Android, Kubernetes, Slack, Microsoft Azure, MacOS, iOS, Arduino, Raspberry Pi, Google Clo..., Heroku, WordP..., I..., Other(s):
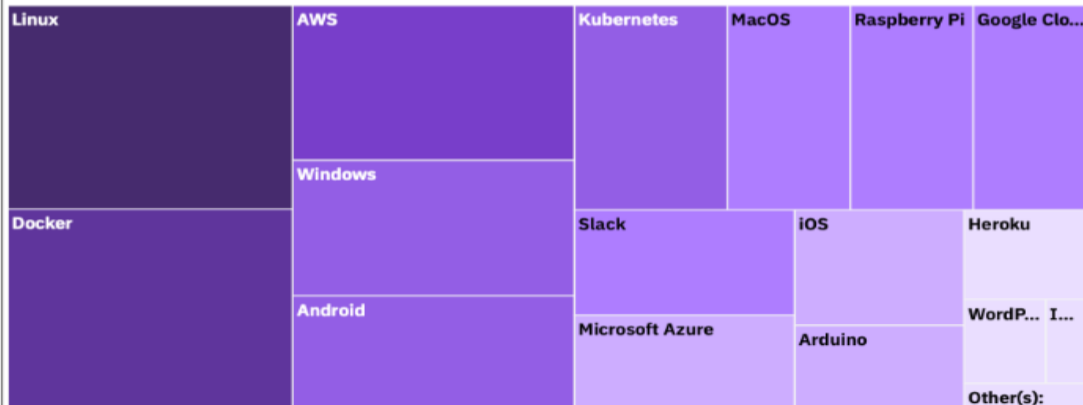
Top 10 Web Frame To Learn Next Year

React.js, Vue.js, Angular/A..., ASP.NET, Sp..., F..., Dj..., jQuery, Expr...

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DASHBOARD TAB 3

Respondent by Gender

Respondent By Locations

Respondent by Age

Formal Education Level By Gender
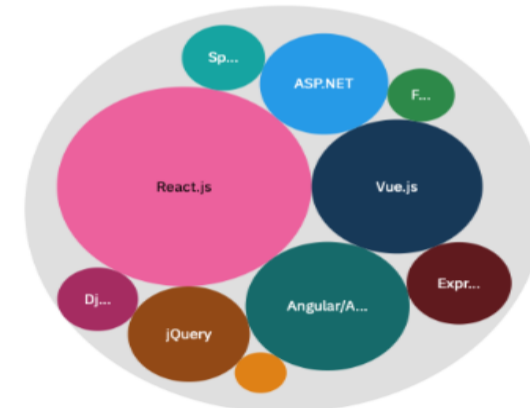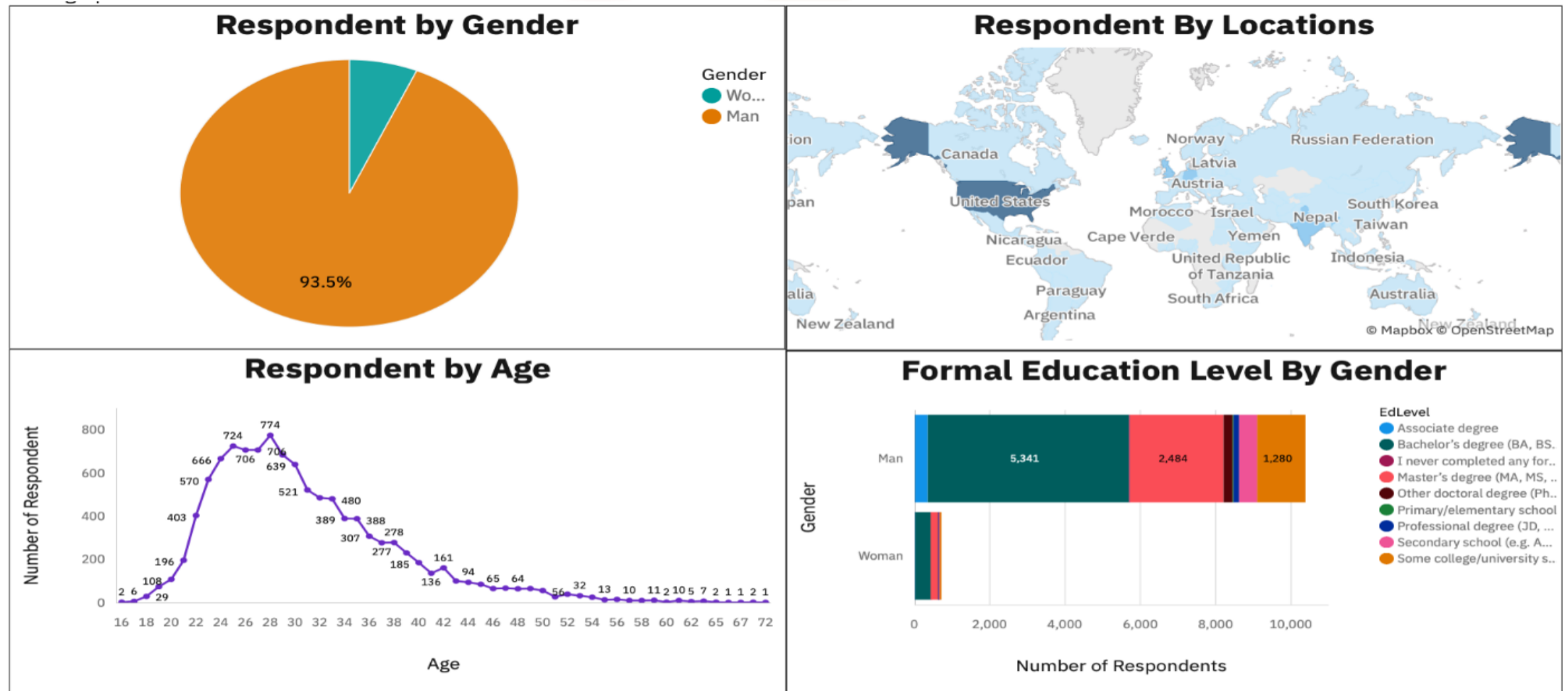
OVERALL FINDINGS & IMPLICATIONS

Findings

- Programming and Database Preferences: JavaScript remains the most commonly used language, with MySQL leading among databases. This reflects a developer environment heavily centered around web development and relational databases for data management.

- Learning Trends: Developers are prioritizing learning JavaScript, Python, and PostgreSQL for the next year, indicating a focus on versatile, high-demand skills that cover front-end, back-end, and data management applications.

- Demographics: The developer community exhibits a gender imbalance, with 93.5% of respondents identifying as men. Most developers are in their 20s to 30s, and a large proportion have formal education in computer science or related fields.

Implications

- Skill Demand: The emphasis on learning JavaScript, Python, and databases like PostgreSQL suggests a demand for developers skilled in versatile languages and database management, especially for web and data-centric projects.

- Technology Adoption: Interest in platforms like Docker, AWS, and Linux, as well as frameworks like React and ASP.NET, implies an industry shift toward cloud-based, containerized, and cross-platform development environments.

- Need for Diversity: The gender imbalance highlights the ongoing challenge of diversity in the tech industry, suggesting that efforts to attract and support underrepresented groups in tech must continue to promote inclusivity.
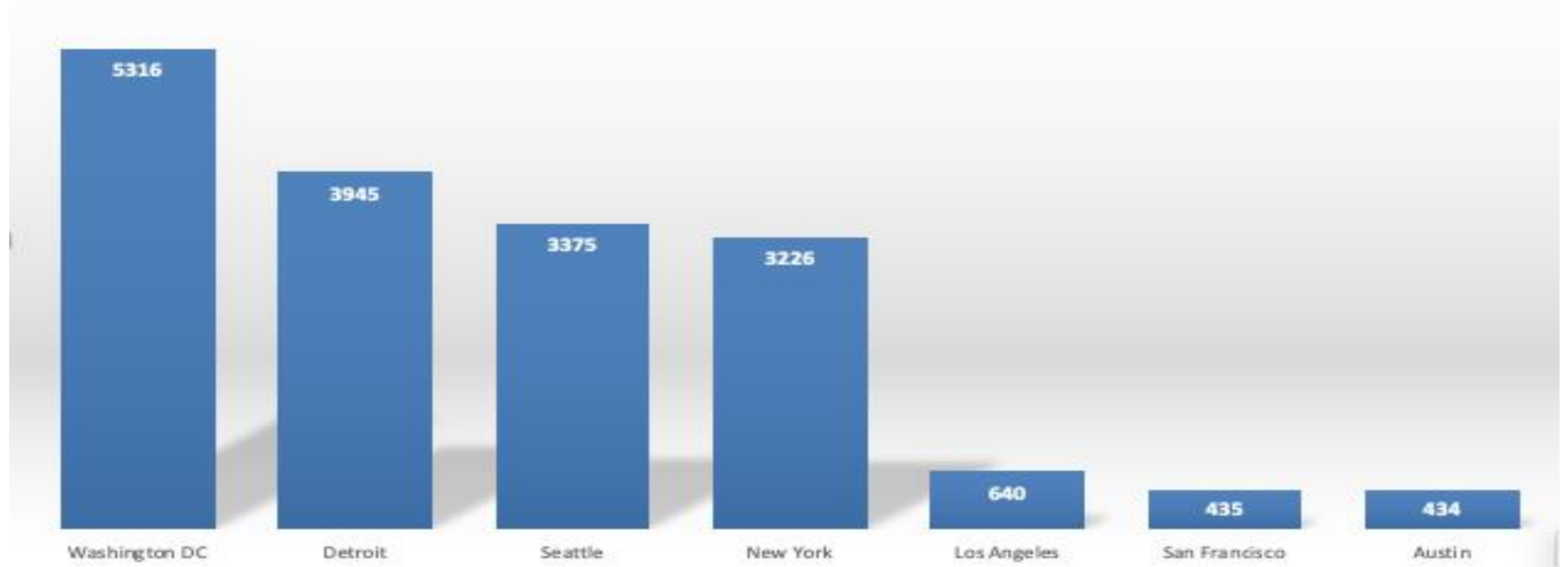
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CONCLUSION

- Web Development Dominance: JavaScript, along with web technologies like HTML/CSS and SQL, continues to dominate the developer landscape, indicating that web development remains a central focus in the tech industry.

- Growing Demand for Versatile Skills: The interest in learning languages like Python and databases such as PostgreSQL and MongoDB highlights a trend toward more versatile and flexible data management skills, particularly in data science, automation, and scalable back-end development.

- Shift Toward Cloud and Containerization: The increased focus on platforms such as Docker, AWS, and Linux suggests that developers are preparing for a future that prioritizes cloud-based services, containerization, and cross-platform development for more robust software solutions.

- Need for Improved Diversity: The significant gender disparity within the developer community emphasizes the ongoing need for diversity and inclusion initiatives to create a more balanced and representative tech industry.

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JOB POSTINGS

Number of Jobs

Washington DC	Detroit	Seattle	New York	Los Angeles	San Francisco	Austin
5316	3945	3375	3226	640	435	434

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POPULAR LANGUAGES

Number of Jobs

25114	3428	2248	1173	899	526	506
C	Java	JavaScript	Python	Oracle	C#	C++