



TECHNOLOGY TREND ANALYSIS

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OUTLINE



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EXECUTIVE SUMMARY



- Skills required in the fields of IT are constantly changing and evolving.
- This Analysis yield insights regarding the following:
 - Most widely used languages, databases and other technologies at time of data collection.
 - Attitude of programming languages, databases, Web frames in future.
 - Demographics Survey for gender and country difference.
- These finding are important to help aspiring data developers and for the firms to make more accurate data driven hiring and budgetry decisions.

INTRODUCTION



The analysis have done to help the stakeholders and business decision makers in the global IT sector and business consulting services firm.



Purpose of analysis:

Identifying top trending languages, databases, web frames and platforms in demand

Identifying the future trending skills

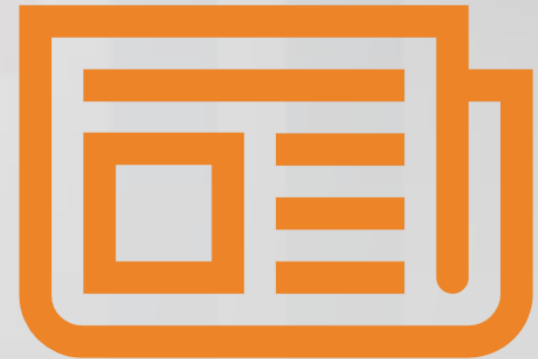
Identifying the human resource gap in society



Identifying the future skill requirements changing in the IT sectors to make the firm keep pace with the trending technologies and make their decisions accordingly.

METHODOLOGY

- **Data Sources**
 - 2019 Stack Overflow Developer Survey Dataset
 - GitHub Survey Dataset
- **Data Wrangling**
 - Finding and removing the duplicates and missing values
 - Normalizing Data
 - Exploring the dataset
- **Analysis and Visualization**
 - Analysis of dataset and visualization done with SQL queries and pandas' libraries.
 - Dashboard drawn on Cognos gives following:
 - Technologies Usage Trend
 - Desired Technologies for upcoming year
 - Demographics (Country and Gender Difference)

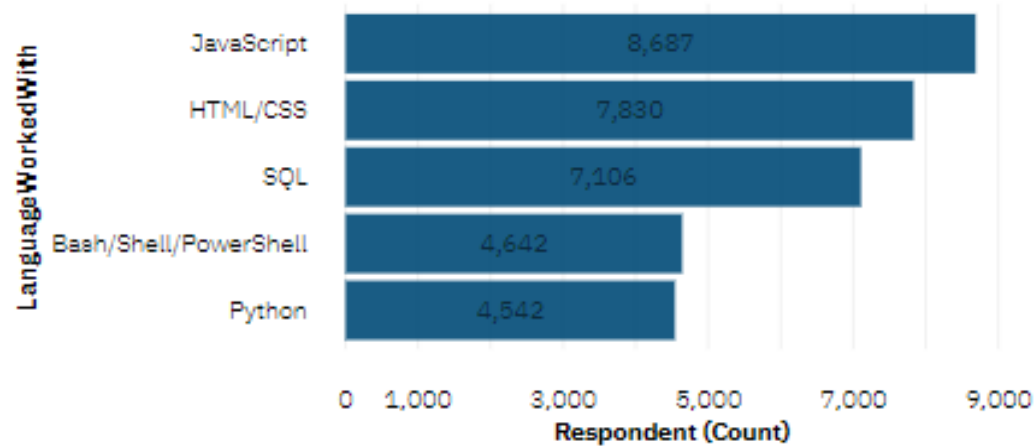


RESULTS: PROGRAMMING LANGUAGE TRENDS

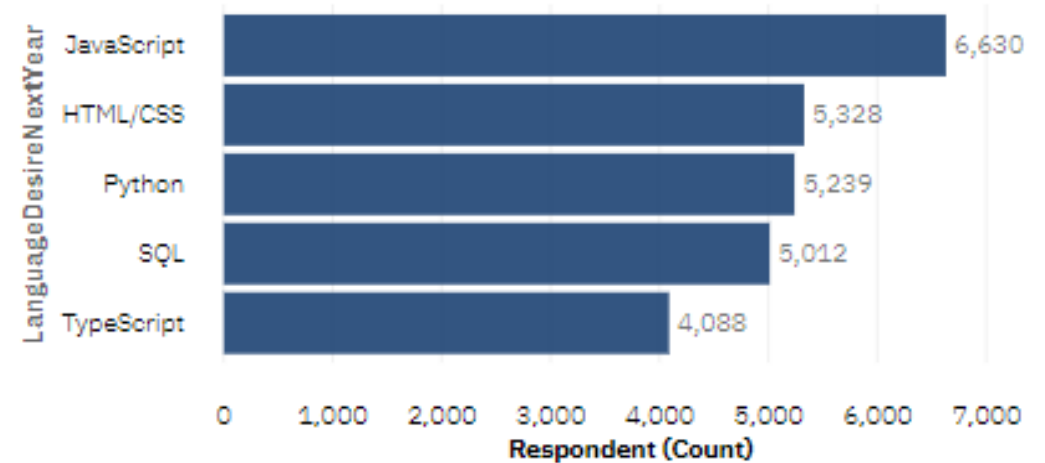
Current Year

Next Year

Top 5 Languages



Top 5 Languages Desired Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

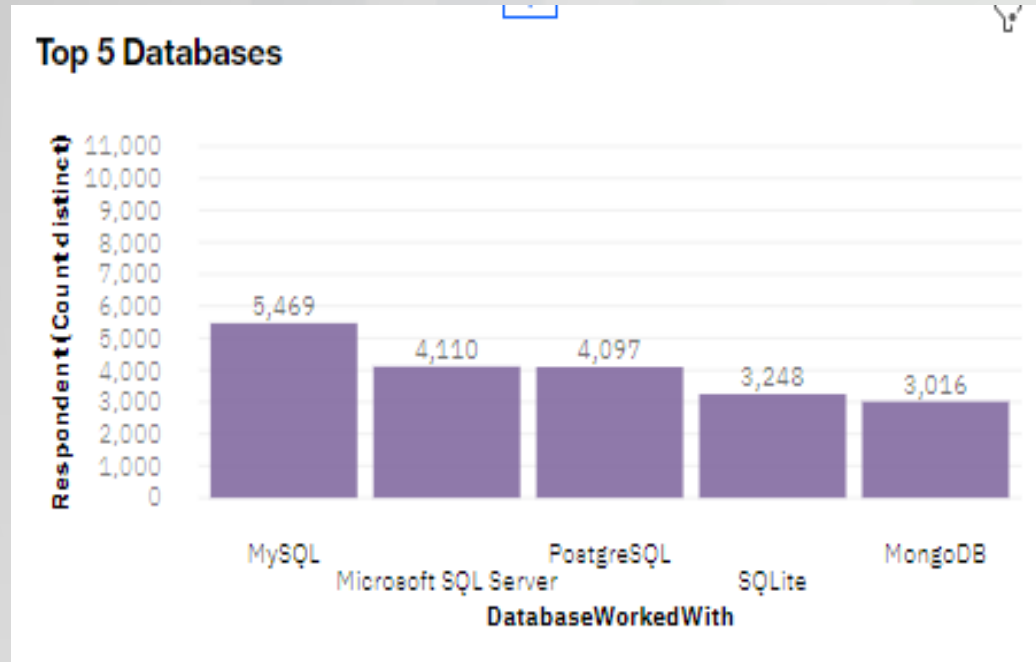
- JavaScript and HTML/CSS are the most popular programming languages in 2019 and likely to remain so in the next year.
- Python will become more popular in the upcoming year.
- Bash/Shell/PowerShell and Typescript will likely lose interest in the future.

Implications

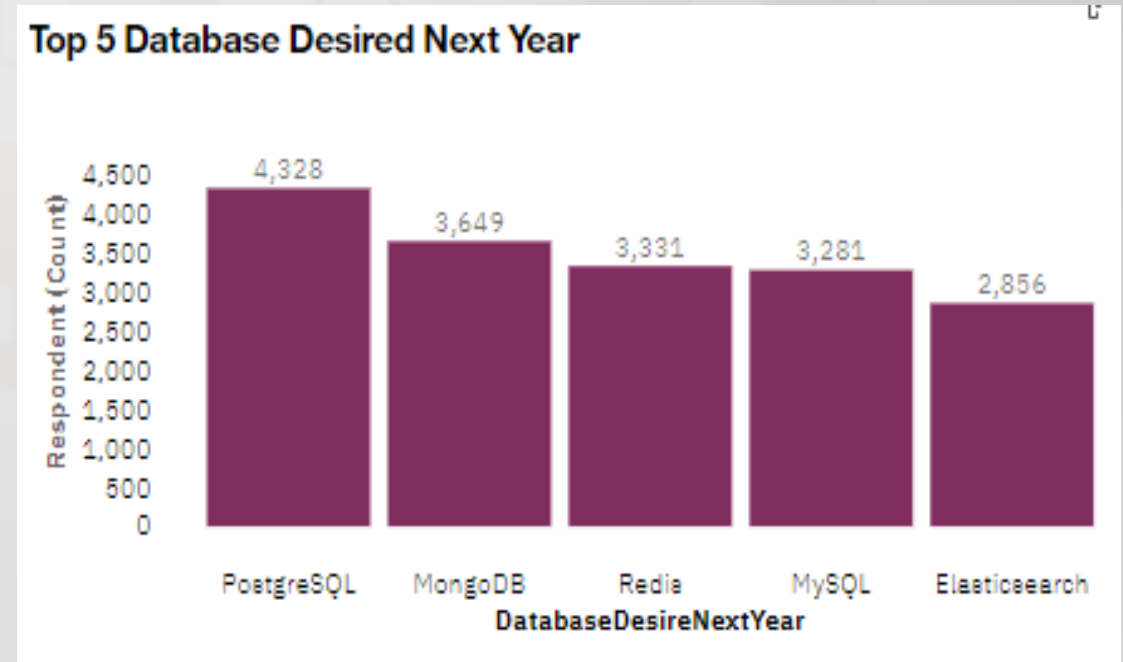
- Hired more JavaScript and HTML/CSS skilled employees as web development remain in demand.
- Hired more python skilled people as it will become a popular language in future.
- SQL remain in demand for Big data storage and queries.

RESULTS: DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- SQL Database is more popular with MY SQL in the lead at the time of collecting data.
- Postgre SQL is going to be the most popular SQL database in the following year.
- MongoDB is not popular now, but it is gaining interest in future.

Implications

- Engage more people skilled in Postgre SQL and MongoDB as these are the popular databases in the upcoming years.
- NoSQL database is gaining popularity which refers to the growing need to handle the unstructured and relational data.

DASHBOARD

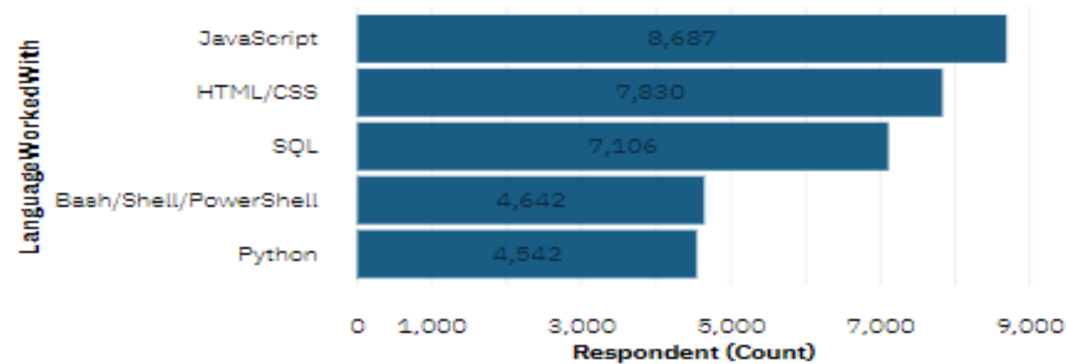
The Cognos Dashboard summarizes the whole survey data into 3 tabs:

1. Technology Usage Trend
2. Future Technology Demand
3. Demographics

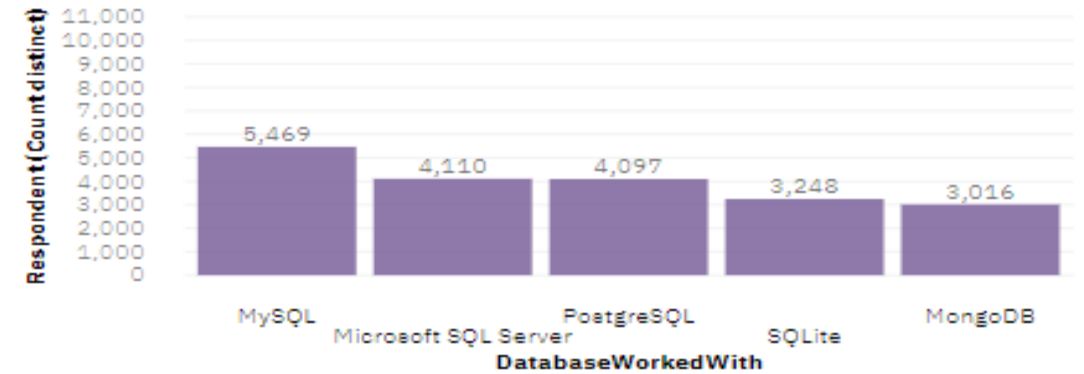
[<Cognos Dashboard link>](#)

DASHBOARD A: (TECHNOLOGY USAGE TREND)

Top 5 Languages



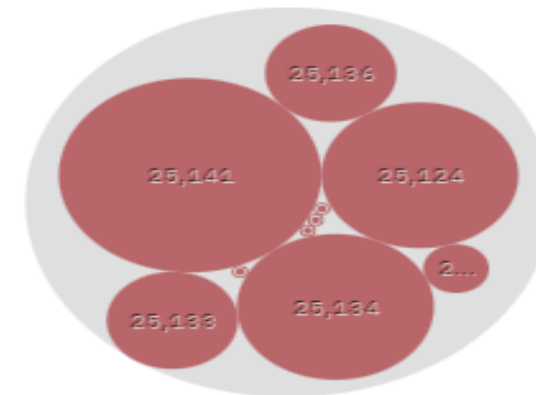
Top 5 Databases



Frequently used Platforms

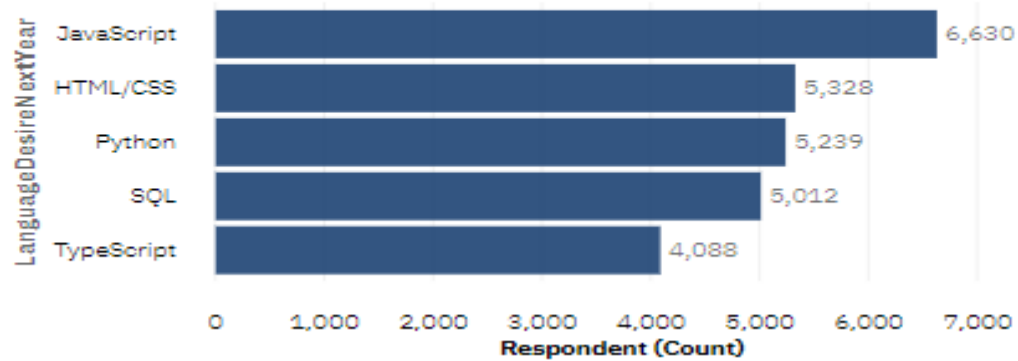


Top 10 Web Frames

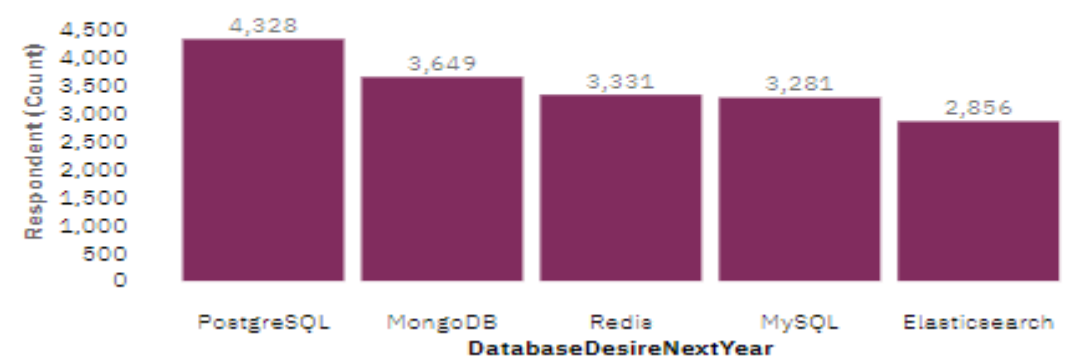


DASHBOARD B (FUTURE TECHNOLOGY TREND)

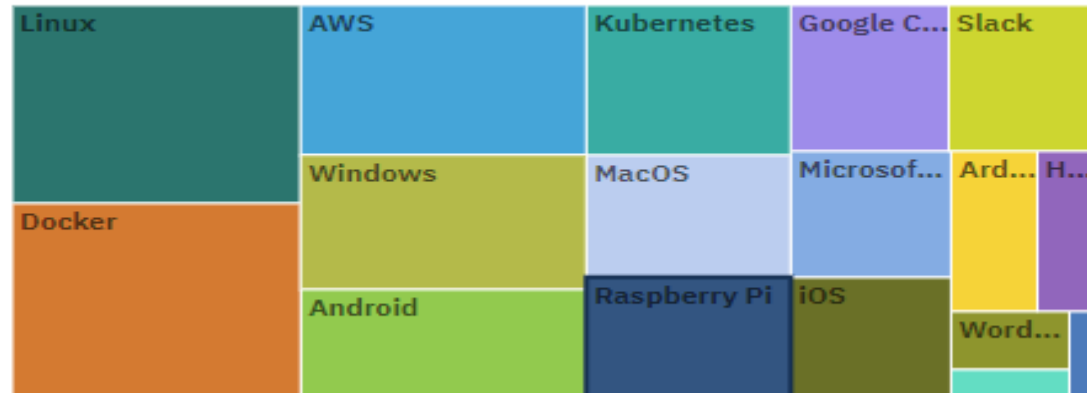
Top 5 Languages Desired Next Year



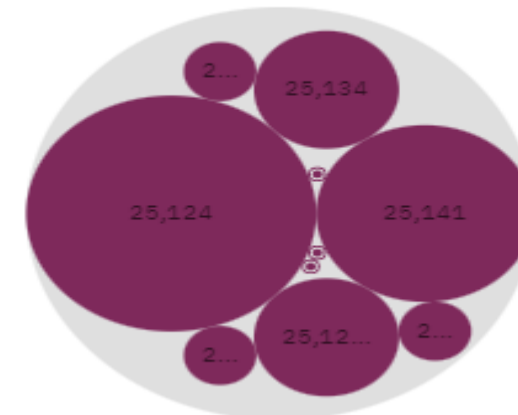
Top 5 Database Desired Next Year



Platform Desired Next Year

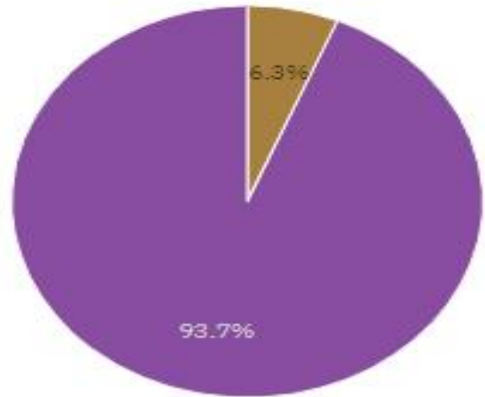


Top 10 WebFrame Desire Next Year



DASHBOARD C (DEMOGRAPHICS)

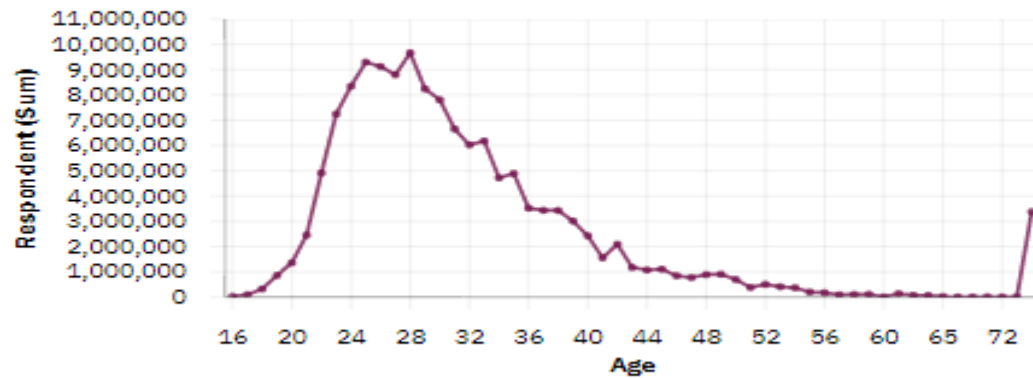
Respondents classified by Genders



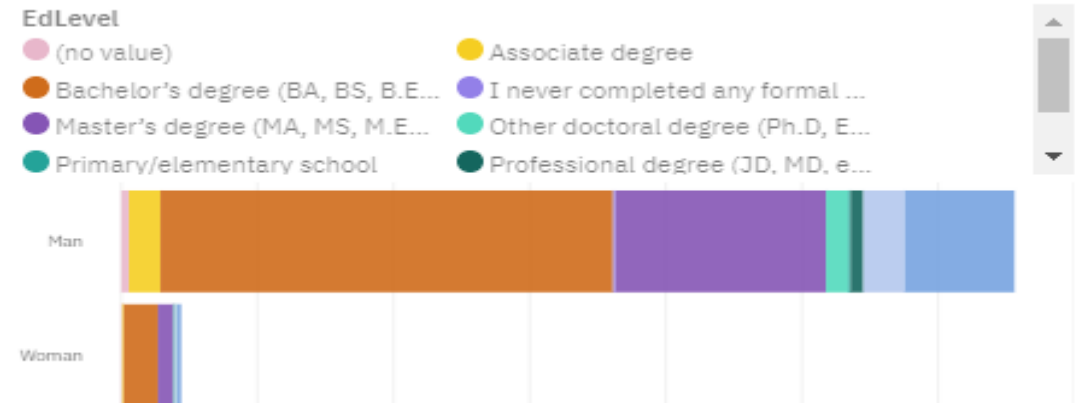
Respondent Count for Countries



Respondent Count by Age



Respondent Present by Education Level



DISCUSSION



The Findings yield insight into the following questions:

- What type of technologies and programming languages are top in demand?
- What type of databases are becoming more popular, relational or object-oriented database?
- Which technologies should developers learn more in upcoming year?
- What is the developer demographics look like? Is there any gender discrimination?

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript and HTML/CSS are highly in demand skills in 2019 and remain so in coming year.
- Python is gaining more interest in the future.
- MySQL remains the more in demand database at the time of survey and likely to remain so in the upcoming year.
- NoSQL databases like MongoDB gain more interests in the upcoming year over the other databases.
- A severe higher gender representation gap is seen in the demographics, in which men are slightly dominant over women.

Implications

- Current developers are picking up TypeScript in addition to JavaScript and HTML/CSS which is making web development high in demand.
- With the growing trend in AI and web development, data experts should continue to enhance SQL with the NoSQL database programs.
- Businesses required to adopt the changes according to the development and technology's usage demand.
- Policy makers and educational sectors should act together to minimize the gender representation gap for the betterment of employment.

CONCLUSION



- A subset of **2019 Stack Overflow Developer data** is collected and examined.
- The findings yield various insights into the technologies which are most desired by the developers and programmers in the future.
- These insights should be particularly relevant to:
 - Developers which are aiming to remain competitive
 - Businesses determined to upgrade their employees
 - Policy makers to make better decision to address gender and economic issues.

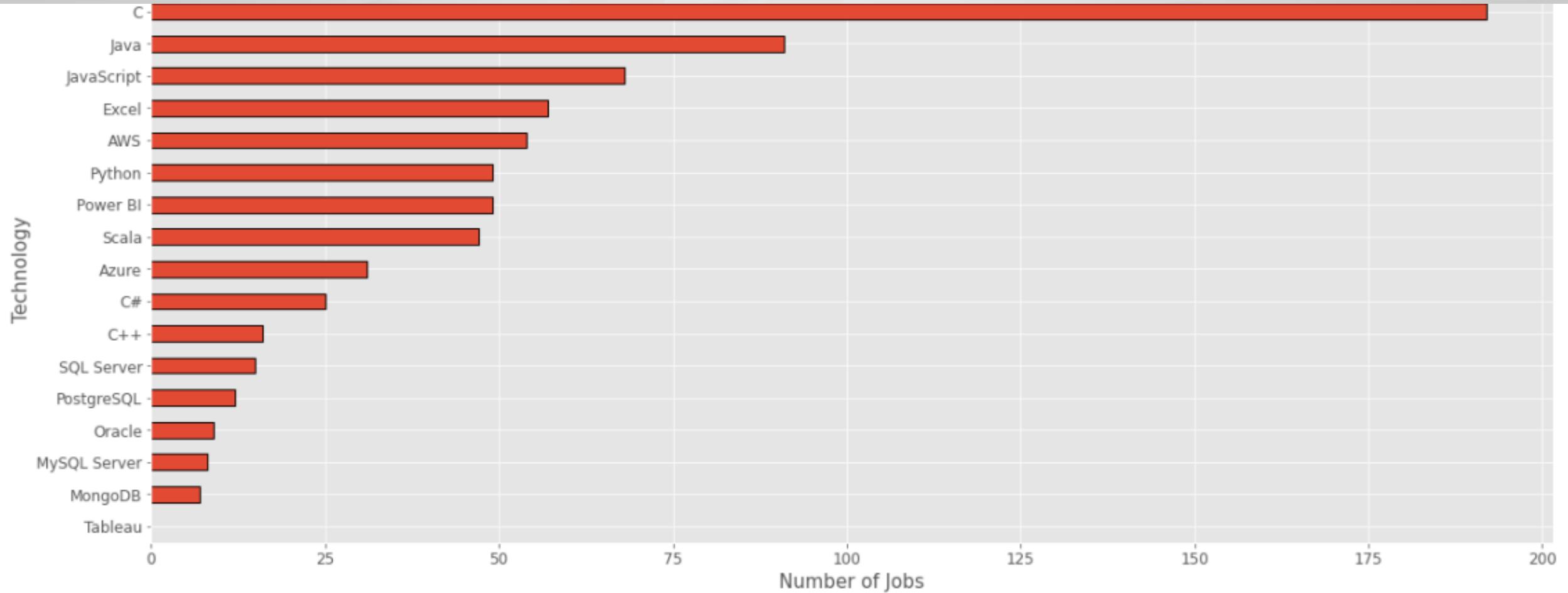
APPENDIX



The number of job postings for GitHub are collected from the dataset shows the high number of jobs in C and Java.

The visual presenting of the Average Annual Salary of popular programming Languages shows the high demand of Swift and python. These two are regarding as the highly paid jobs.

APPENDIX A: GITHUB JOB POSTINGS



APPENDIX B: LANGUAGES BY AVERAGE ANNUAL SALARY

