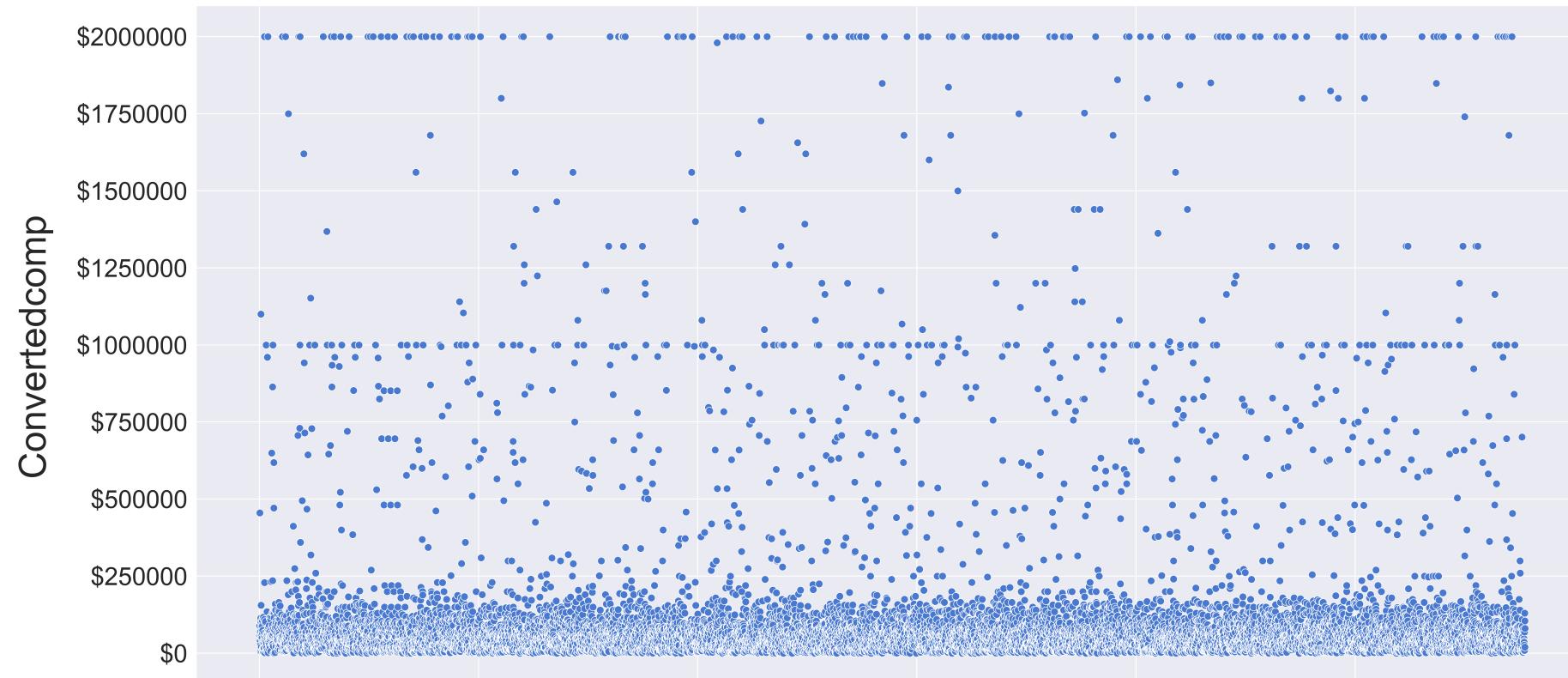


AN EXPLORATION OF PROGRAMMER SALARIES

What makes a difference?

All Salaries - Yearly



Nathan Price

8/04/2021

OUTLINE



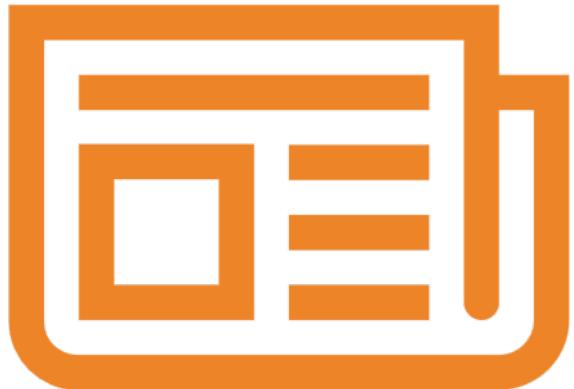
- Executive Summary
- Methodology
- Results
 - Visualization – Charts
 - Dashboard
- Discussion
 - Findings & Implications
- Conclusion

EXECUTIVE SUMMARY



- Large range of salaries – from \$0 to \$2,000,000
- Salary dependent on several factors
- Impact of those factors differs country to country
- Some factors less important than commonly thought

METHODOLOGY



- Extensive Data Cleaning & Feature Engineering
 - Outlier Removal
 - NaN value removal
 - Converting numerical variables to Categorical (e.g. Number of Languages known category; low, medium, high)
 - Converting categorical variables to numerical (e.g. Education Level)
 - Engineering Geographical data (e.g. Country to Continent)

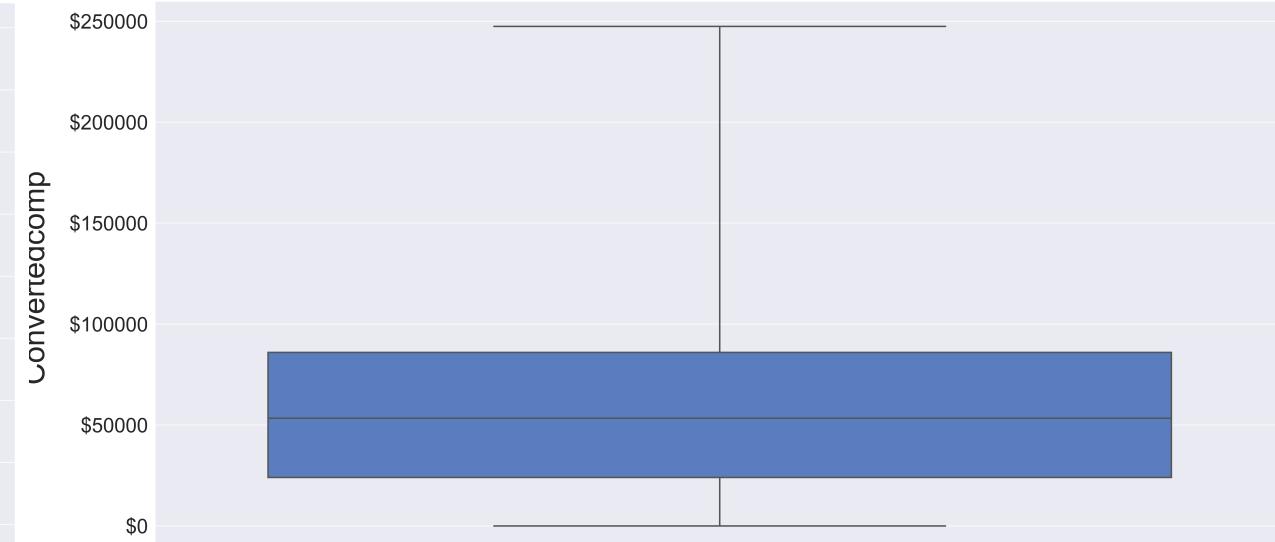
What is the range of salaries globally?

Note different y-axis scale

Salaries For All Respondents - Inc Outliers



Salaries For All Respondents - Outliers Removed



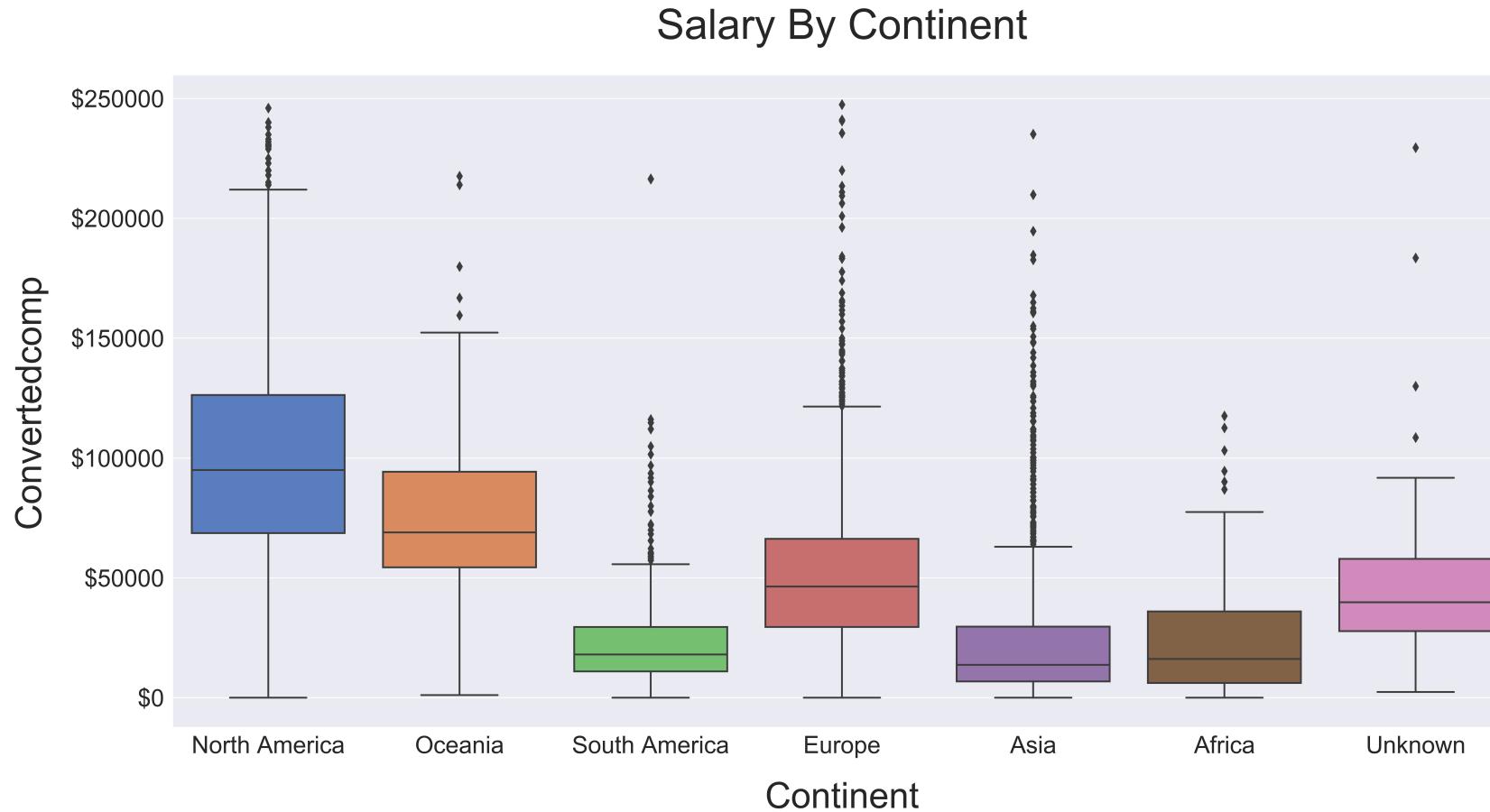
Observations

- Large range of salaries - \$0 to \$2,000,000
- Outliers are salaries above \$250,000 globally
- Median salary ~\$50,000 after outlier removal

Notes

- All further analysis has been done with the outliers removed.
- Dataset now only contains salaries less than \$250,000

What is the range of salaries by country?



Observations

- Median salary is highest in North America - ~\$100,000
- Median salary in South America, Asia, Africa roughly the same ~\$25,000
- North America has highest number of salaries over \$100,000
- Europe & Asia have a large amount of high salary outliers

What is the effect of Language popularity on salary?



Observations

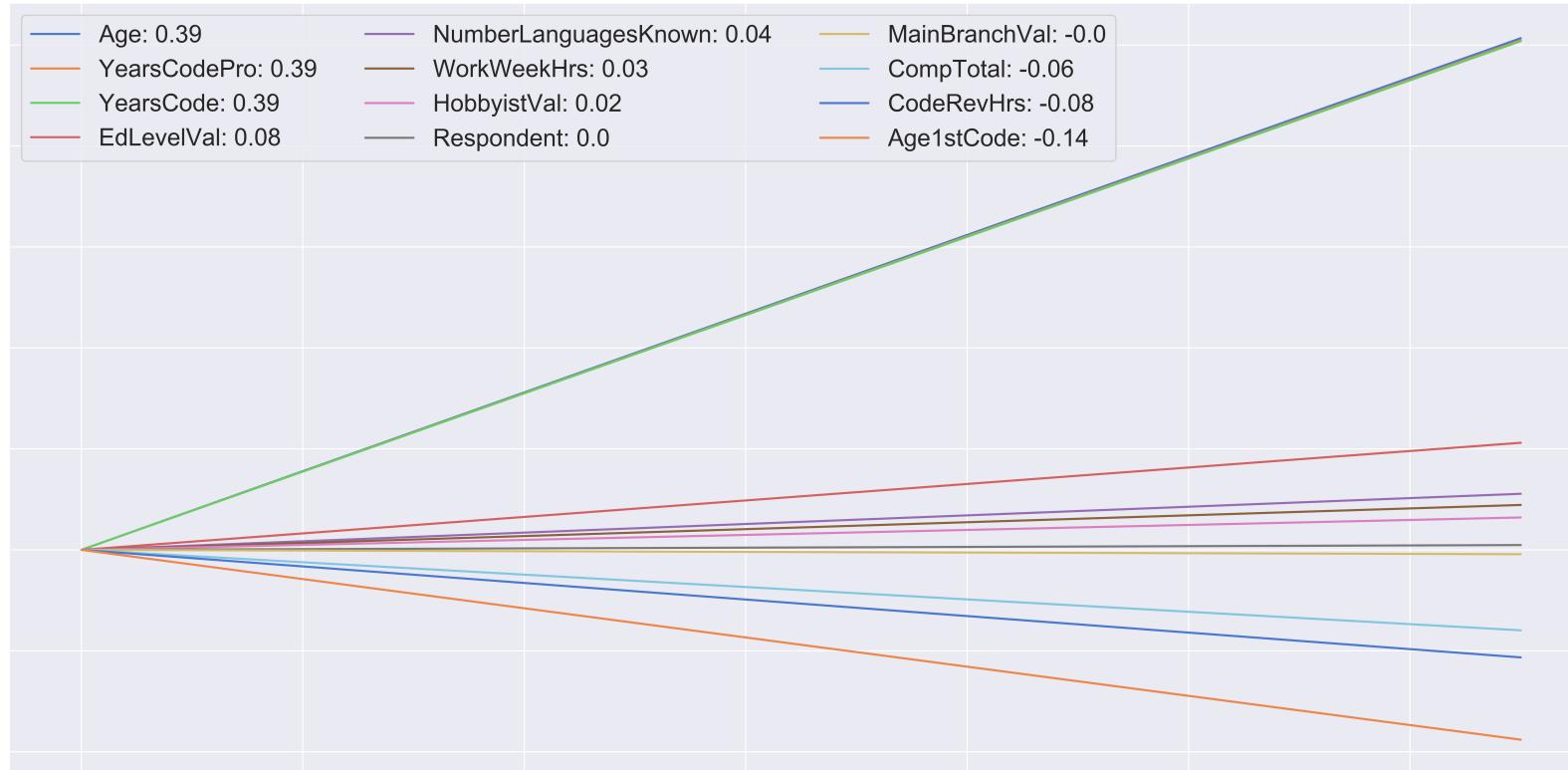
- No clear trend between language popularity and salary
- Swift is the highest average salary, but one of the lowest by count
- C++ and Python have similar average salaries, but different counts

Notes

- Count is the frequency with which a survey respondent mentioned a language – may not be their only language
- Average salary value scraped from [here](#)

What Features Affect Salary?

Strength Of Correlation For All Features - Globally



Observations

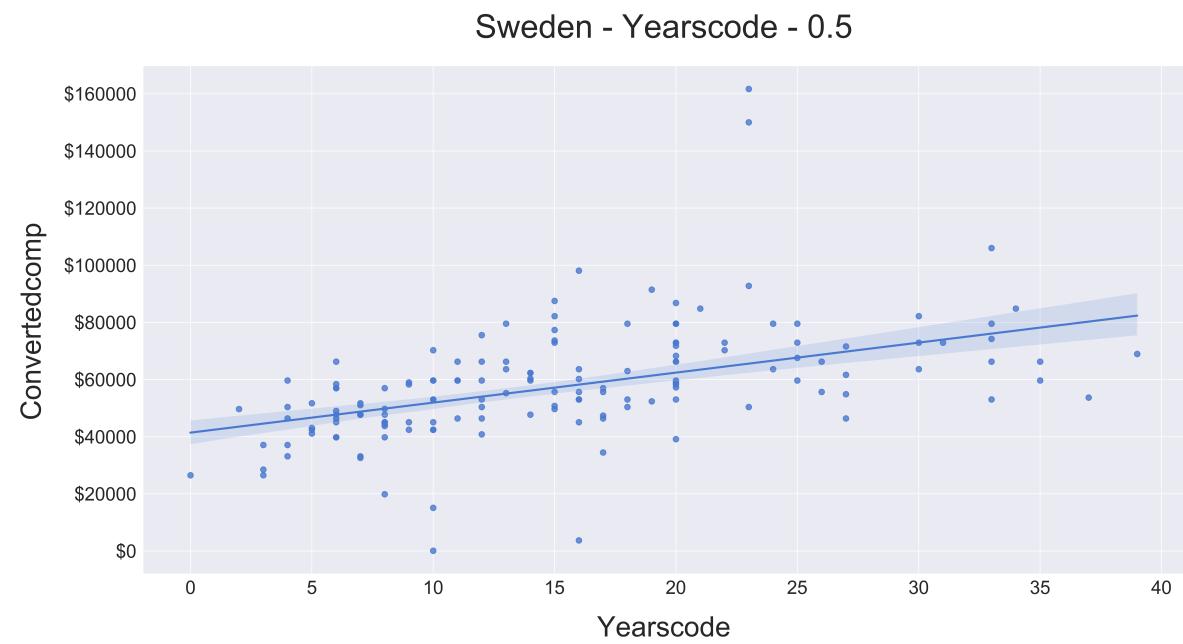
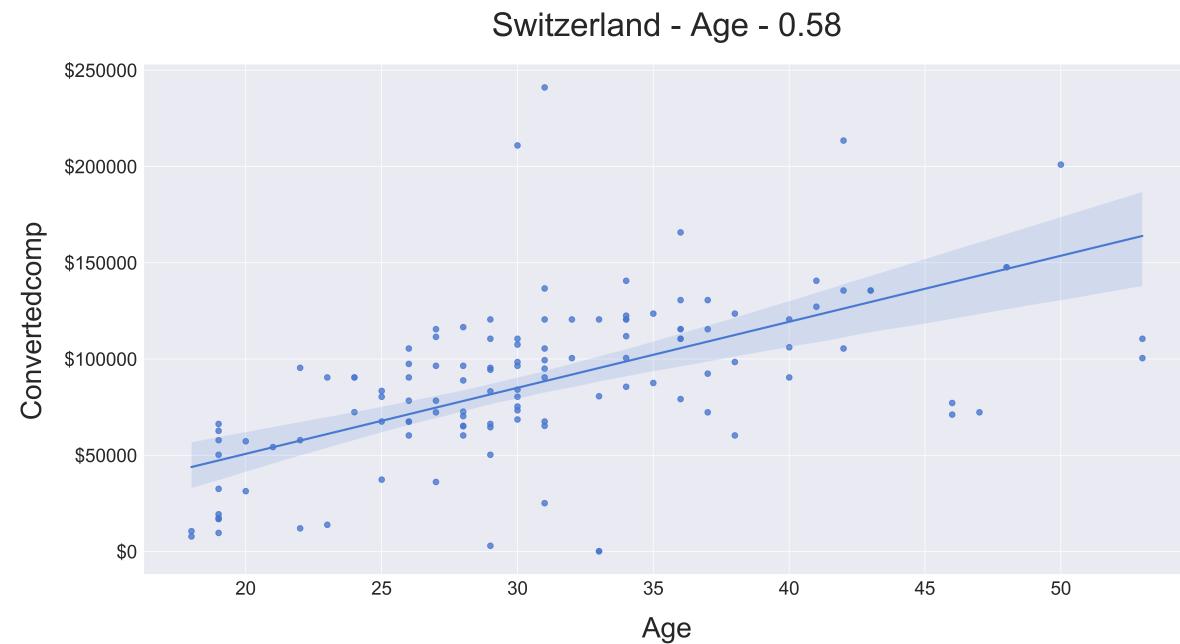
- Age, Years Coding Professionally and Years Coding all have the same low positive correlation on Salary
- No overwhelmingly strong correlation

Notes

- The closer to 1, -1 a feature is the stronger positive or negative correlation it has with Salary

What is the Most Affecting Feature by Country?

Note different y-axis scale



Observations

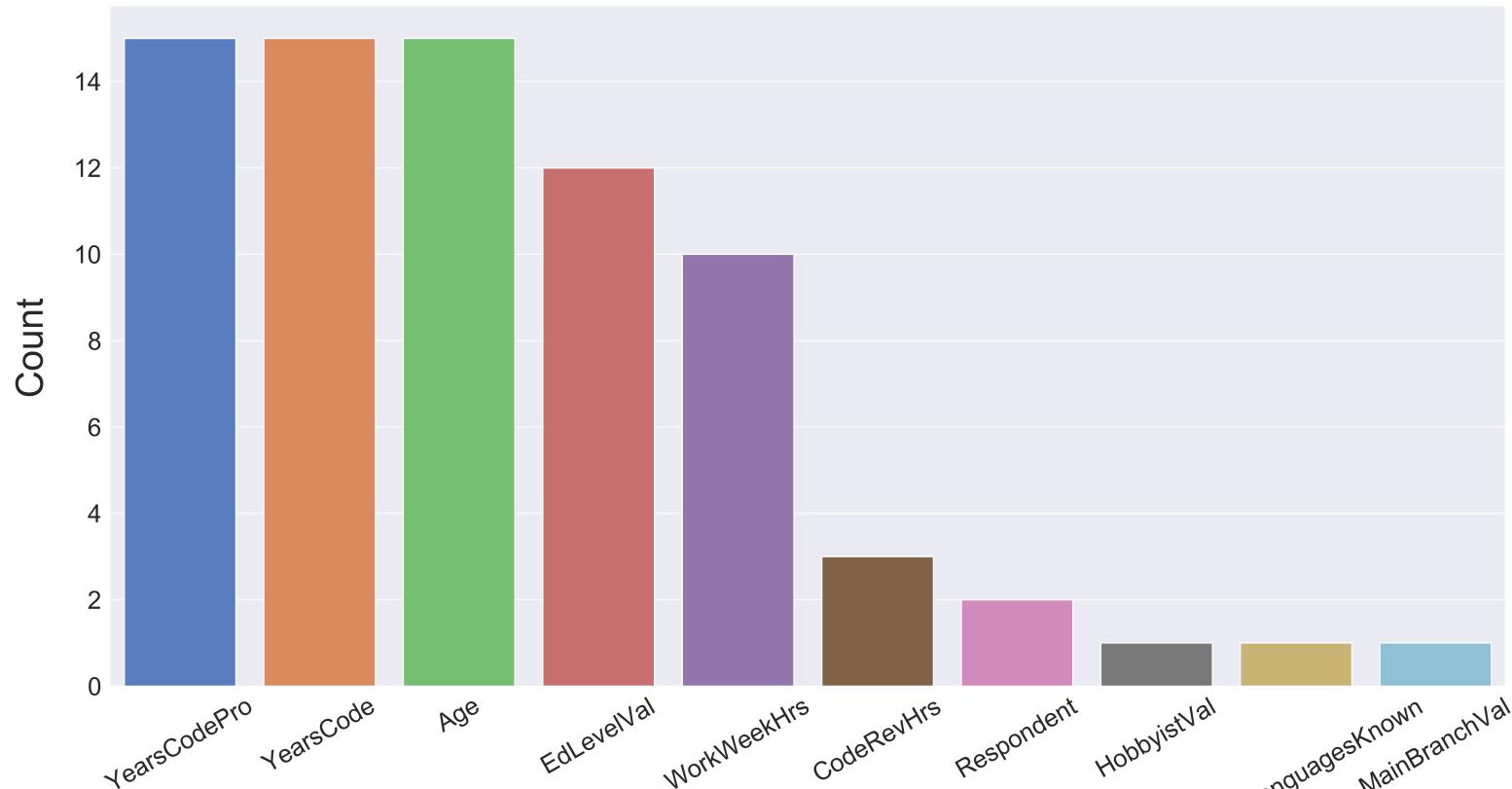
- The feature with the largest effect on salary varies country to country.

Notes

- Feature chosen is strongest correlating feature for that country

What's the Most Frequent Correlating Top 5 Features?

Count Of Top 5 Features For All Countries



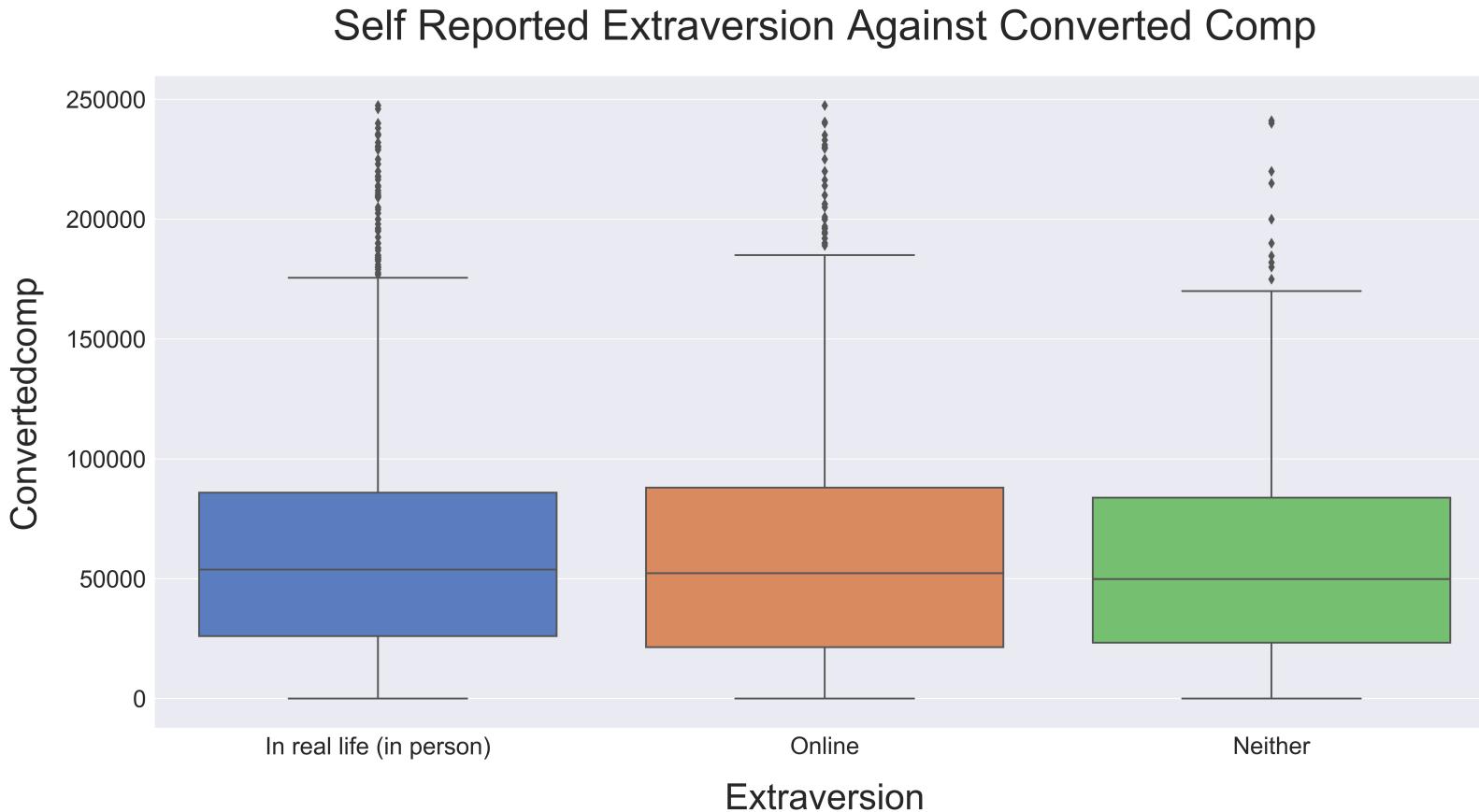
Observations

- Age, Years Coding Professionally, Years Coding appear the most (14)
- Education Level is the next most common feature

Notes

- Feature chosen is the 5 strongest correlating feature for that country

Does Extraversion Affect Salary?



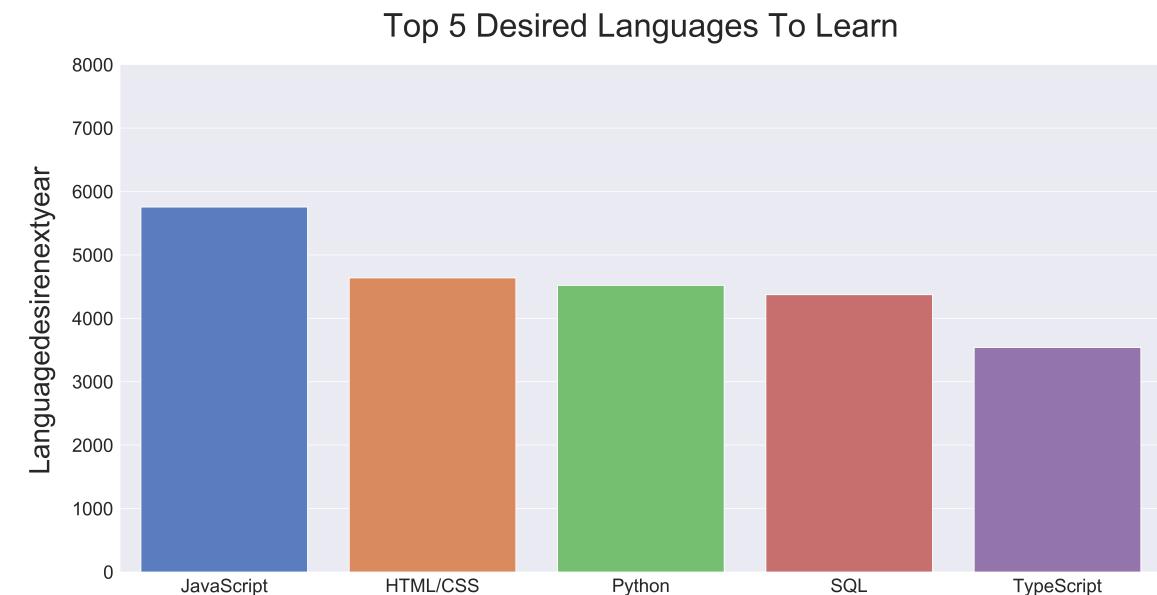
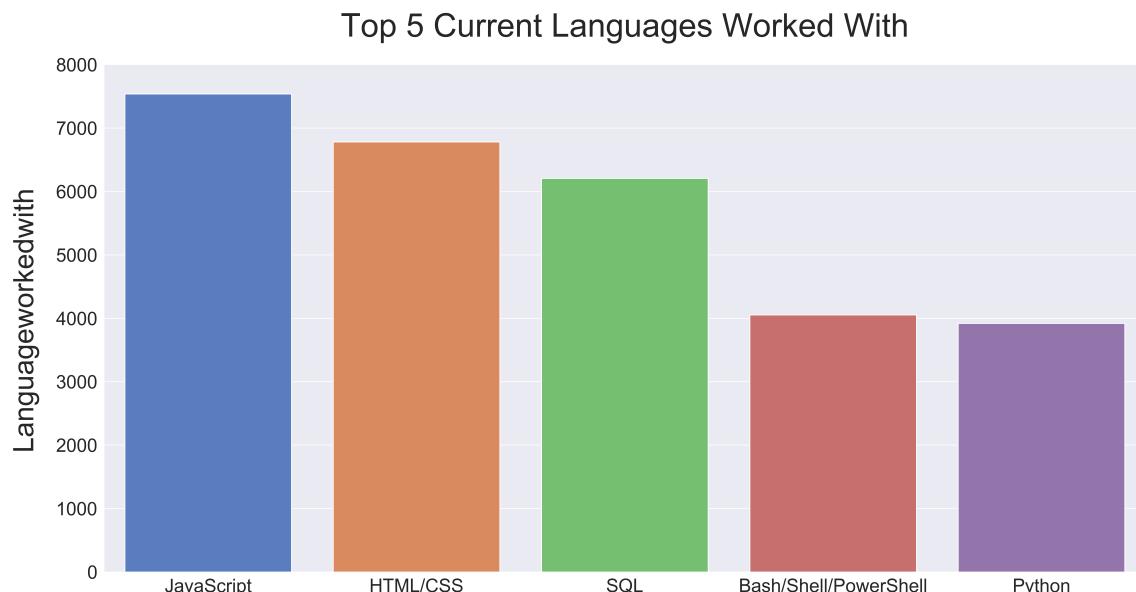
Observations

- Against [conventional wisdom](#), there is very little difference between extravert's vs introvert's salaries

Notes

- Survey participants were asked to label themselves between the three categories.

PROGRAMMING LANGUAGE TRENDS



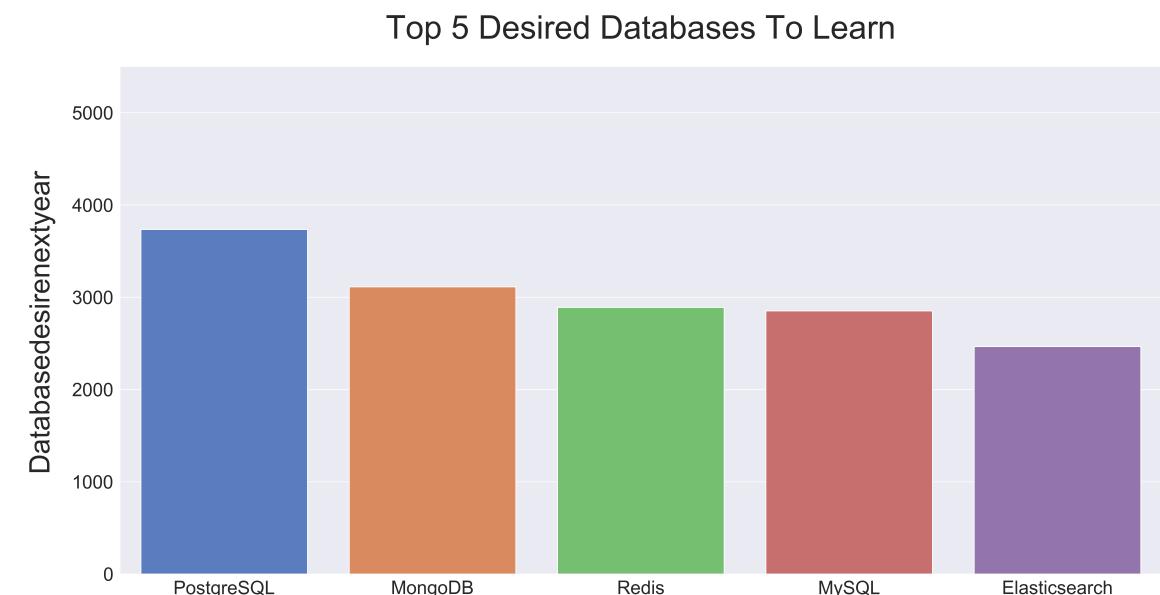
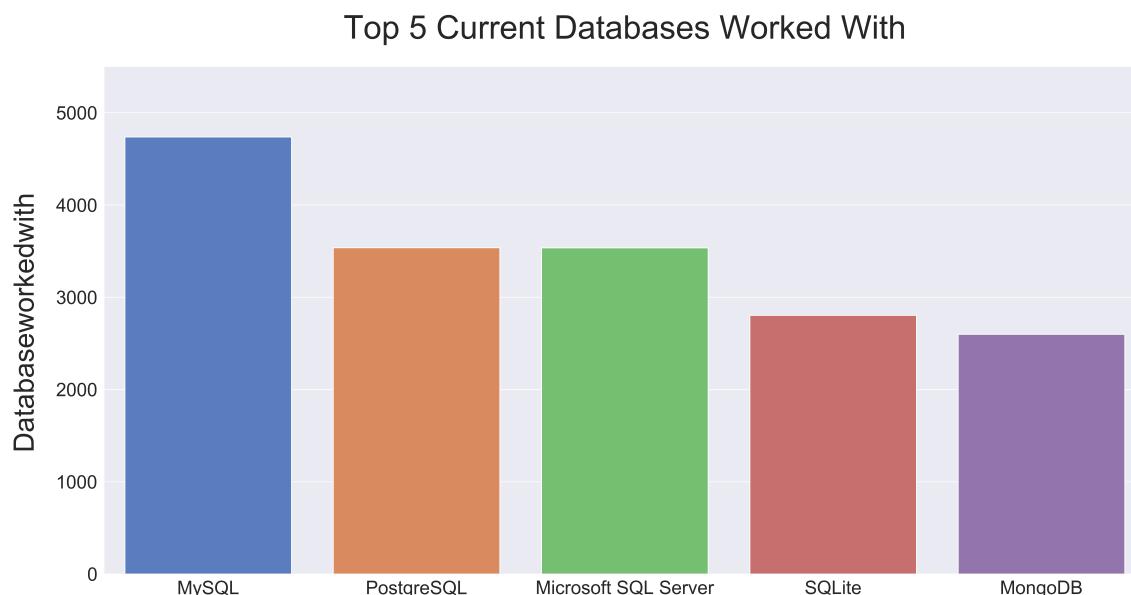
Observations

- JavaScript, HTML/CSS, SQL & Python are both popular currently and to learn
- Large desire to learn typescript not reflected in current languages (8th most popular)

Notes

- Some survey participants work with & desire to learn multiple languages

DATABASE LANGUAGE TRENDS



Observations

- MySQL most common database system known/used
- Microsoft SQL Server not a desired language to learn, despite being 3rd most commonly known/used.

Notes

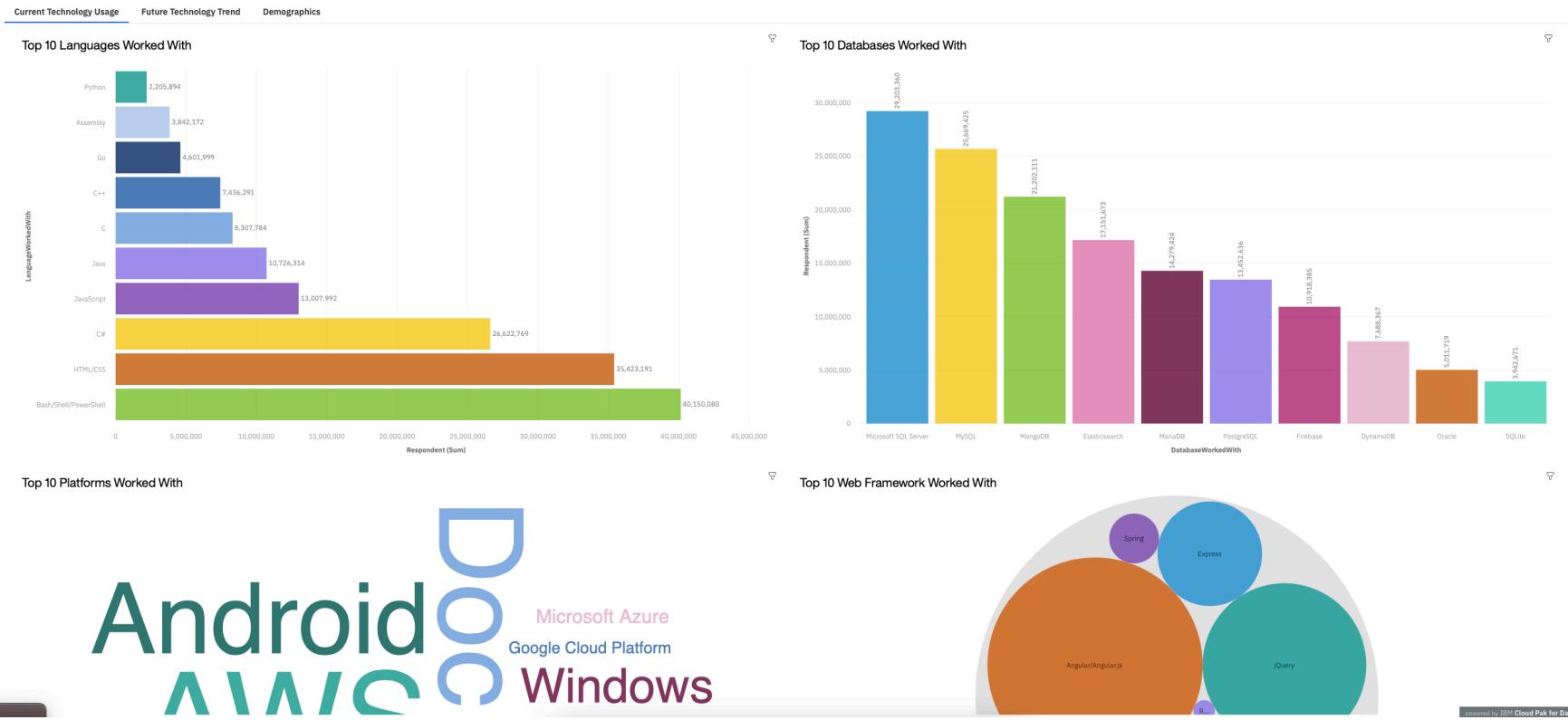
- Some survey participants work with & desire to learn database systems

DASHBOARD

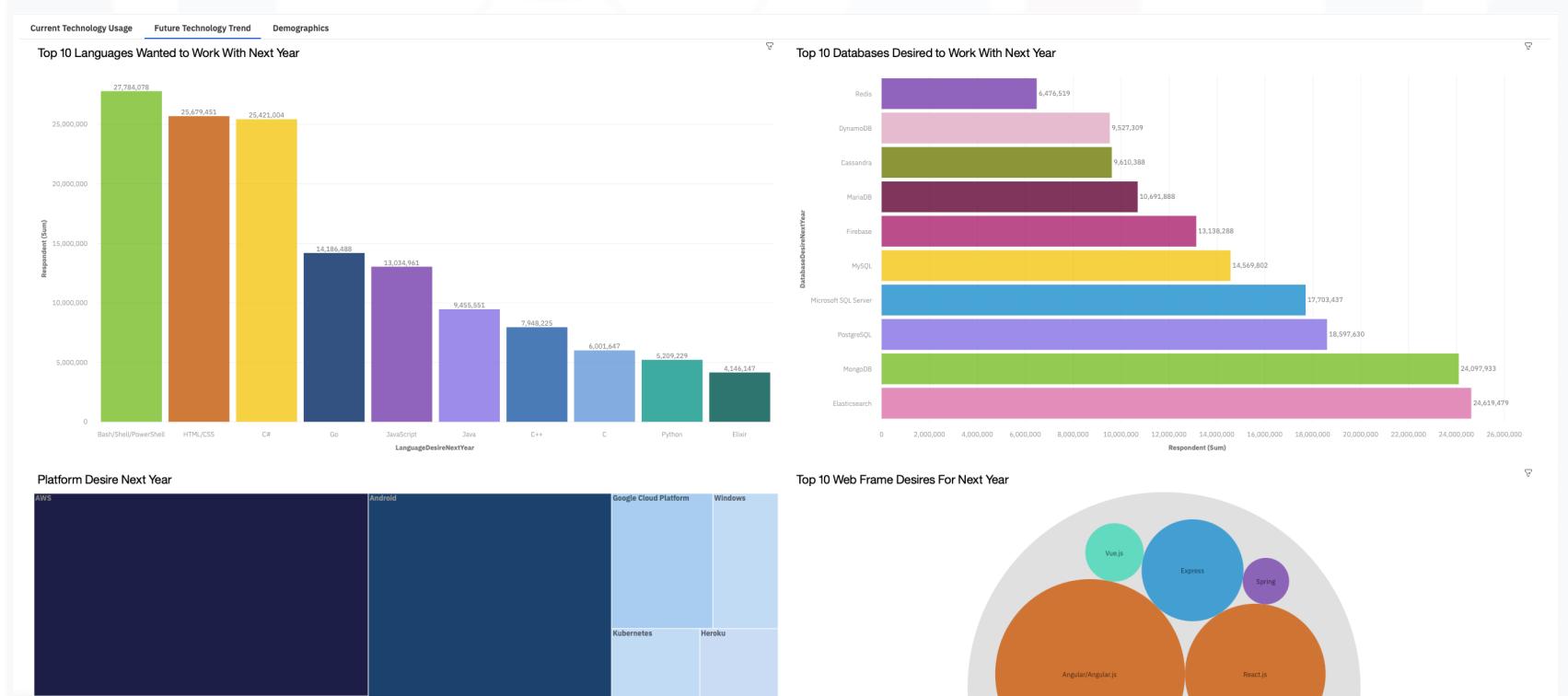


[Dashboard Link](#)

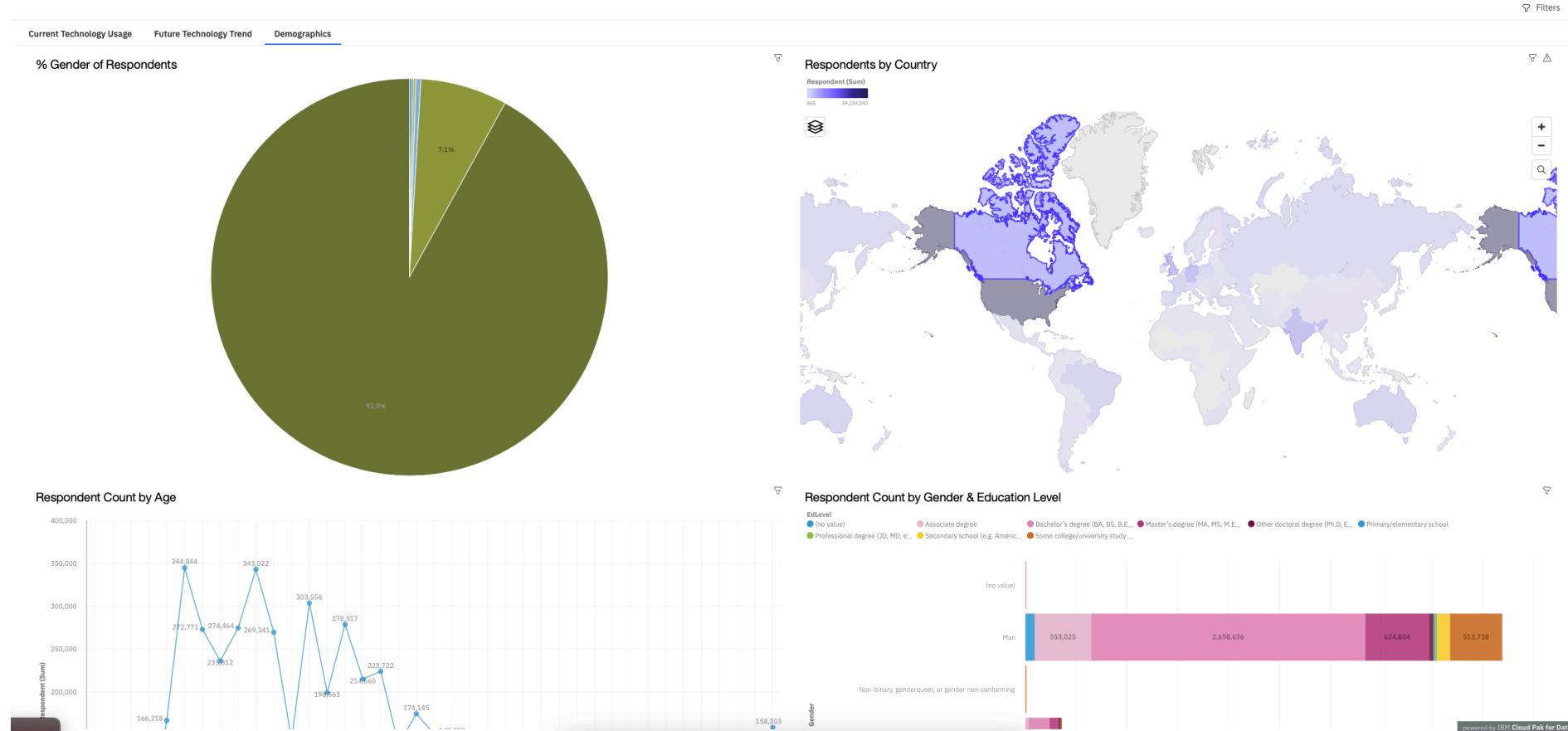
DASHBOARD TAB 1



DASHBOARD TAB 2



DASHBOARD TAB 3



OVERALL FINDINGS & IMPLICATIONS

Findings	Implications
Salary affecting feature strength vary by country	Depending on your location you should focus on different aspects of your professional development
Large Salary Range	<ul style="list-style-type: none">• Large variance in salaries dictated by a number of factors• Important to take your own situation into account when making comparisons
Age & Professional Experience most common strongest correlator to salary	Best thing you can do to improve your salary is just get older!

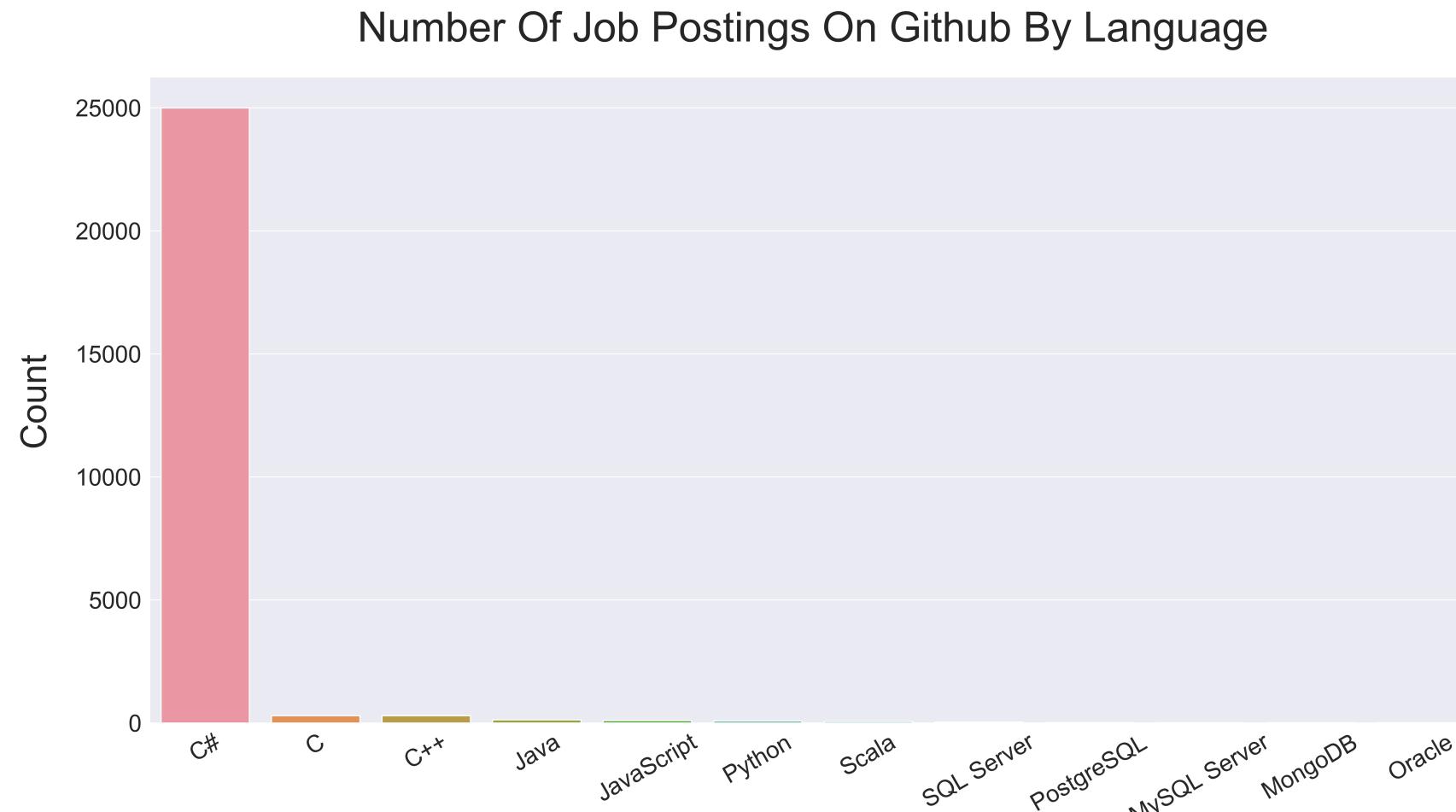
CONCLUSION



- Be careful comparing yourself to others!
- Unable to assert anything regarding trends in language / database without more detailed time series data
- Age, Years spent as a Professional most common features affecting salary
- Language popularity seems to have no relationship to average salary for language

GITHUB JOB POSTINGS

Jobs for C# vastly outweigh all others



POPULAR LANGUAGES

Average Salary By Language - Web Scraped

