Current and future technology use trends from software developers

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OUTLINE

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  - Language and Database Trends
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- Discussion:
  - Findings & Implications
- Conclusion
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EXECUTIVE SUMMARY

- Software developers are shifting towards newer technologies
- These new technologies are more precise and powerful
  - Languages: more languages indicate the need for more precise tools
  - Databases: more powerful tools are needed indicating larger and more complex datasets
- Greater need for high-level languages may indicate a shift in daily tasks for workers where the use of coding is more in demand
- While most users are happy with the current language they use, many would like to use different ones in the future

INTRODUCTION

- Stack Overflow put out a survey for software developers asking about various aspects of their jobs. This report will be most useful for companies developing new software related to platforms, databases, and coding languages
- The purpose of this report is to showcase current trends in the use of these tools and suggest reasons for their evolution. This can better help companies understand where their priorities should lie when developing new tools
- We focused our attention on users' use of languages, databases, and web frames to determine how their needs are evolving
- Analysis of the data indicates the need for more precise and powerful tools, as well as higher demand for high-level languages
- This may be a sign of greater use of overall data, as well as more specialization in jobs
    - Job Specialization: requires more use-specific languages
    - More powerful databases: suggests use of larger databases in everyday life

METHODOLOGY

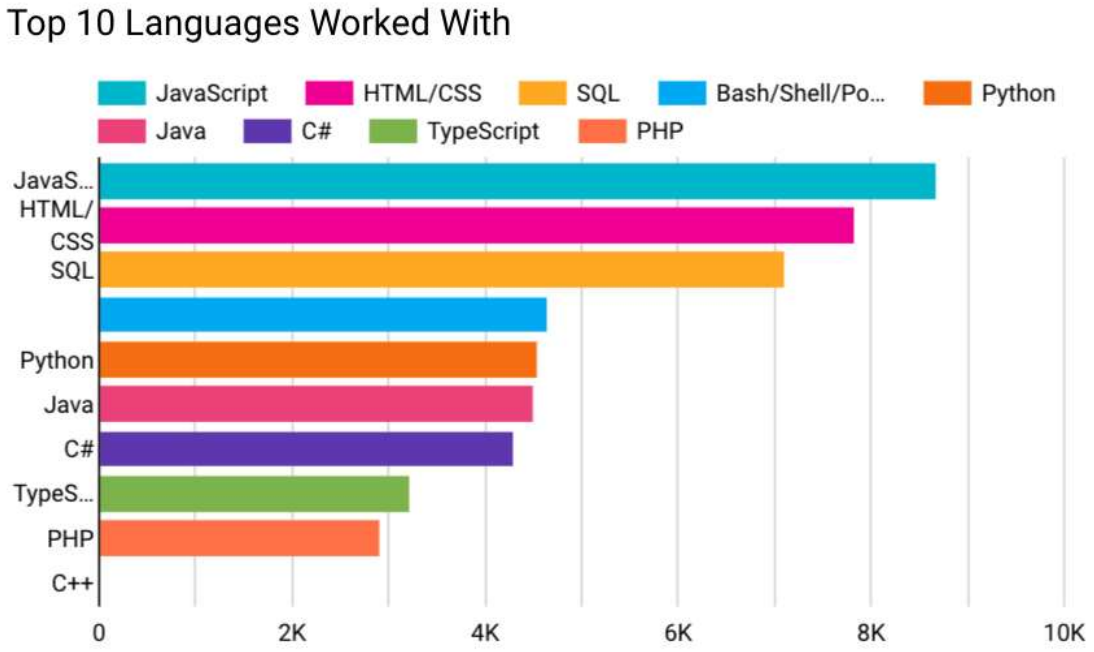
- Using the Stack Overflow dataset made from collecting responses from an online survey for professional developers on the website
- Utilized Python and several of its libraries (BeautifulSoup, matplotlib) as well as Google Looker Studio
- Formatted the data for easier readability
- Analysis of the Stack Overflow Dataset
  - Made use of Google Looker Studio for bar and column plots, maps, tree maps, and word clouds.
  - Made use of Python for the analysis of language use and job postings

RESULTS

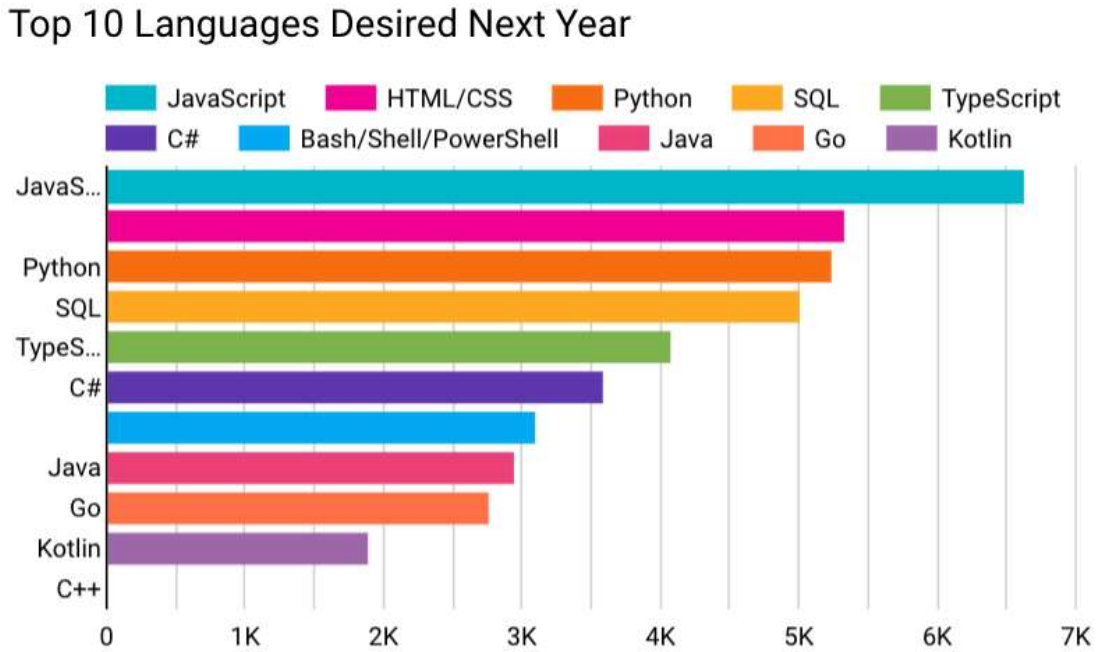
- Greater demand of high-level coding languages suggest more people need to code for their everyday job, without necessarily needing in-depth background in computer science (also evidenced by respondents mostly holding bachelor's degrees)
- The need for more precise and powerful tools surrounding databases suggests greater use of data, and greater amounts of data being processed
- The need for more languages in the future suggests more specialized development, and so, more precise tools for this

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

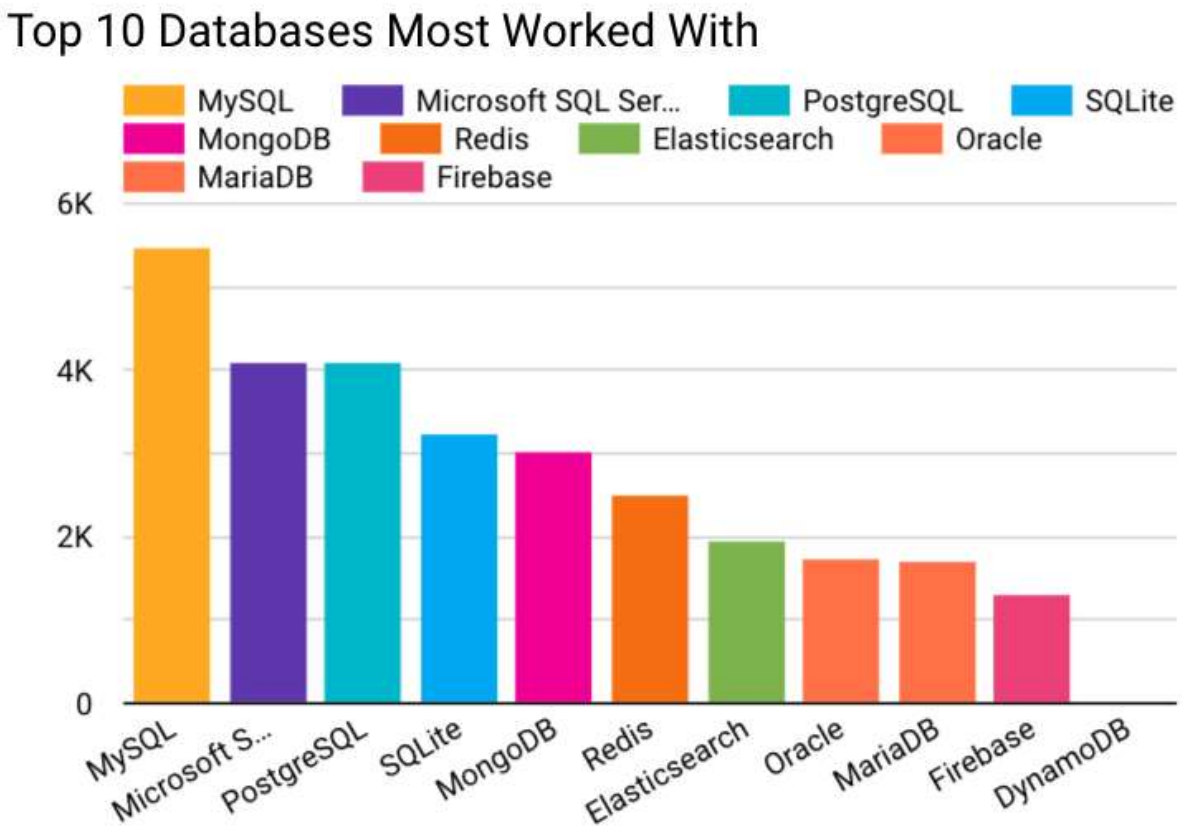
- JavaScript, HTML, CSS/SQL remain highly demanded languages
- Python is more demanded for next year
- High-level languages are the most demanded languages for next year

Implications

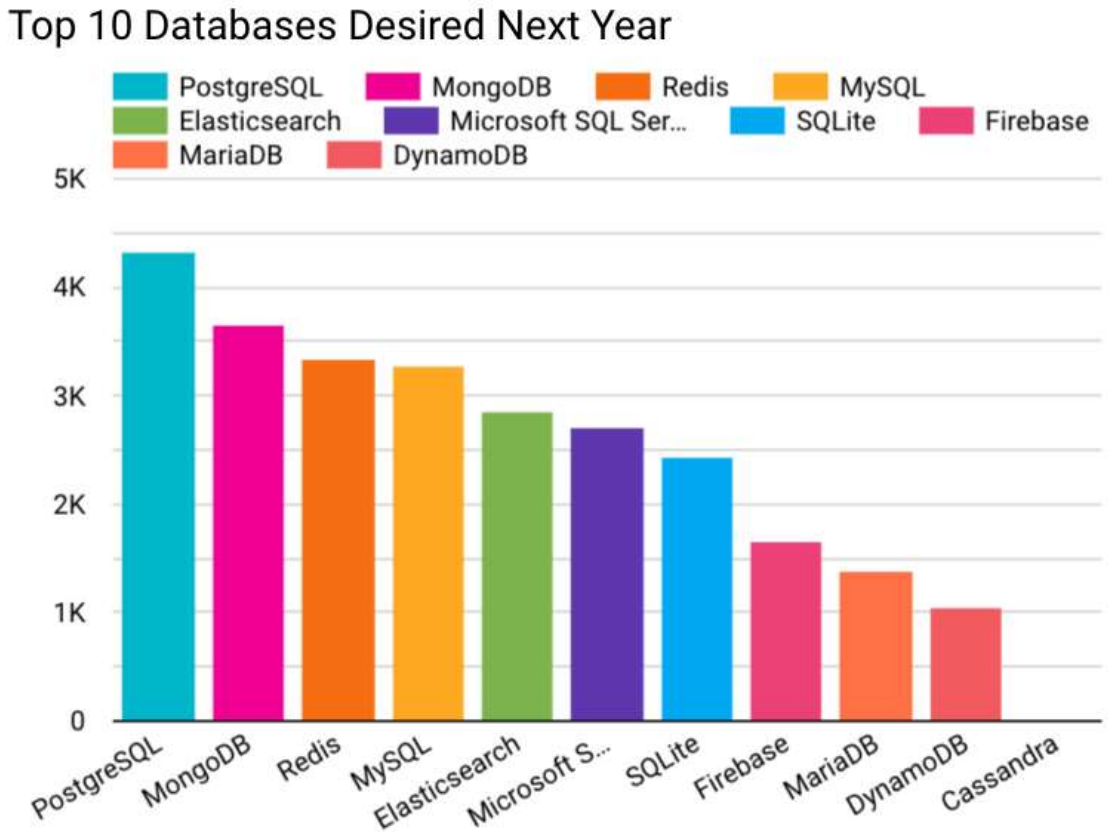
- Demand for website development and data management continues to increase
- High-level coding languages such as Python suggests more demand for accessible coding languages
- This may be an indication that jobs are requiring more coding skills for completing everyday tasks

DATABASE TRENDS

Current Year



Next Year



IBM Developer

SKILLS NETWORK

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL is more in demand than MySQL
- MongoDB sees a large increase in demand, used for storing and managing data
- Several more specialized and powerful databases have increased in demand

Implications

- Greater need for advanced querying skills and easier interactivity with larger datasets
- Data management is becoming a more important part of the everyday job
- Data is getting collecting at a much more rapid pace than before, requiring use of more specialized tools

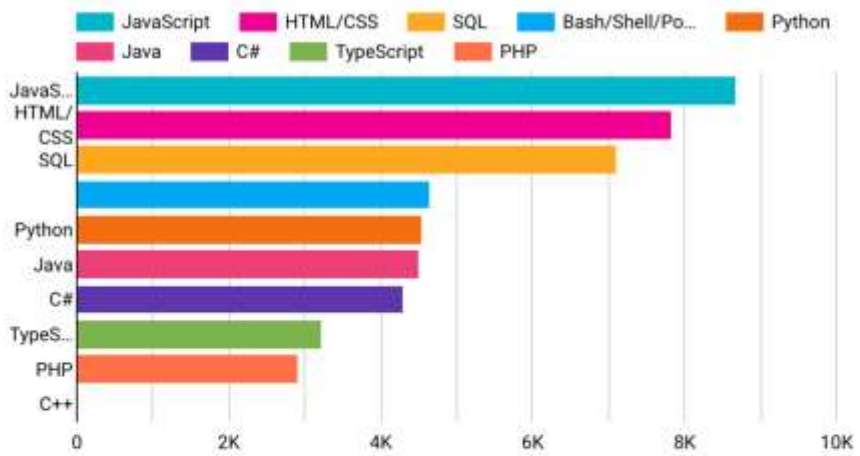
DASHBOARD

<https://github.com/chloe363/coursera-project/blob/main/Module%205%20Project.pdf>

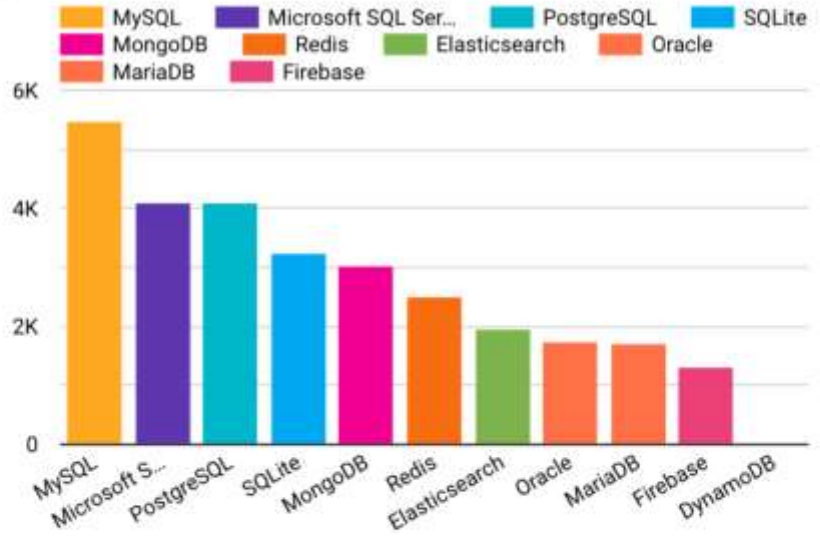
DASHBOARD TAB 1

Current Technology Usage

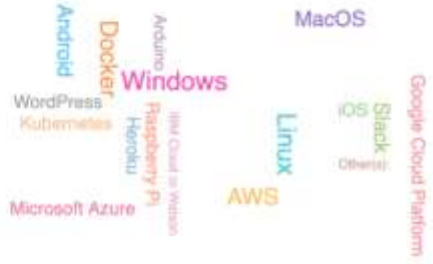
Top 10 Languages Worked With

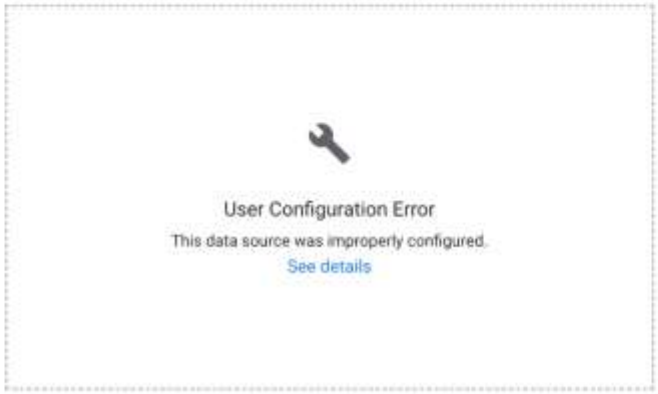


Top 10 Databases Most Worked With



Platforms Most Worked With

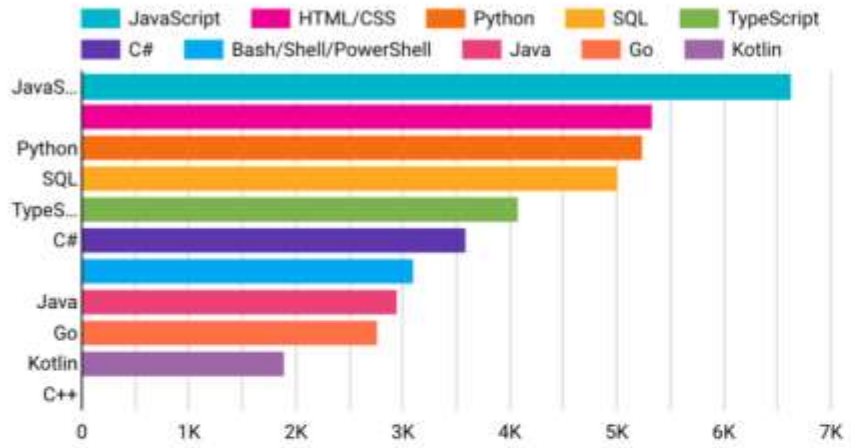




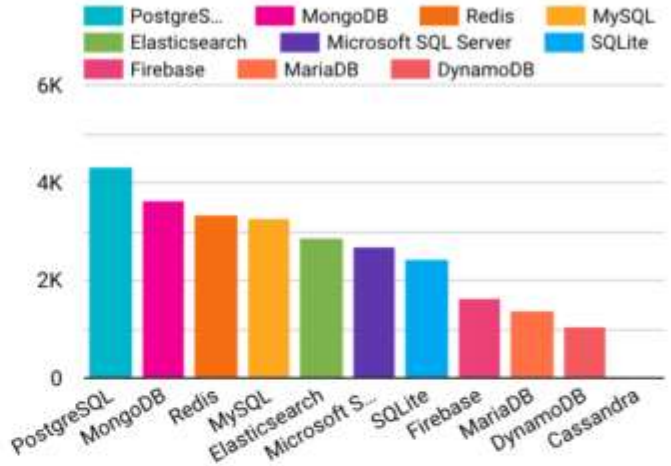
DASHBOARD TAB 2

Future Technology Trends

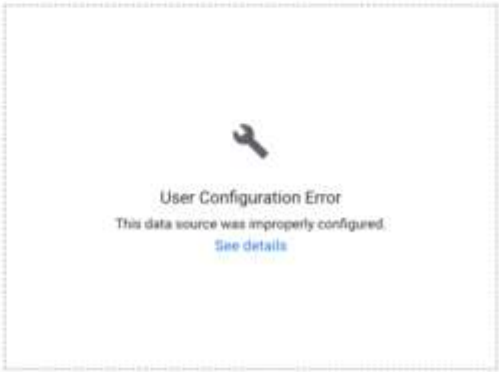
Top 10 Languages Desired Next Year



Top 10 Databases Desired Next Year



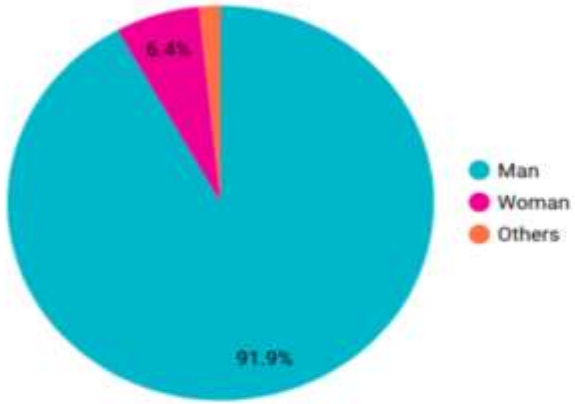
Platforms desired next year



DASHBOARD TAB 3

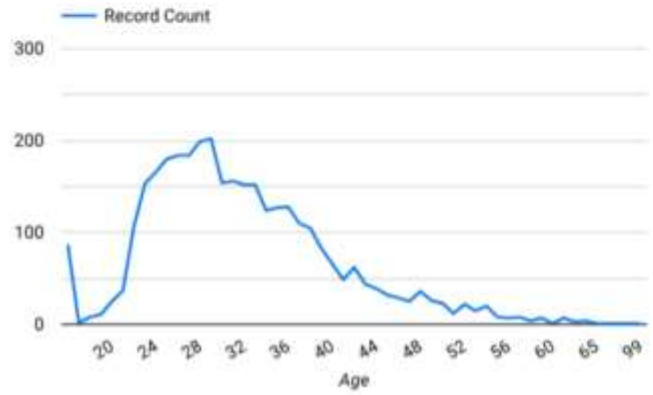
Demographics

Respondent Classified by Gender

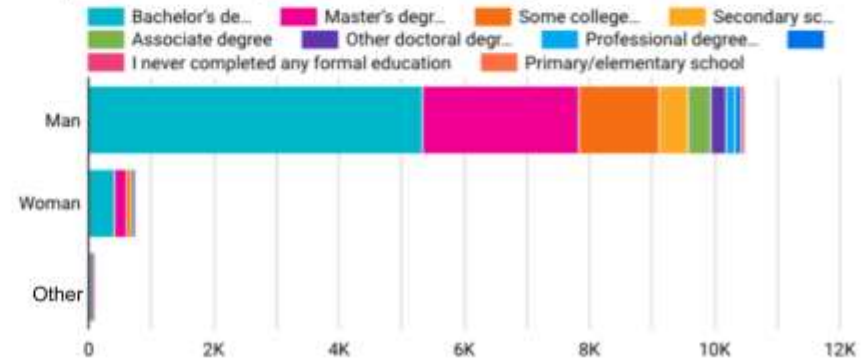


Respondent Count by Country

Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level.



DISCUSSION - OVERALL FINDINGS & IMPLICATIONS

Findings

- More languages are in demand (see Appendix)
- Developers are concentrated in North America
- Platforms used to automate software are on the rise, such as Bash

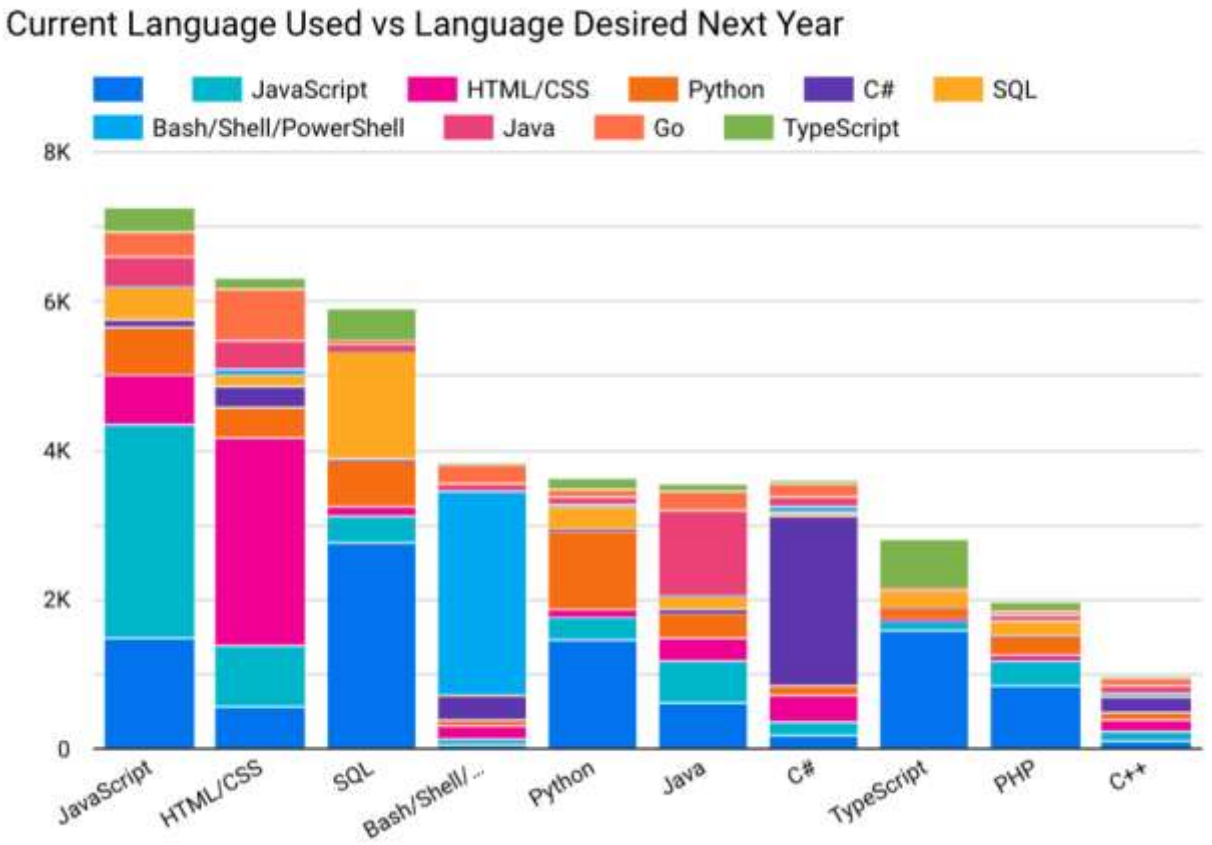
Implications

- Diversification of computing needs
- North American domination of the developer space suggests governmental incentives for such skills
- Automative softwares indicate the use of more complex and labor intensive tasks that deal with larger datasets

CONCLUSION

- Datasets are becoming vast and complex, requiring more powerful software to deal with them
- Tasks needed to be performed are becoming more precise, requiring more specialized languages
- High-level programming languages are in greater demand, indicating more people with fewer programming skills are having to code for work.

APPENDIX



While current users of a certain language for the most part want to stick to their language, a large part of users would like to make a switch in the future.

This suggests developers want to branch out in their work, either because of work-related demands or for personal growth

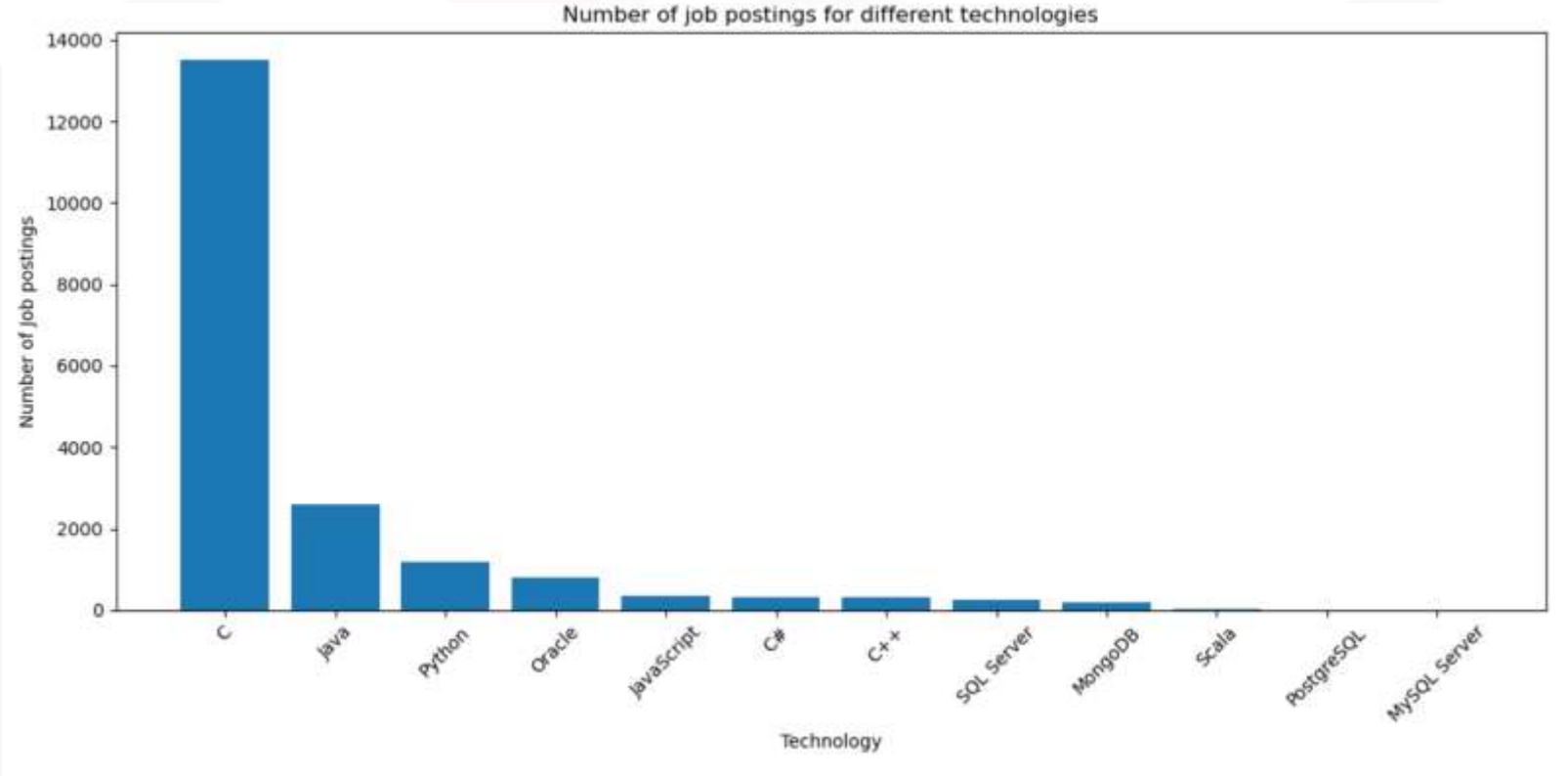
APPENDIX

Current Webframes in Use	Current Languages in Use	Current Platforms in Use
330	28	461

Webframes Desired Next Year	Languages Desired Next Year	Platforms Desired Next Year
340	702	468

- Users do not seem to need more web frames and platforms, suggesting that not much has changed in terms of needs related to databases and platforms
- Growth in the languages available means that there are needs for more use-specific languages, skills are becoming more honed in specific areas of software development.

JOB POSTINGS

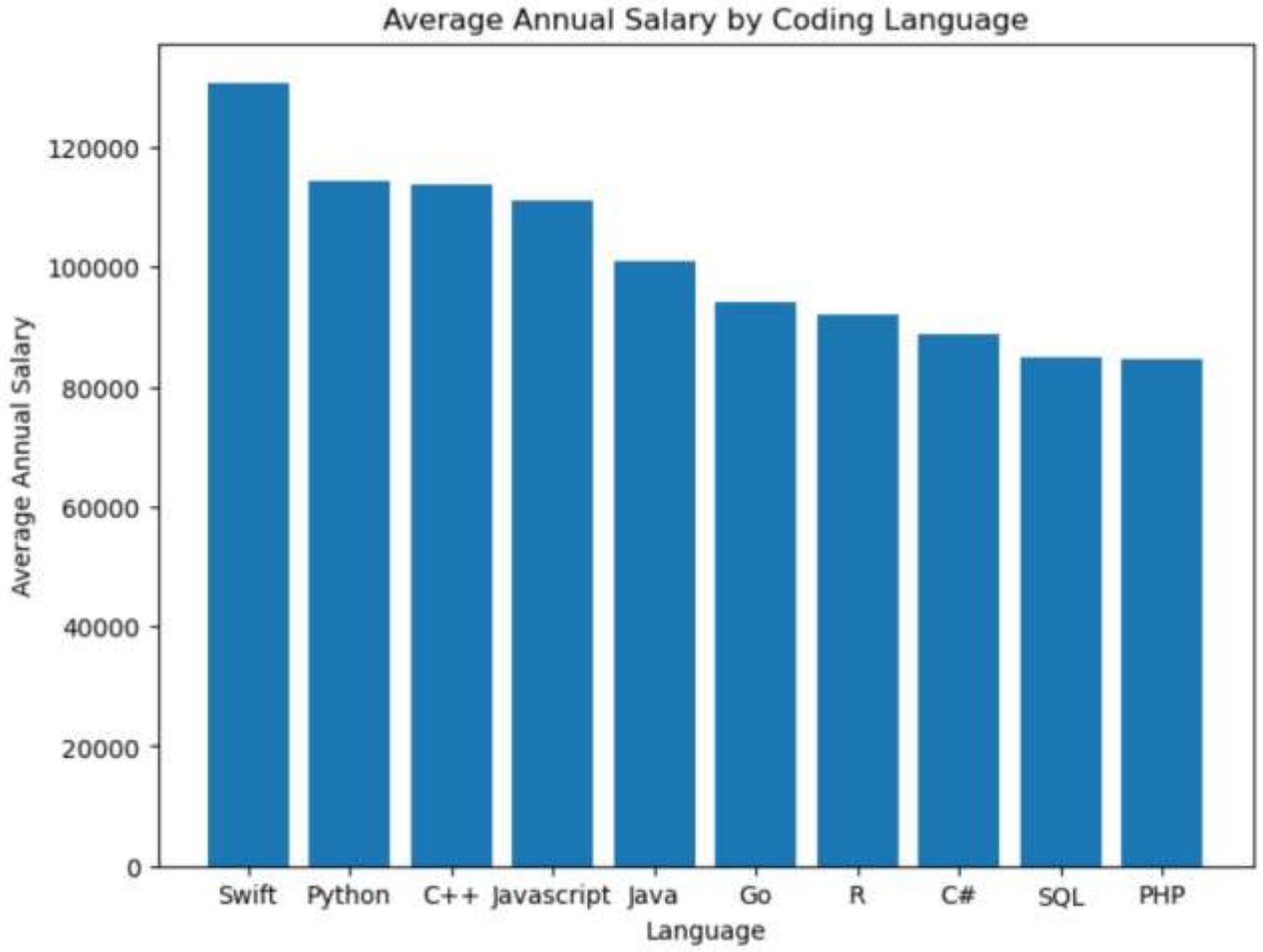


C received the most job postings, suggesting an increased demand in operating systems development

Because it is considered by most to be a middle-level programming that allows access to more internal hardware, it is usually used by more seasoned developers.

Greater demand for C thus suggests demand for more seasoned developers.

POPULAR LANGUAGES



Swift and Python are the most remunerated skills in the developer industry

This indicates that these languages are valuable in the eyes of employers and suggests a lot of work is done with these.