# Stack Overflow Developer Survey 2019 Findings

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# EXECUTIVE SUMMARY

The findings presented on these slides are based on analysis from the data collected on the 2019 Stack Overflow Developer Survey.

This analysis will present insights regarding the following:

- Most worked with languages, databases, platforms and web frames used by the developer in 2019.
- Trend of new desired languages, databases, platforms and web frames to be used or learned amongst developers in the future.
- The demographics of the respondents (gender, country, age, education level).

Currently, they are an overwhelming amount of technologies asked for by companies. This study provides insights on the suitable technology that can help stakeholders, business decision-makers, and aspiring developers within the IT and business consulting services firm decide what to invest their time on.

# INTRODUCTION

- Stack Overflow has been conducting Annual Developer Survey since 2011.
- This survey is done to gather data on what technology developers are currently using and which tools are gathering more interest amongst developers alongside work-related data such as salary and developer type.
- For this analysis, a subset of the 2019 developer survey was used, data gathered from 11,398 respondents out of 90,000 that answered.

# METHODOLOGY

Data source

- Stack Overflow 2019 Developer Survey (click here).
  - Currently used technology, desired future technology and demographics.
- Used Jobs API (click here)
  - Collected a number of  job posting for several locations.
  - Collected a number of job posting for several languages.
- Webscrapped this site for an average annual salary for across languages.

Data Wrangling

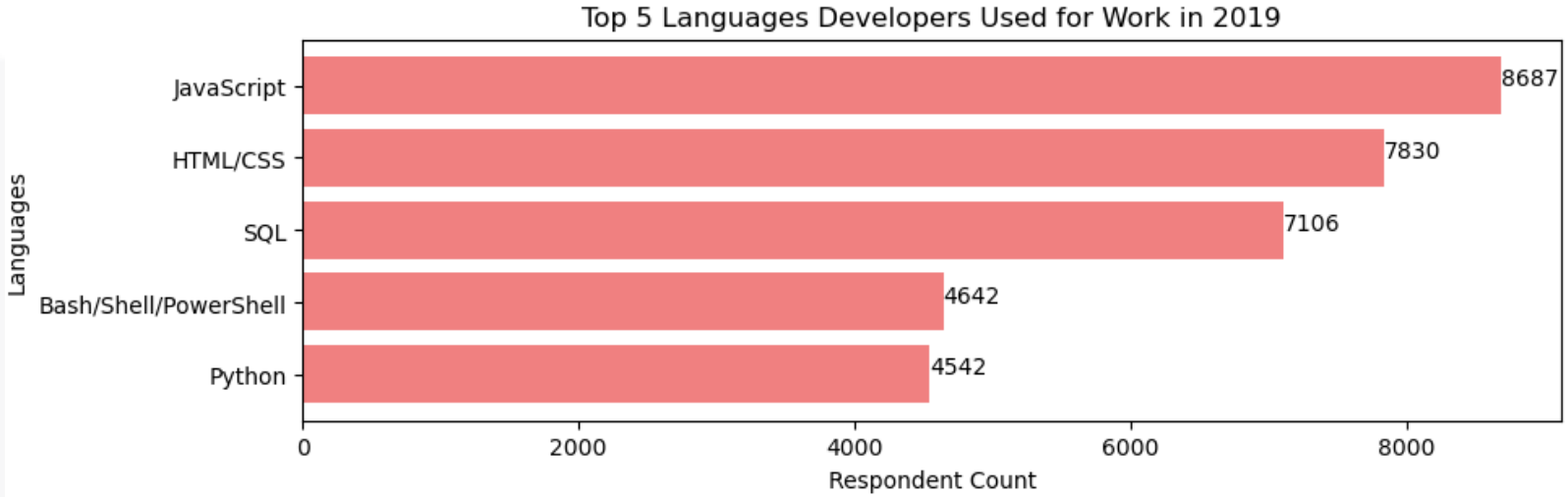
- Procedure: Removed duplicated rows, imputed missing data and normalized data.

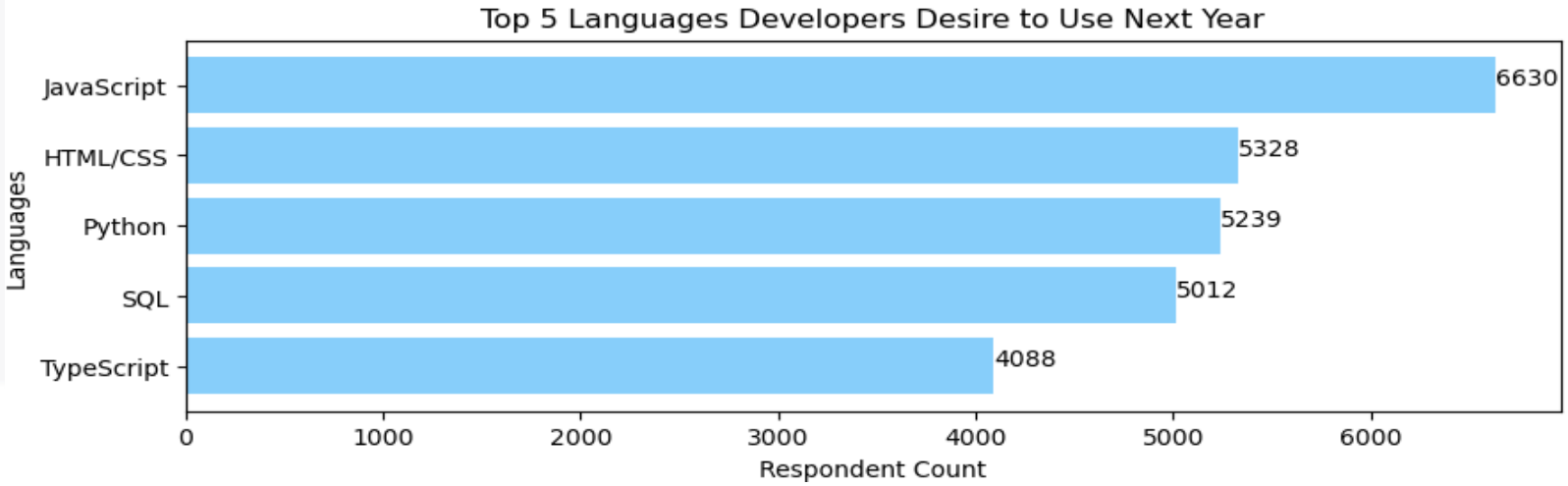
Analysis and Visualization

- Did exploratory data analysis (EDA) and data visualization using Python (MatPlotLib, Seaborn, Pandas, Plotly) and SQL via sqlite3 for extracting data from RDBMS and used IBM Cognos for dashboarding. The focus is the on following:
  - Technology trend in 2019
  - Desired technology for the next year (2020)
  - Respondent demographics (gender, education level, country and age)

# RESULTS

# PROGRAMMING LANGUAGE TRENDS

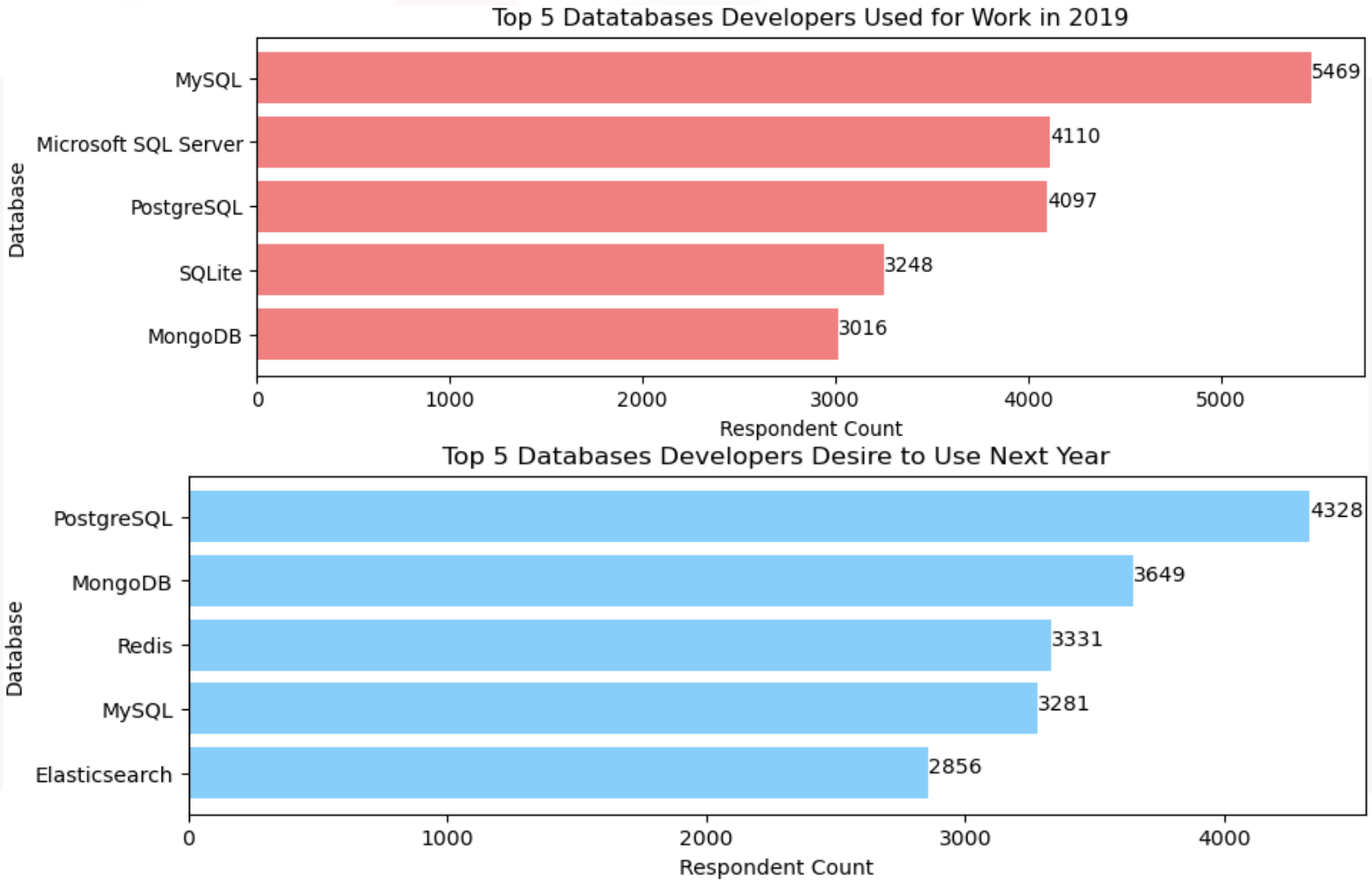


# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

| Findings | Implications |
| --- | --- |
| JavaScript with HTML/CSS is the most used language by developers in 2019. | • Shows that web developers had a high demand in 2019 .<br>• Proficiency in JavaScript and HTML/CSS is crucial for front-end development. |
| The following year's trend shows the developer's growing interest in adopting Python. | • This indicates a growing interest in Machine Learning Framework and data sciences packages.<br>• Python backend web development framework such as Django or Flask is a good skills to learn.<br>• Proficiency in Python will increase competitiveness in the future job market. |
| SQL was the third most used language in 2019, and the following year's trend shows that many developers want to adopt SQL in their work. | • This shows that SQL is still the dominant querying language for relational databases even with the existence of non-relational and NoSQL databases. |

# DATABASE TRENDS



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

| Findings | Implications |
| --- | --- |
| MySQL is the most used database by developers in 2019. | • Shows that learning MySQL is recommended for anyone starting to work with databases. |
| Redis and ElastiSearch have appeared in the top 5 of next year desired database. | • Learning to use both of these databases will be helpful in the future and increase your value for the job market. |
| MongoDB, Redis and ElastiSearch appear in the top 5 desired databases. | • An indication that the NoSQL database is becoming more important in the database usage.<br>• Learning how to use a NoSQL database can be an edge in the developer job market. |

# DASHBOARD

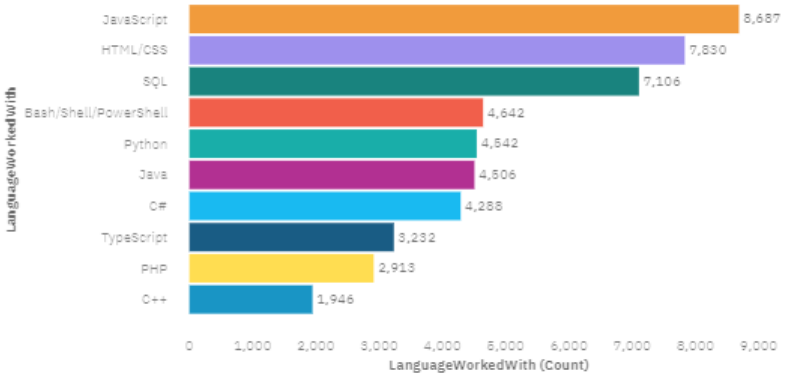
[Click here to see the dashboard]

Usually it takes a few minutes for the entire Cognos Dashboard to load

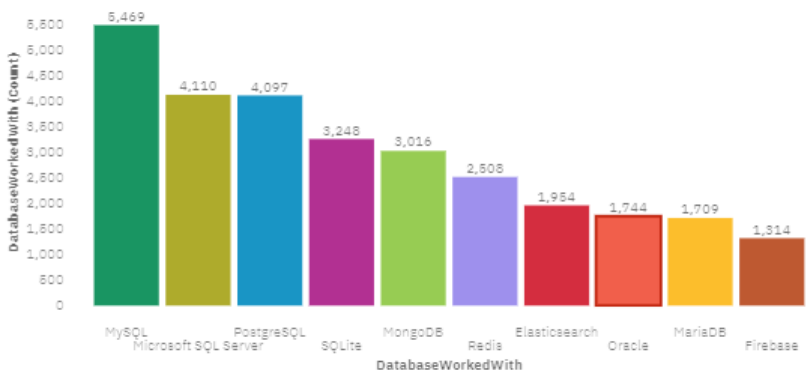
# DASHBOARD TAB 1

Current Technology Usage | Future Technology Trend | Demographics

### Top 10 Languages Used by Developers in 2019

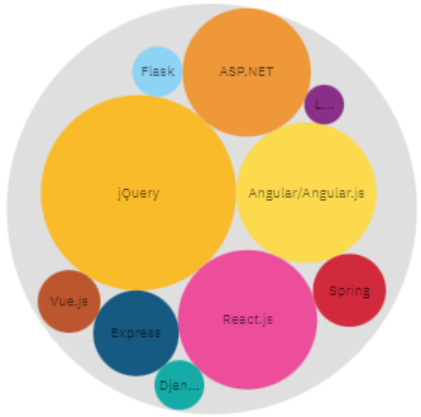



### Top 10 Databases Used by Developers in 2019




### Platforms Used by Developers in 2019

### Top 10 Web Frames Used by Developers in 2019

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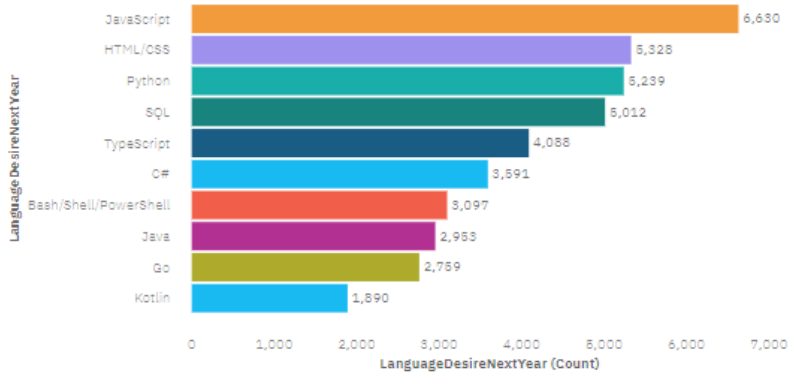
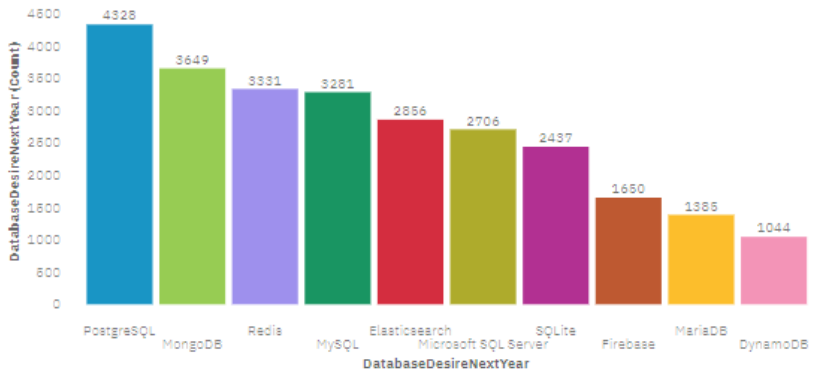
# DASHBOARD TAB 2

Current Technology Usage | Future Technology Trend | Demographics

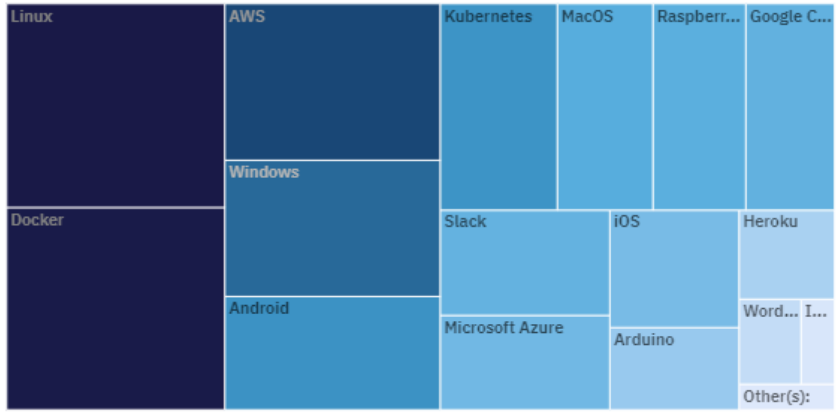
### Top 10 Languages Desired for the Next Year in 2019




### Top 10 Databases Desired for the Next Year in 2019




### Platforms Desired for the Next Year in 2019




### Top 10 Web Frames Desired for the Next Year in 2019

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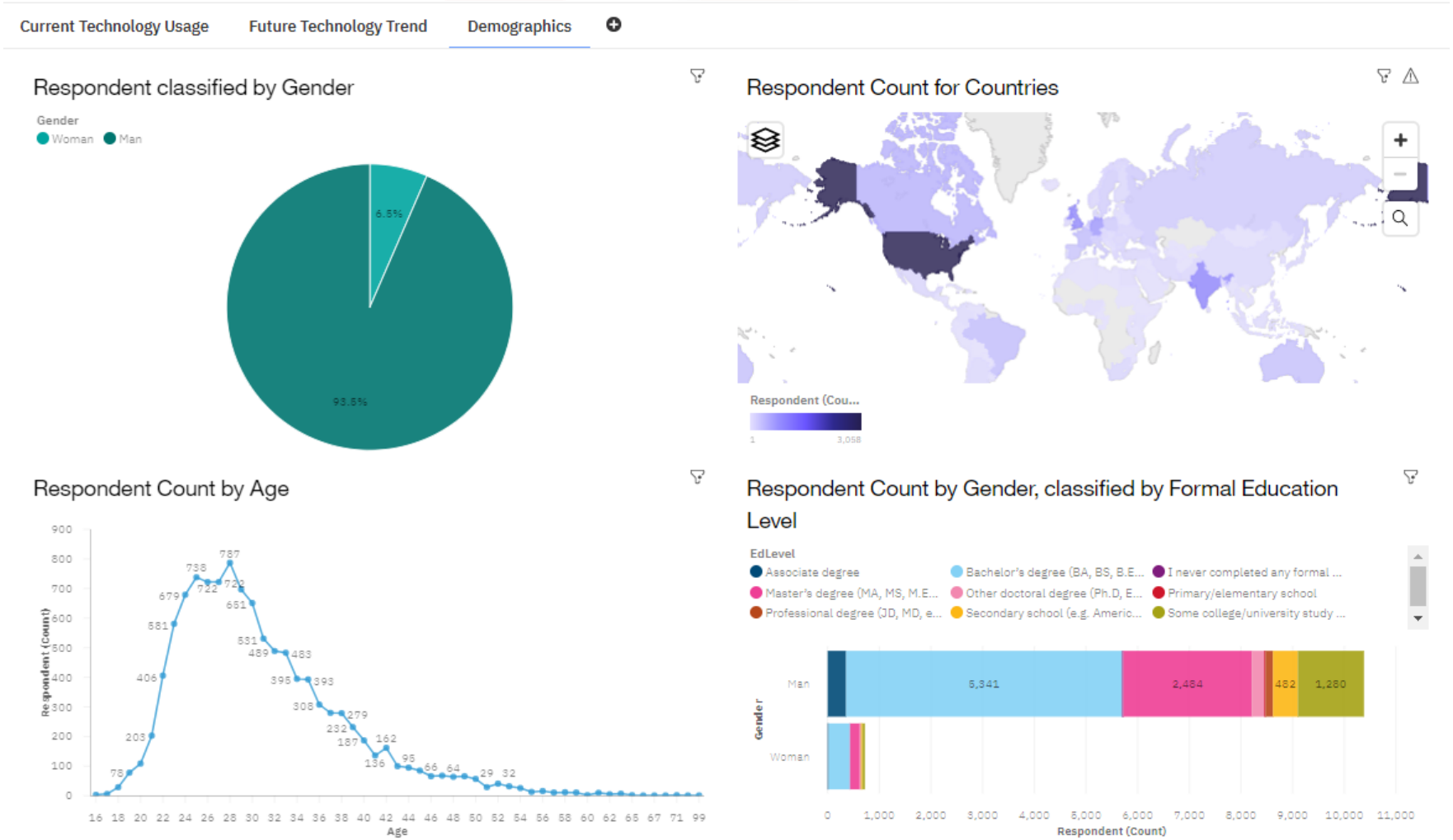
# DASHBOARD TAB 3

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# DISCUSSION

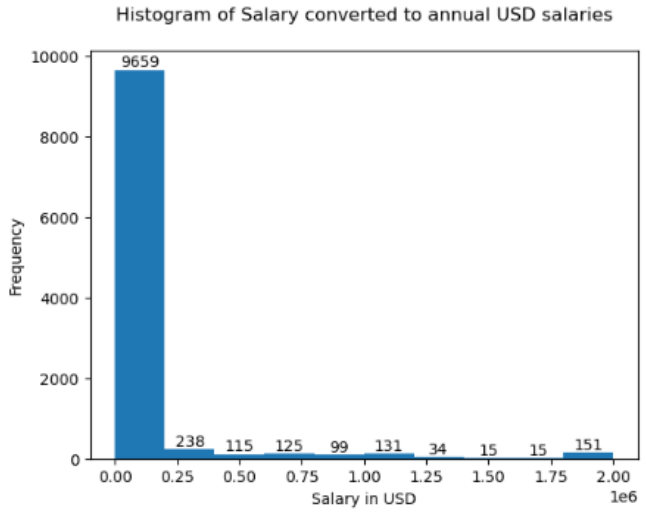
# OVERALL FINDINGS & IMPLICATIONS

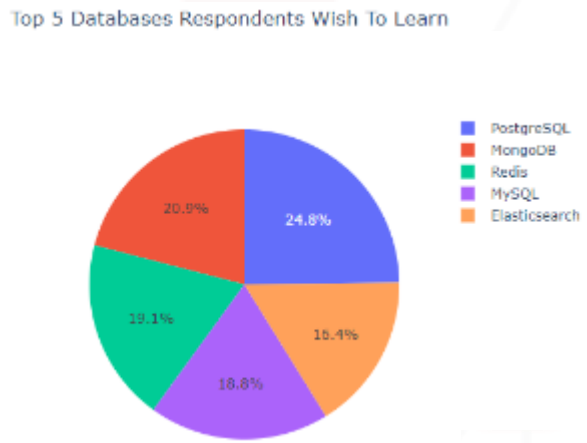
| Findings | Implications |
| --- | --- |
| JavaScript with HTML/CSS was the most used language in 2019, and it is also the top 2 most desired language for the next year. | • For aspiring front-end developers, learning JavaScript or HTML/CSS is a good start.<br>• Also shows that web development has a strong demand in the developer fields. |
| MongoDB, Redis and ElastiSearch appear in the top 5 desired databases for the next year. | • This indicates the growing demand to work with the NoSQL database.<br>• For developers looking to work with a NoSQL database, MongoDB, Redis and ElastiSearch would be a great start to increase your value in the job market. |
| Python is the 5th most used and 3rd most desired language to use by developers. | • Python, the most accessible language due to its simplified syntax and mature support from the community, is an excellent language to learn for software testing and prototyping.<br>• This could also indicate a growing interest in available web frameworks in Python, such as Flask and Django.<br>• Python is also a good language for aspiring backend developers or full-stack engineers.. |

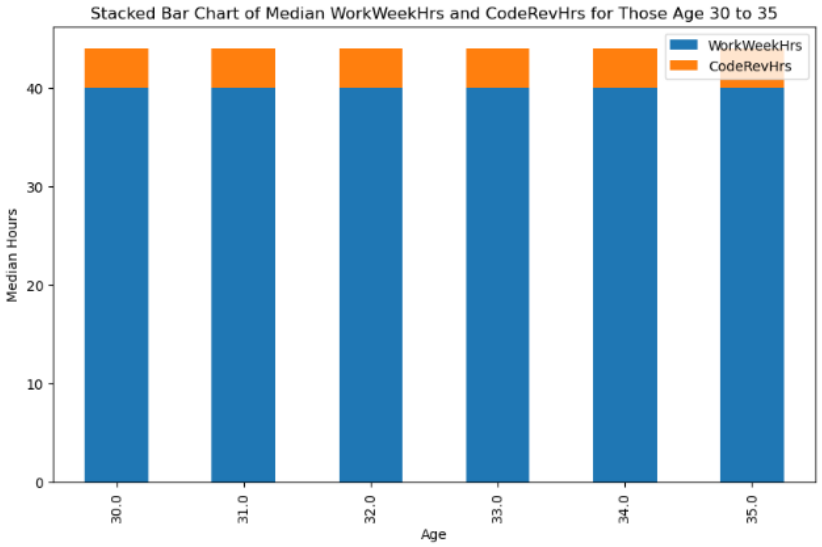
# CONCLUSION

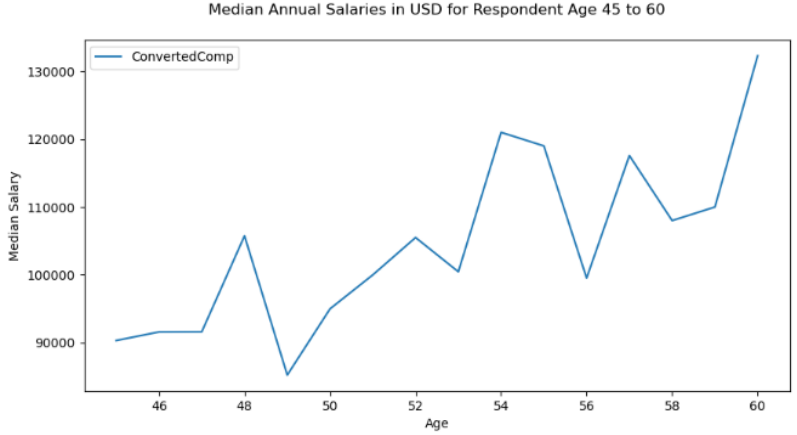
- Anyone venturing into front-end development, JavaScript and HTML/CSS will continue to be a good starting point
- NoSQL database is on the rise, and it is a good time for developers to learn it for futureproofing.
- Although Python was not the primary language used by developers, for back-end developers, Python continue to be a powerful tool.
- Most respondents entered their developer role with a bachelor's degree.

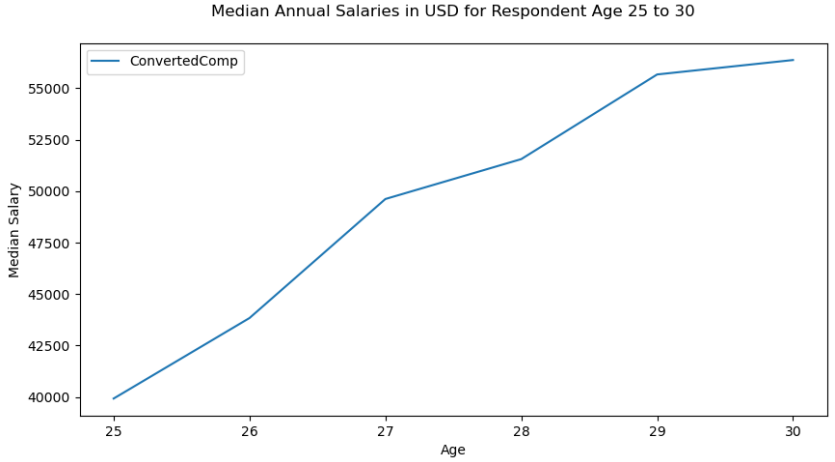
# APPENDIX

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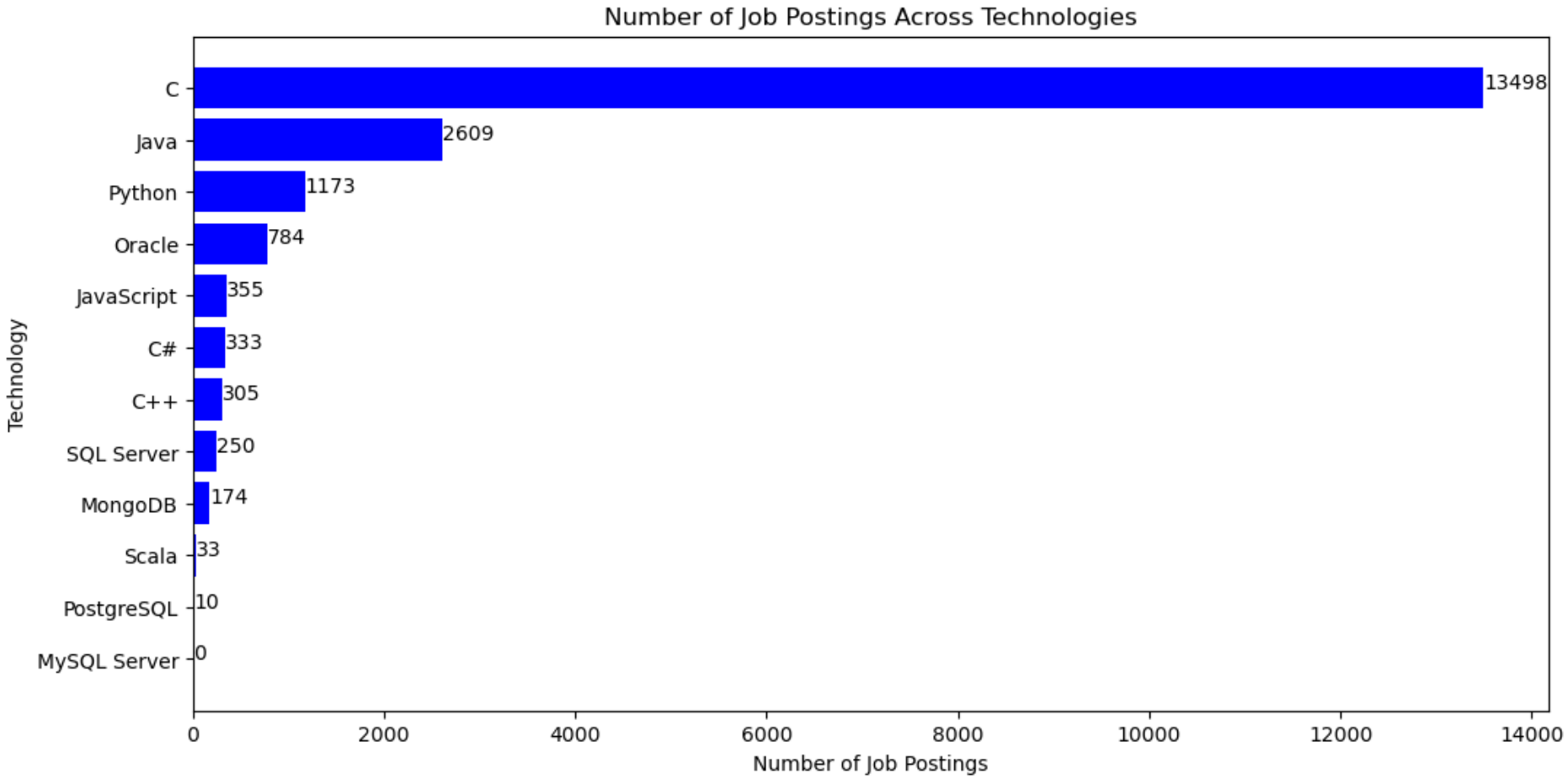
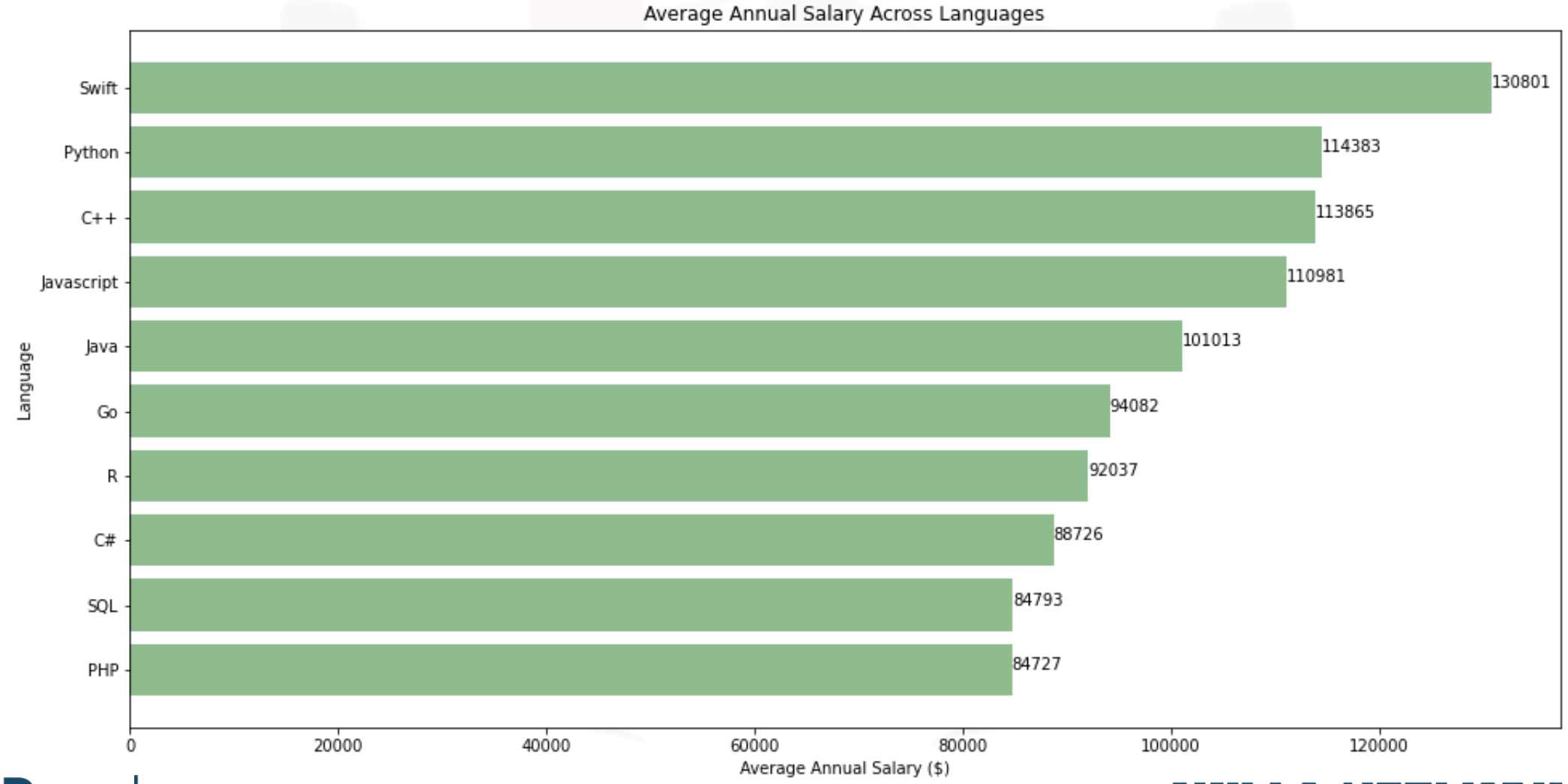
# JOB POSTINGS



# POPULAR LANGUAGES