Trending Technologies, Stackoverflow Developer Survey, 2019

Eduardo Batista de Lima

06/06/2024

IBM Developer

SKILLS NETWORK

OUTLINE

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

IBM **Developer**

SKILLS NETWORK

EXECUTIVE SUMMARY

- Top 5 languages worked with:
  - HTML/CSS, Javascript, Bash/Shell/Powershell, C#, Java.
- Top 5 Databases worked with:
  - MySQL, Microsoft SQL Server, MongoDB, MariaDB, PostgreSQL
- Popular Platforms
  - Windows, Linux, AWS, Docker
- Top 5 Web Frames worked with:
  - Jquery, ASP.NET, Angular, React.js, Express
- Future technology trends:
  - **Javascript** will surpass HTML/CSS, turning into the most used language.
  - **Python** is desired at 3rd position, before HTML/CSS.
  - **PostgreSQL** is the most desired database.
  - Most desired platforms are **Linux** and **Docker**
  - Most desired Web Frame is **React.js**

IBM Developer

SKILLS NETWORK

INTRODUCTION

- The tech industry is constantly evolving, with new technologies and trends emerging at a rapid pace. To gain insights into the future direction of the industry, Stack Overflow, a leading platform for developers, conducted a comprehensive survey in 2019 to explore the perspectives of tech professionals around the world. With the data acquired, we can foresee the future trends of the market, such as the future trending languages, databases, Web Frames, Platforms and etc.

- By understanding these trends, industry stakeholders, including developers, entrepreneurs, and decision-makers, can better prepare themselves to adapt and thrive in the constantly changing tech environment. This introduction sets the stage for a deeper exploration of the survey results and their implications for the future of the tech industry.

IBM Developer

SKILLS NETWORK

METHODOLOGY

- Data is gathered from 20 minute survey conducted by Stackoverflow, with almost 90000 participants in various positions in the technology field.

- The data analysis was made through the completion of IBM practical labs on Coursera, with contents covering the entire analytics process, ranging from Data Wrangling to Data Visualization.

- Data Analysis and Visualization was made through IBM Cognos Analytics

RESULTS

- **Python, Typescript** and **SQL** are the fastest growing languages.

- **Javascript** remains the most used language.

- **PostgreSQL** is the fastest growing database .

- **Jquery** is currently the most used Web Frame, although **React.js** is the most desired one.

- The most desired platforms are **Linux** and **Docker**.

- 93% of the survey respondents identify as a **man.**

- 75% of the respondents have either a bachelor's or master's degree.
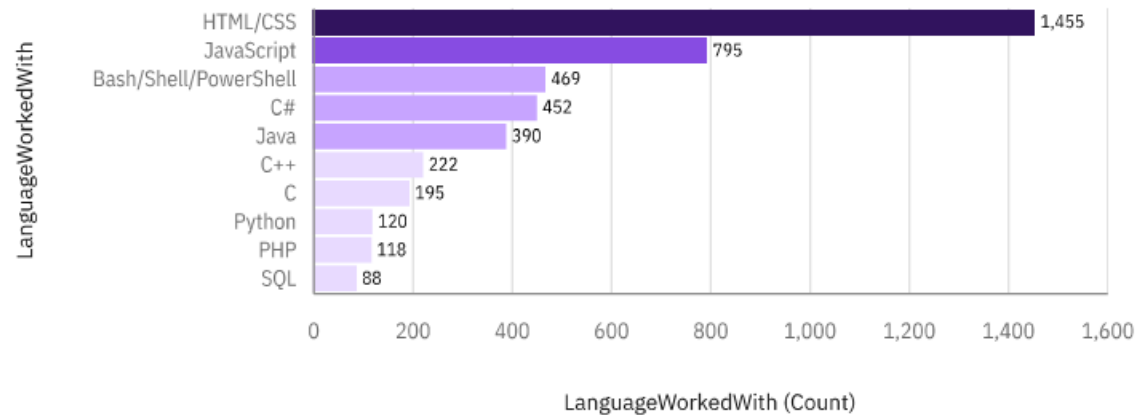
PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

Top 10 Language Worked With
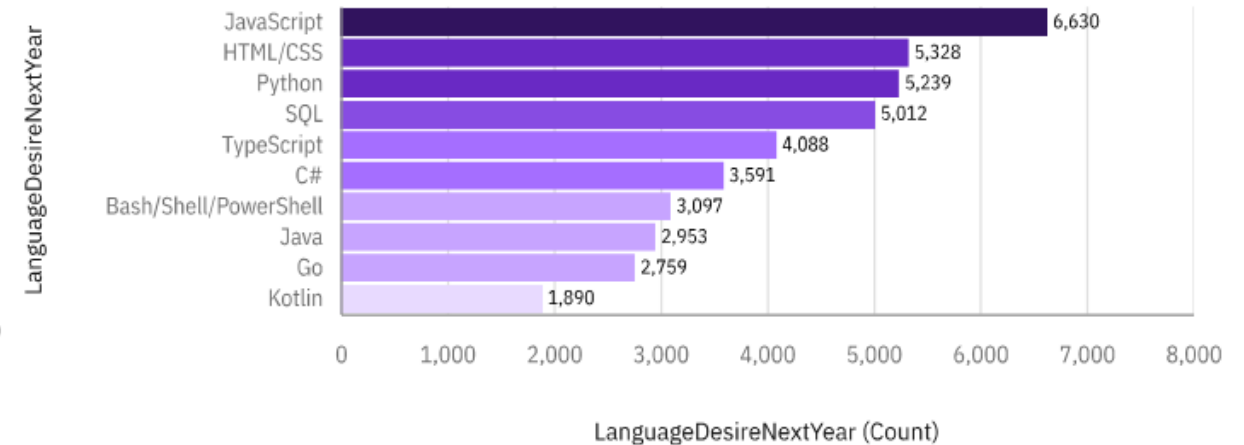
LanguageWorked...

88   1,455

Language	Count
HTML/CSS	1,455
JavaScript	795
Bash/Shell/PowerShell	469
C#	452
Java	390
C++	222
C	195
Python	120
PHP	118
SQL	88

LanguageWorkedWith (Count)

Top 10 Language Desire Next Year

LanguageDesireN...

1,890   6,630

Language	Count
JavaScript	6,630
HTML/CSS	5,328
Python	5,239
SQL	5,012
TypeScript	4,088
C#	3,591
Bash/Shell/PowerShell	3,097
Java	2,953
Go	2,759
Kotlin	1,890

LanguageDesireNextYear (Count)

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Web development languages continue to be the most widely used technologies in the tech industry.

- **SQL** remains the dominant database query language, maintaining its prominent position, being also one of the fastest growing languages.

- **Python** is emerging as the fastest-growing programming language, surpassing the popularity of **Java**.

Implications

- The continued dominance of **web development** languages means companies will keep investing in building robust web applications.

- The rapid growth of **SQL** shows that skills in database management and data querying are being highly valued.

- The fast growth of **Python** compared to **Java** suggests there is increasing demand for programming languages that are more versatile and well-suited for emerging fields like **data science** and **machine learning**.
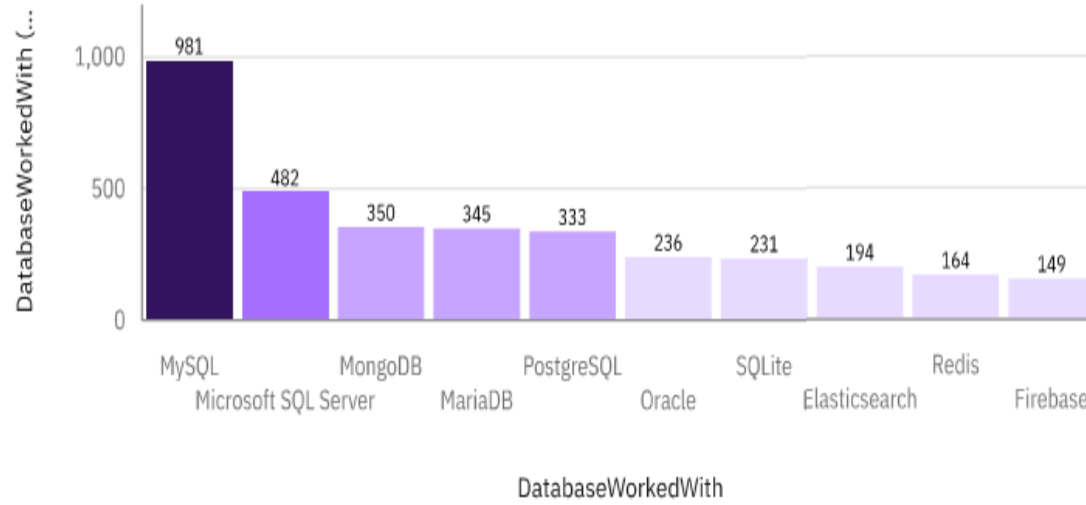
IBM Developer

SKILLS NETWORK

DATABASE TRENDS

Current Year

Top 10 Database Worked With

DatabaseWorked...

149   981

Next Year

Top 10 Database Desire Next Year

DatabaseDesireN...

1,044   4,328

IBM Developer

SKILLS NETWORK
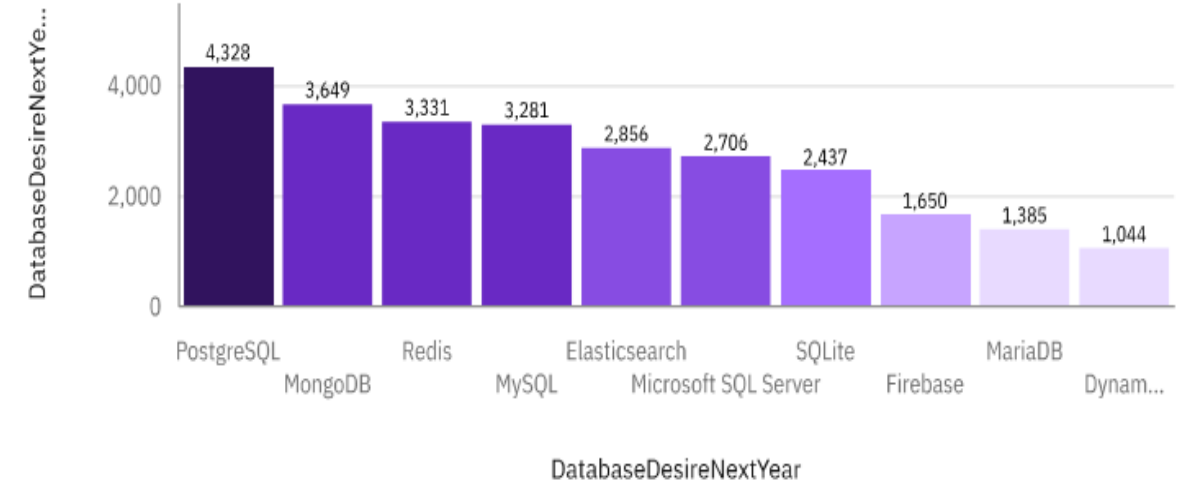
DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- While **MySQL** is currently the most widely used database, it is expected to be surpassed by three other database technologies in the future. The database language projected to see the highest usage going forward is **PostgreSQL**.

- Overall, the **usage of databases is seeing a substantial increase** across the tech industry

- Despite the growing competition, **MongoDB** continues to be one of the most widely adopted database solutions.

Implications

- The rise of **PostgreSQL** over **MySQL** suggests organizations may increasingly prioritize the advanced features and enterprise-grade capabilities offered by **PostgreSQL**

- The **general increase in database usage** across the industry **indicates growing reliance on data-driven decision** making and the need to effectively manage expanding data volumes.

- The persistent popularity of **MongoDB** amidst the growing database landscape demonstrates the continued demand for flexible, scalable **NoSQL** databases **to complement traditional SQL-based** systems.
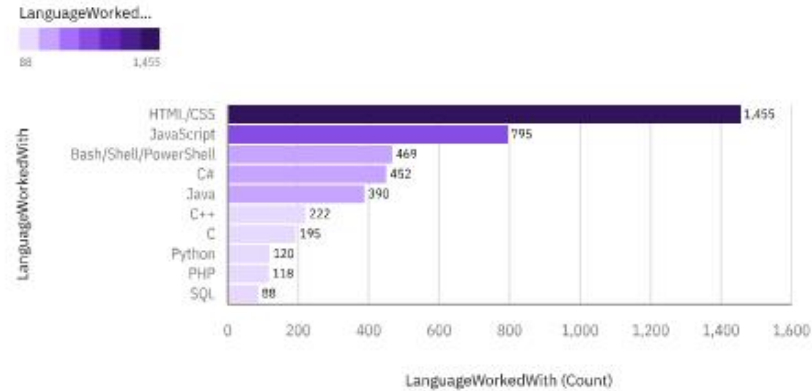
DASHBOARD

[IBM-Capstone-Project/CognosDashboardsfinal.pdf at main · devfenrir/IBM-Capstone-Project (github.com)](https://github.com/devfenrir/IBM-Capstone-Project)

CURRENT TECHNOLOGY TRENDS

Current Technology Usage

Top 10 Language Worked With

LanguageWorked...

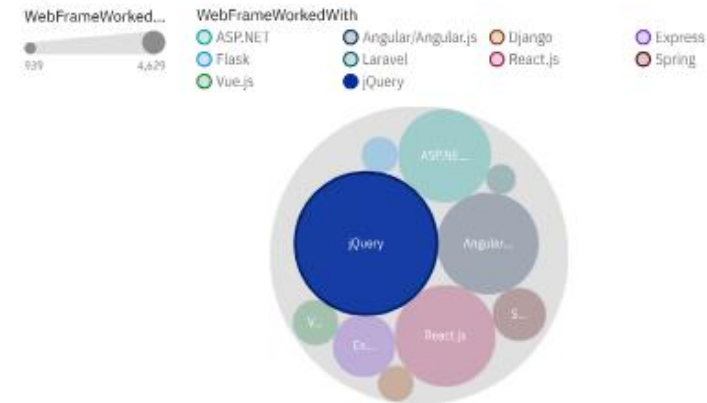88 — 1,455

HTML/CSS — 1,455
JavaScript — 795
Bash/Shell/PowerShell — 469
C# — 452
Java — 390
C++ — 222
C — 195
Python — 120
PHP — 118
SQL — 88

LanguageWorkedWith (Count)

Top 10 Database Worked With

DatabaseWorked...

149 — 981

981 — MySQL
482 — Microsoft SQL Server
350 — MongoDB
345 — MariaDB
333 — PostgreSQL
236 — Oracle
231 — SQLite
194 — Elasticsearch
164 — Redis
149 — Firebase

DatabaseWorkedWith

Platform Worked With

PlatformWorkedW...   PlatformWorkedW...
0 — 634   0 — 634

iOS Arduino
WordPress AWS Windows Docker
Kubernetes Google Cloud Platform Android
Linux Microsoft Azure Heroku MacOS
Raspberry Pi Slack

Top 10 Web Frame Worked With

WebFrameWorked...   WebFrameWorkedWith
939 — 4,629   ○ ASP.NET   ○ Angular/Angular.js   ○ Django   ○ Express
                        ○ Flask   ○ Laravel   ○ React.js ○ Spring
                        ○ Vue.js   ● jQuery

jQuery Angular... ASP.NE... React.js

FUTURE TECHNOLOGY TRENDS

Top 10 Language Desire Next Year

LanguageDesireN...

1,890   6,630

LanguageDesireNextYear	Count
JavaScript	6,630
HTML/CSS	5,328
Python	5,239
SQL	5,012
TypeScript	4,088
C#	3,591
Bash/Shell/PowerShell	3,097
Java	2,953
Go	2,759
Kotlin	1,890

LanguageDesireNextYear (Count)

Top 10 Database Desire Next Year

DatabaseDesireN...

1,044   4,328

PostgreSQL 4,328, MongoDB 3,649, Redis 3,331, MySQL 3,281, Elasticsearch 2,856, Microsoft SQL Server 2,706, SQLite 2,437, Firebase 1,650, MariaDB 1,385, Dynam... 1,044

DatabaseDesireNextYear

Platform Desire Next Year

PlatformDesireNe...

0   5,865

PlatformDesireNe...

0   5,865

Linux, Docker, AWS, Windows, Android, Kubernetes, MacOS, Raspberry Pi, Google Cl..., iOS, Arduino, Slack, Heroku, IBM..., Microsof..., Wo..., Oth...
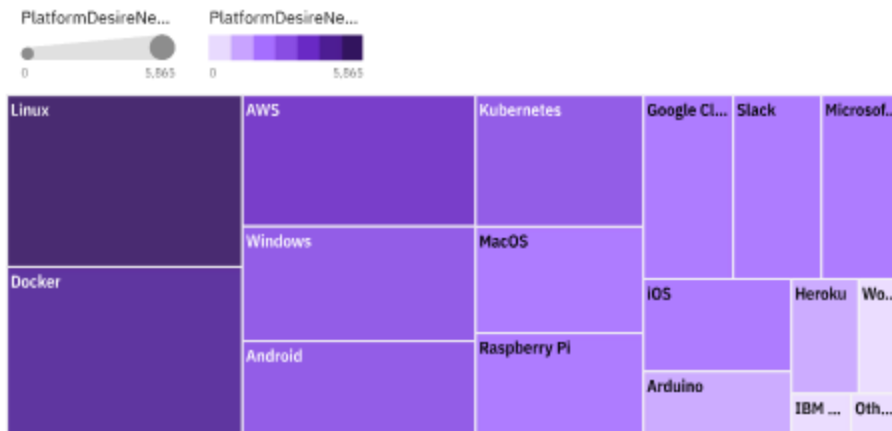
Top 10 Web Frames Desire Next Year
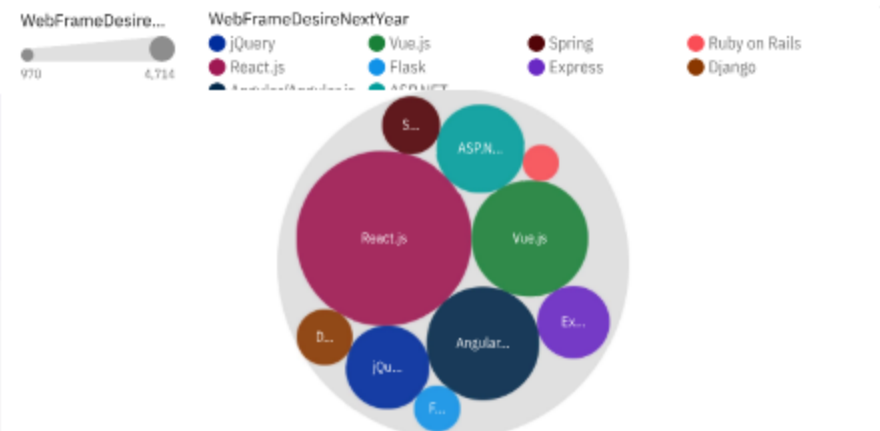
WebFrameDesire...

970   4,714

WebFrameDesireNextYear

● jQuery ● Vue.js ● Spring ● Ruby on Rails
● React.js ● Flask ● Express ● Django

DEMOGRAPHICS
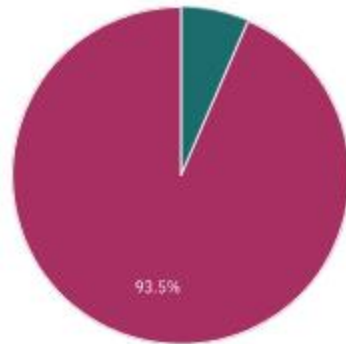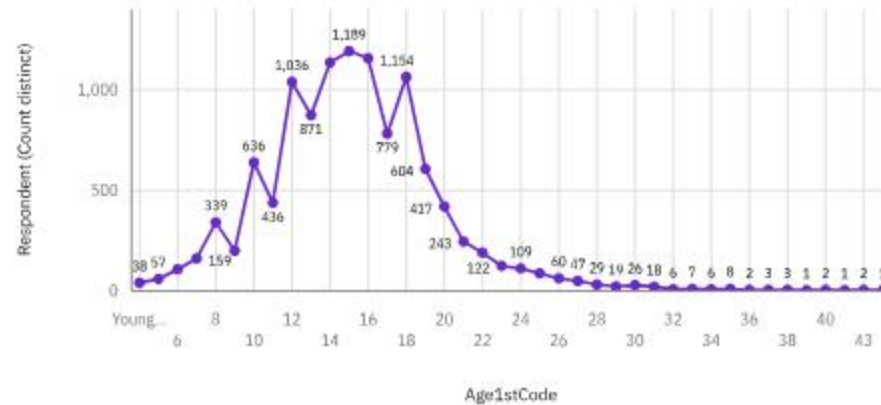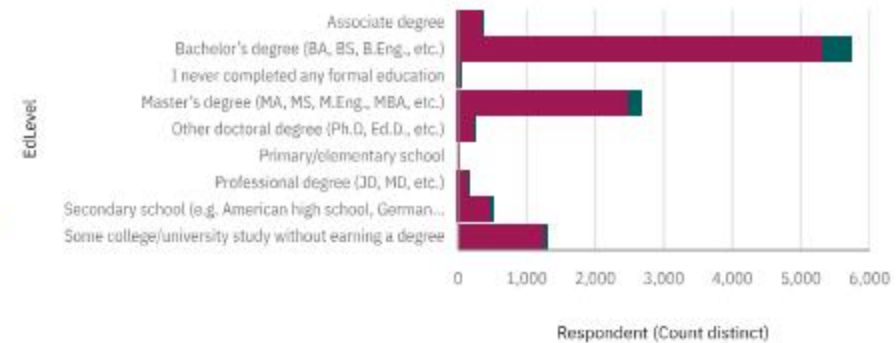
DISCUSSION

- The findings reveal a dynamic database landscape. While **MySQL** currently dominates, **PostgreSQL** is projected to surpass it, suggesting organizations are prioritizing advanced enterprise-grade features. This aligns with the overall trend of growing database usage, as companies recognize the strategic value of effective data management.

- Interestingly, **MongoDB** remains one of the most widely adopted databases, indicating the persistent need for flexible, scalable **NoSQL** solutions alongside traditional relational databases.

- The enduring dominance of web programming languages underscores their essential role in building robust and responsive applications. This implies that organizations will likely maintain their focus on web development, potentially driving further innovation in front-end and back-end frameworks and tools.

OVERALL FINDINGS & IMPLICATIONS

Findings

- **Web development languages continue to be the most widely used technologies**, indicating the lasting importance of building robust web applications.

- While **MySQL** currently dominates the database landscape, **PostgreSQL** is projected to surpass it, suggesting a growing preference for advanced enterprise-grade database features.

- **Python** is emerging as the fastest-growing programming language, surpassing the popularity of **Java**, indicating rising demand for versatile and accessible languages suitable for fields like data science and machine learning.

Implications

- The sustained prominence of web development languages means organizations will likely maintain their focus on web application development, potentially driving further innovation in front-end and back-end frameworks and tools.

- The rise of **PostgreSQL** over **MySQL** may lead to greater investment in database management tools and architectures to support the advanced capabilities and enterprise-grade features of the platform, as well as increased demand for **PostgreSQL** expertise.

- The rapid growth of **Python** compared to **Java** suggests there will be greater emphasis on Python-based curricula in educational institutions and increased adoption of **Python** across a wider range of industries and applications, as organizations seek to leverage the language's versatility and suitability for emerging technology domains.

CONCLUSION

- This analysis highlights the evolving tech landscape, from the enduring prominence of web development to the shifting database trends and the growth of Python. Staying adaptable and continuously expanding expertise will be crucial for professionals and organizations to thrive in the dynamic technology industry.

- There is a wide variety of career paths a developer can chase. The future trending career paths are related to data science and web development.

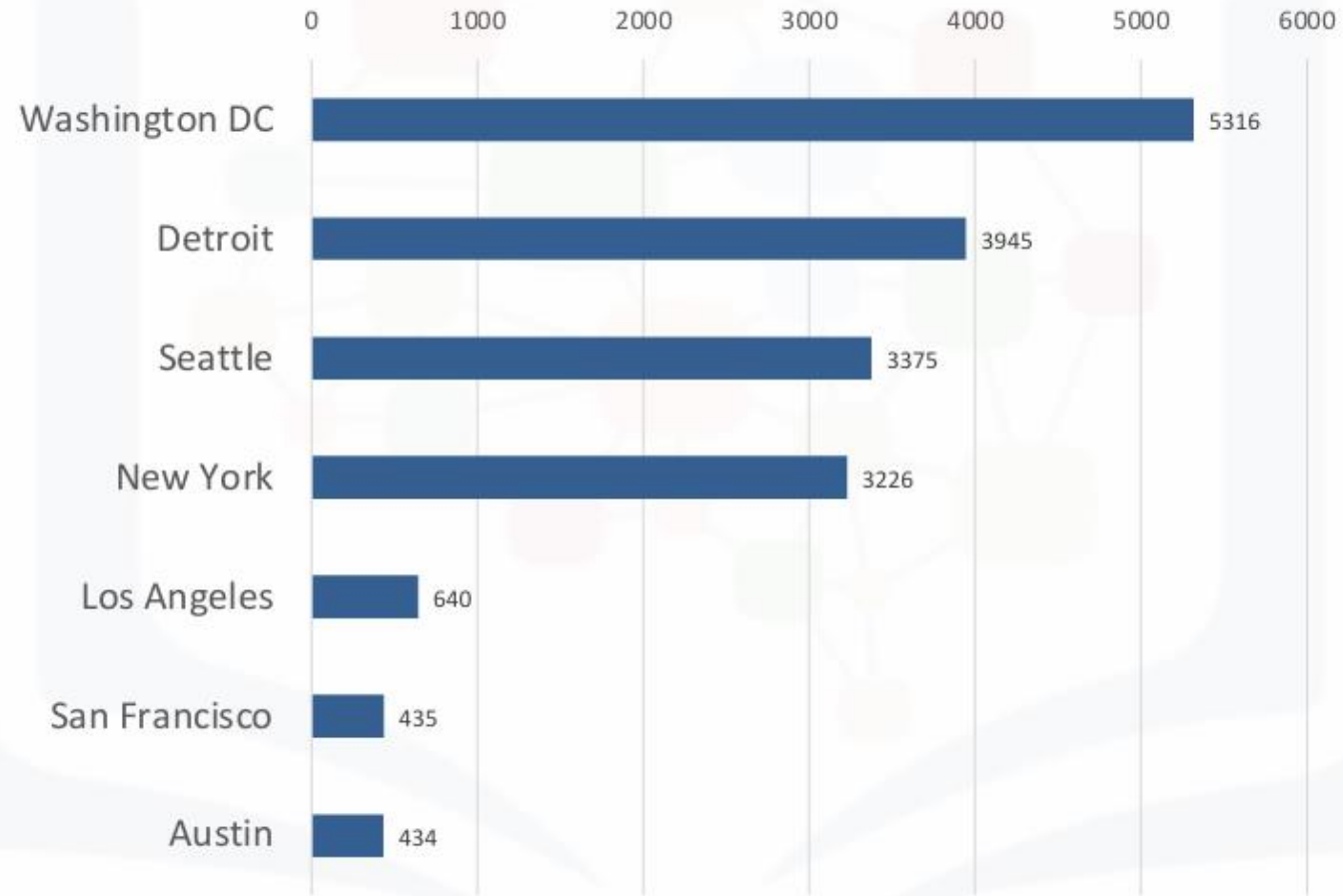- There is an increasing preference for simpler and easier to use languages.

IBM Developer

SKILLS NETWORK

APPENDIX

- A - JOB POSTINGS CHART
- B - POPULAR LANGUAGES CHART

A - JOB POSTINGS CHART

B - POPULAR LANGUAGES CHART