Analyzing Technology Trends and Skills

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IBM Developer

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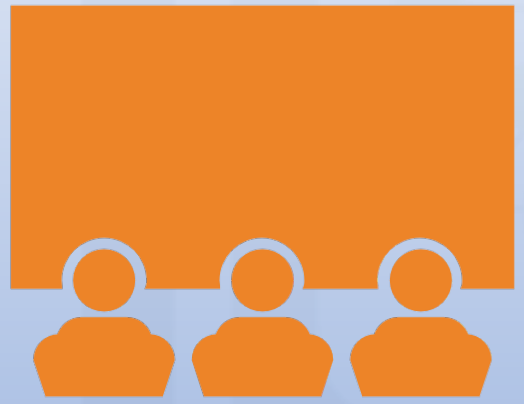
OUTLINE



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

EXECUTIVE SUMMARY

✓ **Overview**

- Looking at trends in the technology sector where it comes to programming languages, databases and platforms
- Demographic highlights to show an industry of technology professionals.

✓ **Data Sources**

- Job Postings on Github, as well as csv files from a Stack Overflow Survey.

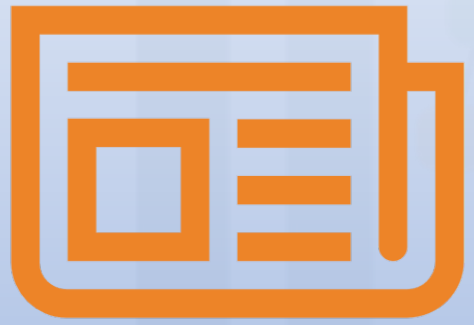
✓ **Initial Thoughts**

- PostgreSQL has seen an increase in use, from personal use, I find it quite easy to use and it seems others are getting that impression.
- Demographics show that industry is still quite male dominated. Although the data may not show the same results if a newer survey were to be taken today.

INTRODUCTION

- This presentation is a look at how trends in the technology sector are changing due to business and personal demand.
- Key focus was placed on databases used and platform preference amongst users.
- The information portrayed can be used by IT departments and professionals, as well as HR managers to help businesses choose the right product and person.
- What tech enthusiasts and professional choose to learn most and what jobs are available to them once they master their craft.

METHODOLOGY



✓ **Data Collection**

- Gathered survey and website data through web scraping and APIs using the request library in Python

✓ **Data Wrangling**

- Performed data wrangling tasks to remove unnecessary separators and removing missing data.

✓ **Exploratory Data Analysis**

- Analyzed data, handled outliers and identifying any correlations.

✓ **Data Visualization**

- Visualized the data that was collected to highlight relationships and compare the data.

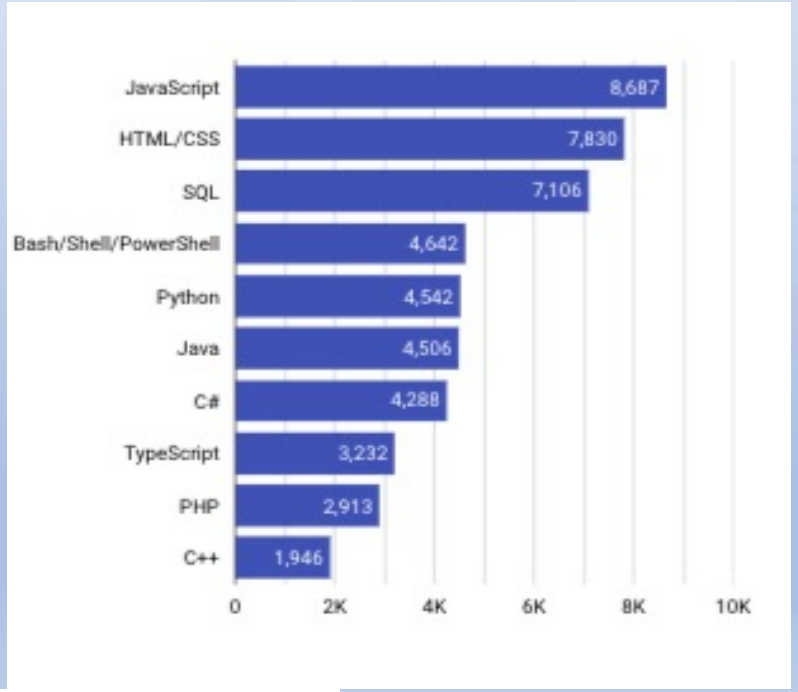
✓ **Dashboards**

- Developed dashboards with Google Looker Studio for a user-friendly look at the data.

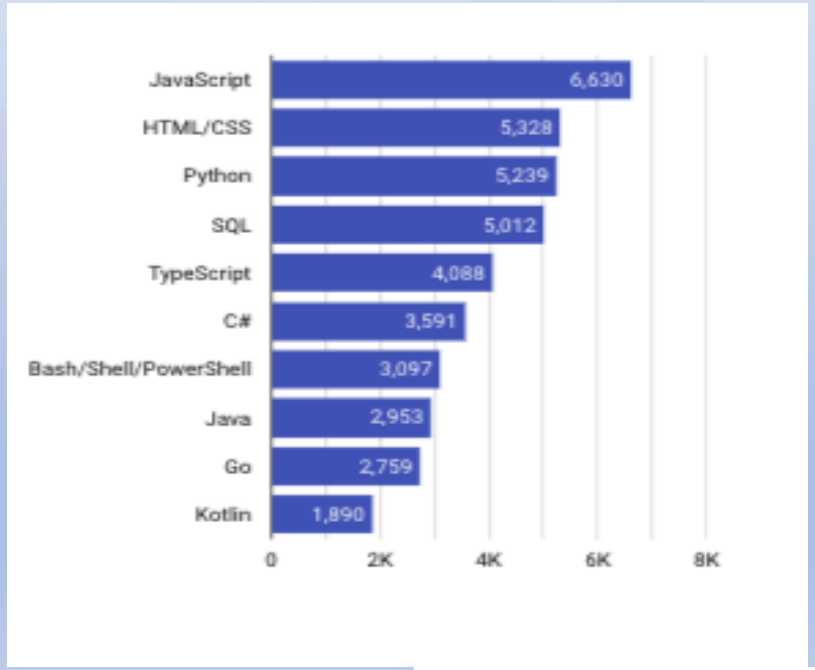
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

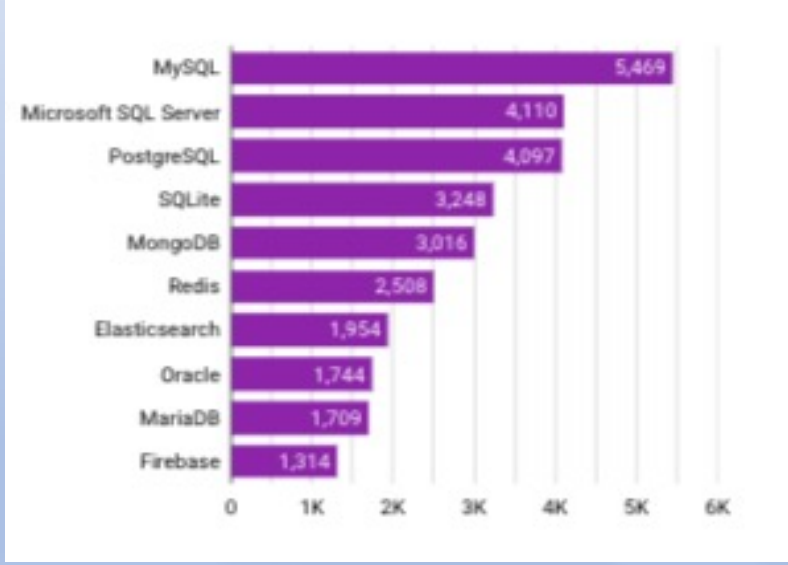
- JavaScript and HTML/CSS are shown as the most used programming languages among all respondents.
- Python has edged out Java in the ranking and looks to continue to rise.
- SQL's presence is in the top tier year over year.

Implications

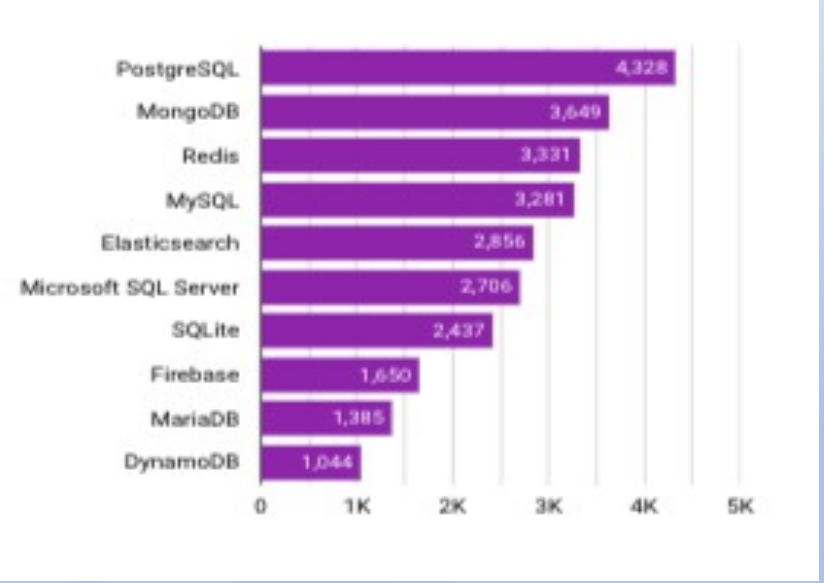
- With JavaScript and HTML/CSS in the top two spots, it shows that modern web development has become an important tool for those looking to learn and have a career developing.
- The high use of SQL showcases the role that data management and querying data has become important to business success.
- The increase of Python has shown that its flexibility and ease of use has increased developer use from data analysis, data science and developing software.

DATABASE TRENDS

Current Year



Next Year



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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- The increase in PostgreSQL shows that is an easy-to-use database program making it a great tool for beginners as well as those who like nice interfaces.
- MongoDB has seen an increase due to its ability to work with NoSQL data.
- The drop in Microsoft SQL Server could be an indication of its use for business as opposed to those wanting to learn SQL and choosing more open-source or free programs.

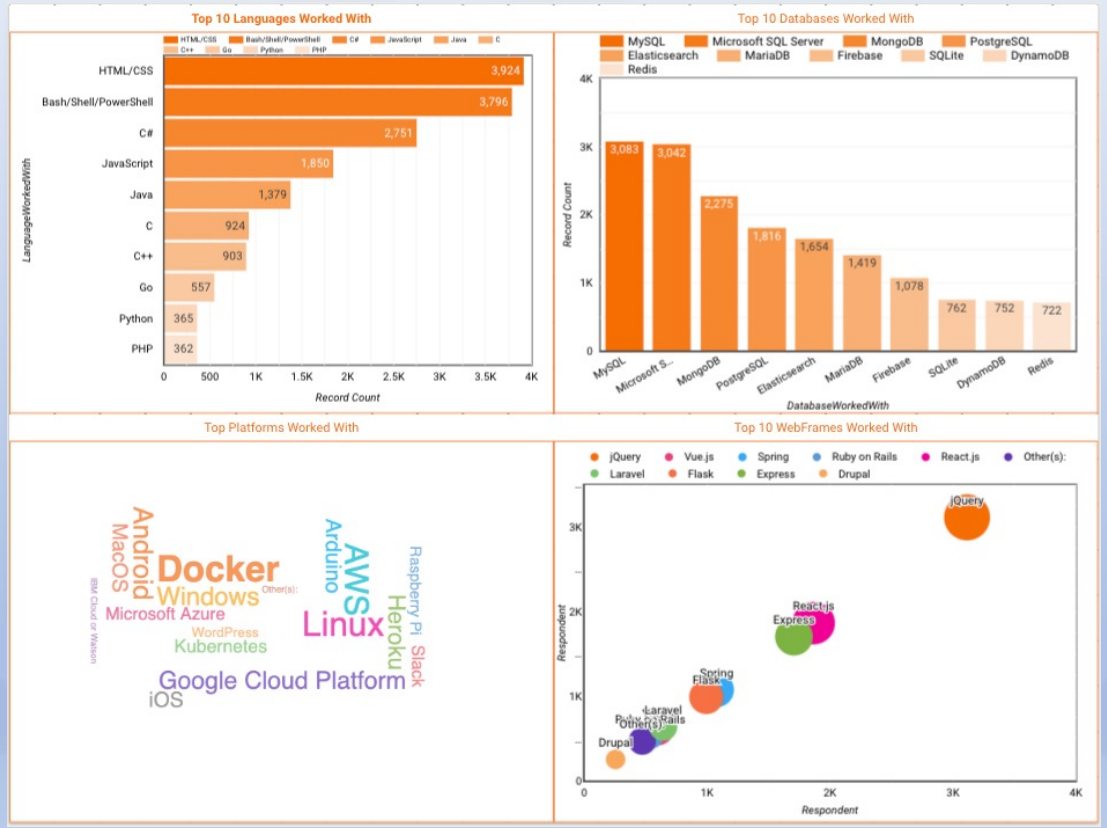
Implications

- With the popularity of MySQL, PostgreSQL, and Microsoft SQL Server, it shows the importance of relational databases in various applications.
- MongoDB's increase shows the growing use of NoSQL databases, for modern web and mobile applications having flexible data models.
- Developers have many database systems to choose from and their selections show they are looking for programs that are easy-to-use, provide the right structure and can handle their performance requirements.

DASHBOARD

https://github.com/stephenblundon/CapstoneIBM/blob/main/Capstone_Project_SB.pdf

Current Technology Use



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Future Technology Trend

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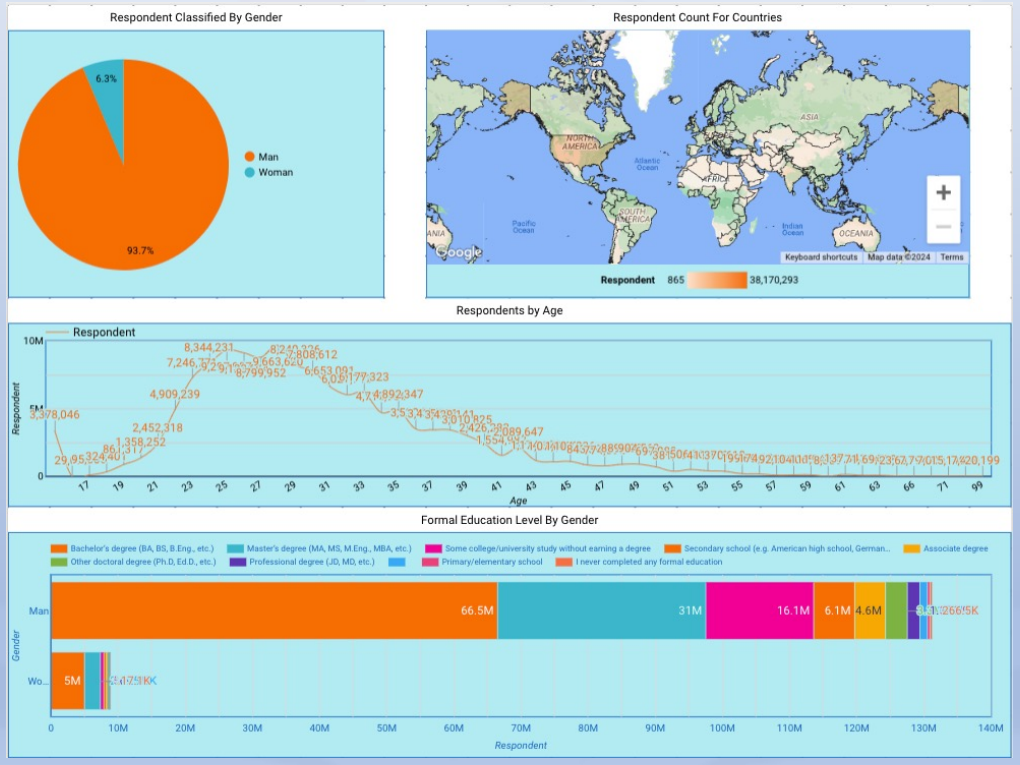
Demographics



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DISCUSSION

- The future of data lies in analysis and web development. Both categories are essential for businesses to thrive and succeed.
- The gender gap in the technology sector is quite large. Would like to see more involvement in a male-dominated field.
- Program language changes are showing that companies need to adapt and update programs to ensure companies and individuals want to work with them.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Over 90% of developers identify as male.
- JavaScript is widely used in the industry and shows a push towards web development.
- The United States continues to be a major focus for jobs and opportunities.

Implications

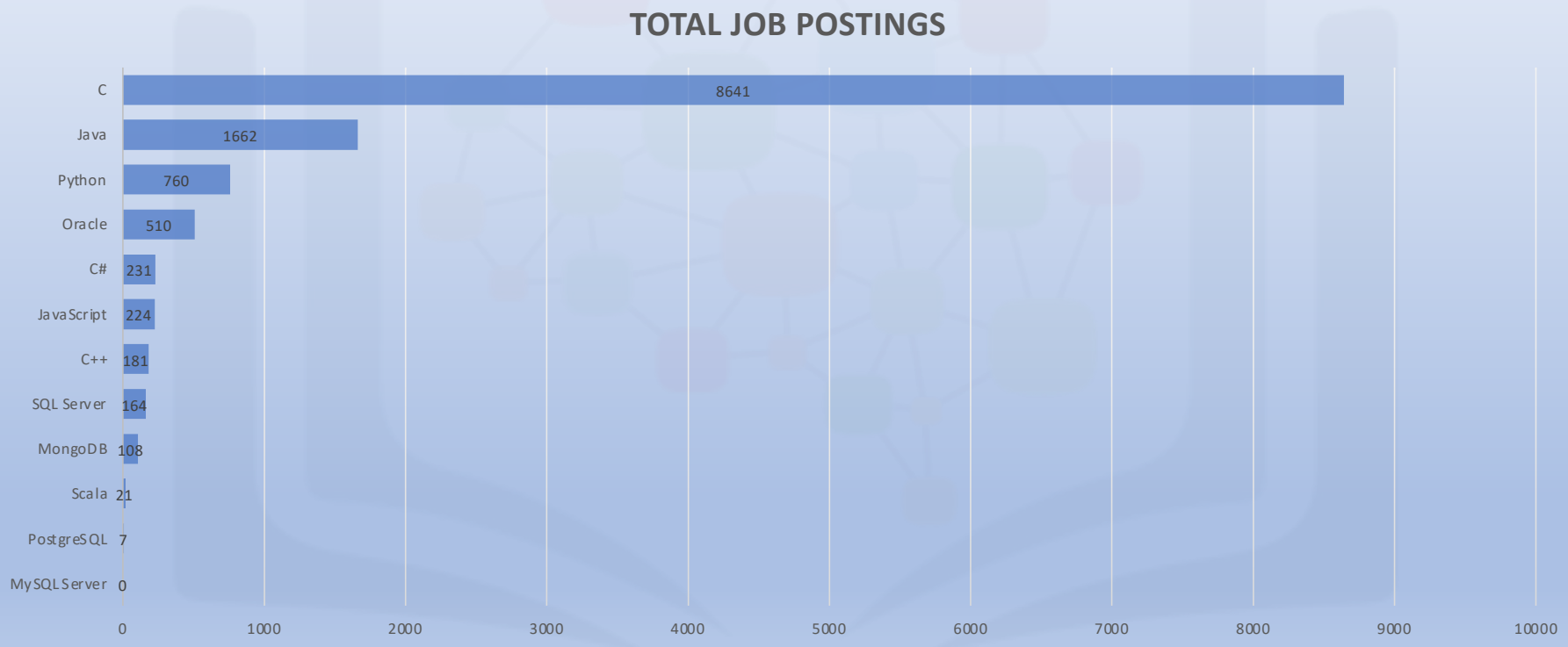
- The gender gap is larger in this industry than in many others. Has to be seen as not a “boys” job.
- If data analyst is what many train for, it would be key to learn web development to help expand knowledge and opportunities for work.
- There are opportunities to dip into talent pools of developing countries and creating more tech centers.

CONCLUSION

- The surveys show that skills upgrading and tech education is important. Learning specific programs are key to having the understanding for most roles and can start as a basis point when looking to learn more or incorporate new programs.
- Web Development is important for the future. We are always using devices to look up data, and we need to make sure we can deliver on the information provided.
- Just like most industries, it is important to diversify the user experience and have it represent those who use it, as well as those who develop it.
- Databases of information are key to help businesses thrive. Having employees able to navigate that information and present to stakeholders is what would help that business succeed.

APPENDIX

JOB POSTINGS



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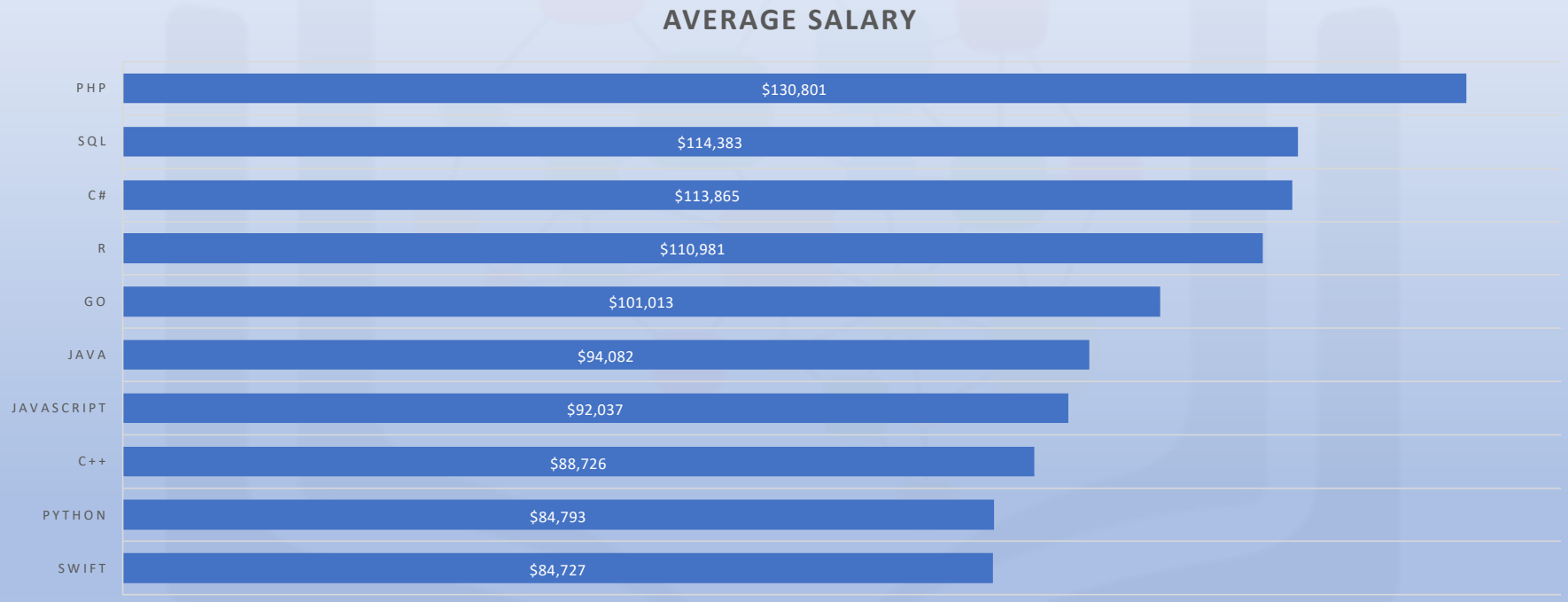
POPULAR LANGUAGES



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