IBM Data Analyst Capstone Project

Safwana Nazar

31 October 2023

OUTLINE

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

EXECUTIVE SUMMARY

- This analysis is based on the 'Stack Overflow Developer Survey 2019' data.
- It provides trends on the usage of different programming languages, databases, web-frame works and platforms preferred by most of the developers.
- These trends for the current year and next year were graphed and analyzed.
- The Respondent Count was also analyzed by gender, age, location, and education level
- For the easy understanding of these findings, informative and colorful dashboards were used.

INTRODUCTION

About

- This presentation will focus on the coding technologies currently in use, and the future scope of newly emerging technologies.

Objective

- This report is written for target consumers who want to enter the field of data analytics.

Takeaways

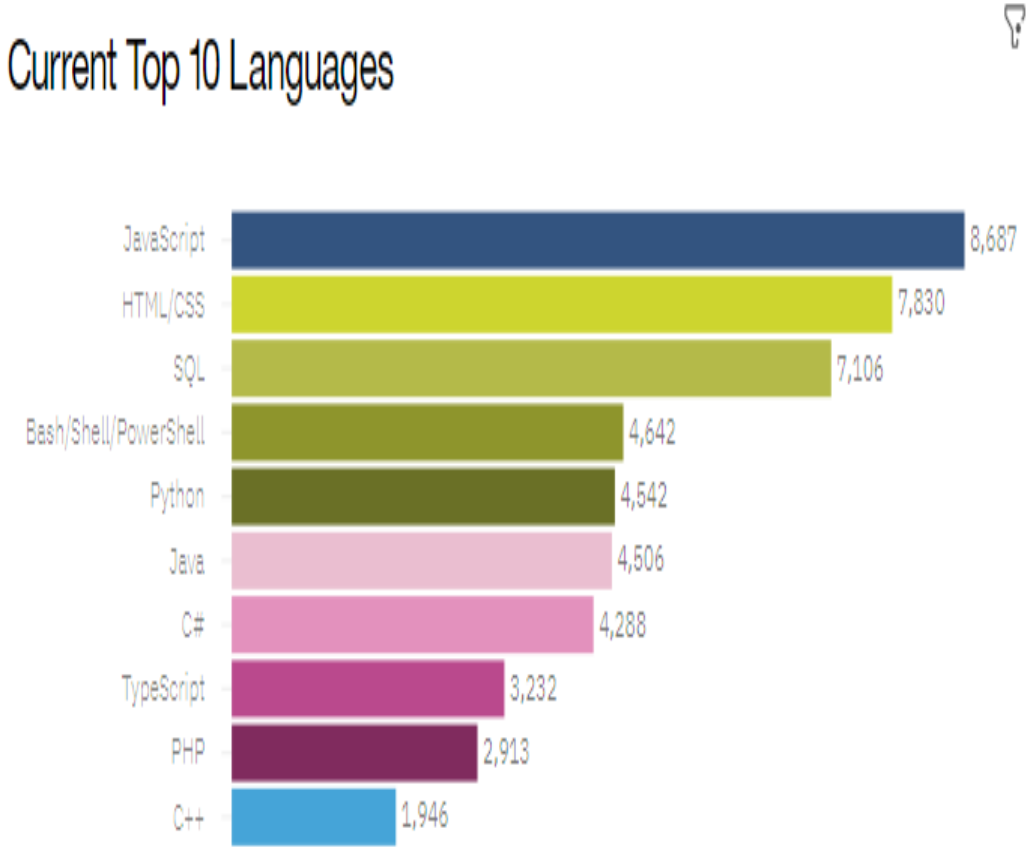
- After going through this report you'll get to know about
  - Coding technologies in demand as well as those emerging rapidly.
  - How factors such as age, gender and geography have an impact in this field

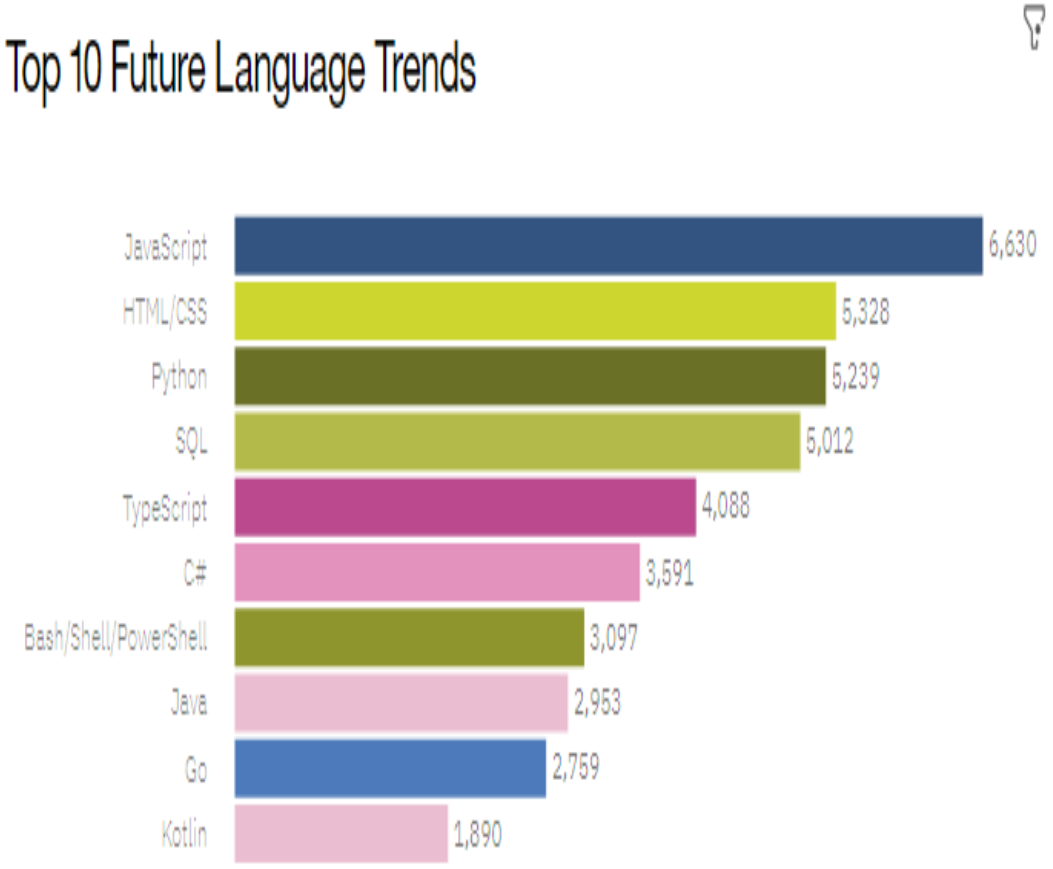
METHODOLOGY

- Data Collection
  - Job Portals
  - Surveys
- Data Wrangling and Exploratory Data Analysis
  - Python
  - SQL
  - Web Scrapping
- Data Visualization and Dashboard
  - IBM Cognos Analytics
  - IBM Watson Studio

RESULTS

PROGRAMMING LANGUAGE TRENDS





PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

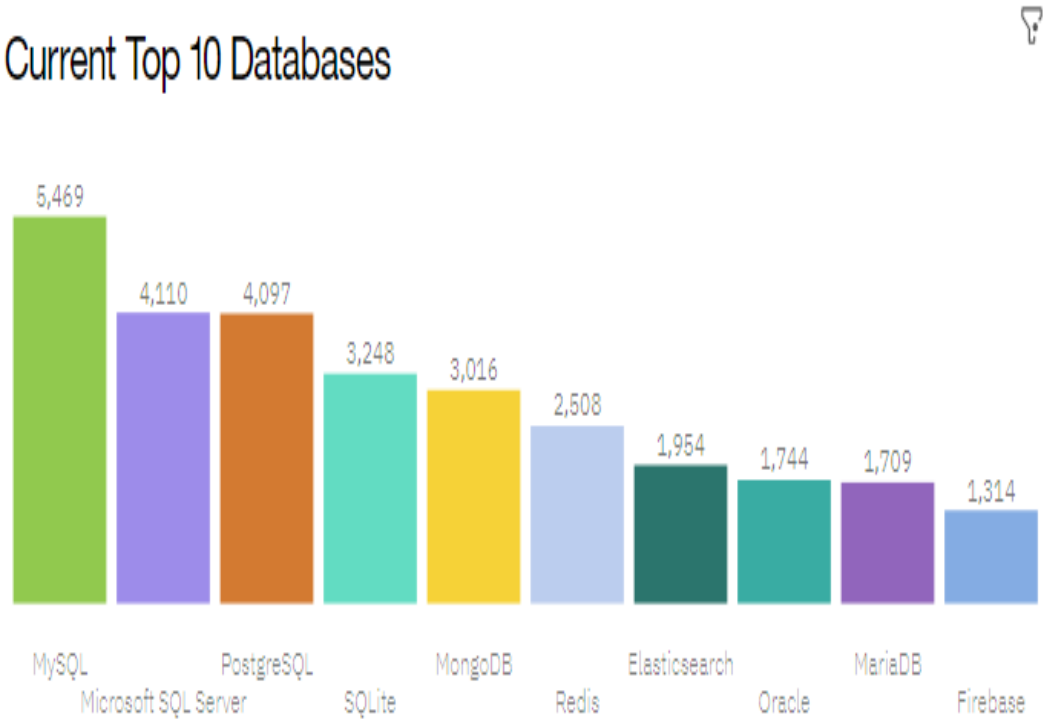
FINDINGS

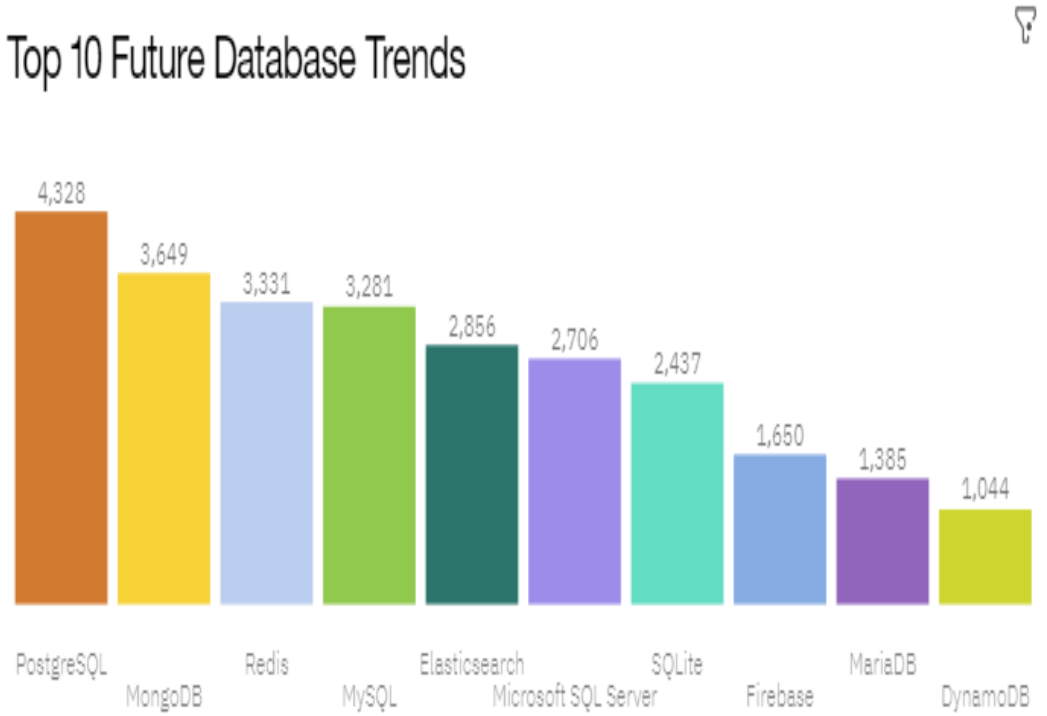
- JavaScript and HTML/CSS continue to be the top two most popular programming languages for this year and next.
- Python and TypeScript have gained more interest for next year.
- Whereas interest in SQL and Bash/Shell/PowerShell has decreased.

IMPLICATIONS

- Continue to employ a similar number of people skilled in JavaScript and HTML/CSS.
- Employ more people skilled in Python and TypeScript.
- Employ less people skilled in SQL and Bash/Shell/PowerShell.

DATABASE TRENDS





DATABASE TRENDS - FINDINGS & IMPLICATIONS

FINDINGS

- Interest in MySQL, Microsoft SQL Server and SQLite has decreased for next year.
- Interest in PostgreSQL and MongoDB have increased compared to the current year
- There is gained interest in Redis for next year.

IMPLICATIONS

- Employ less people skilled in MySQL, Microsoft SQL Server and SQLite
- Employ more people skilled in PostgreSQL and MongoDB.
- Employ more people skilled in Redis.

DASHBOARD

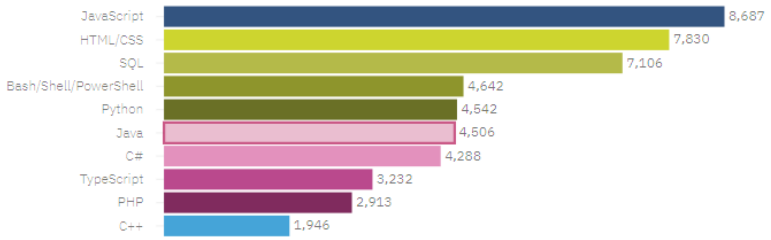
Click here to view the Cognos dashboard

Click Here

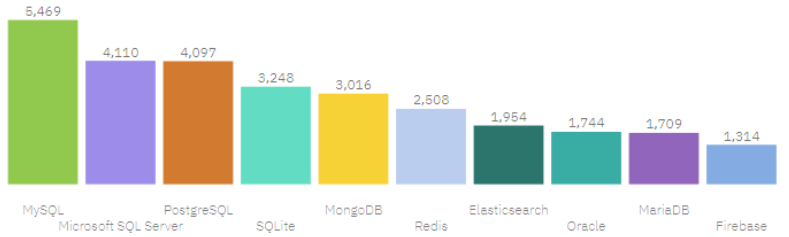
DASHBOARD TAB 1

Current Technology Usage | Future Technology Trend | Demographics

Current Top 10 Languages

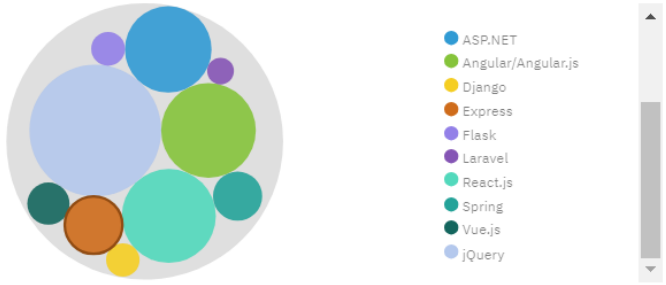


Current Top 10 Databases



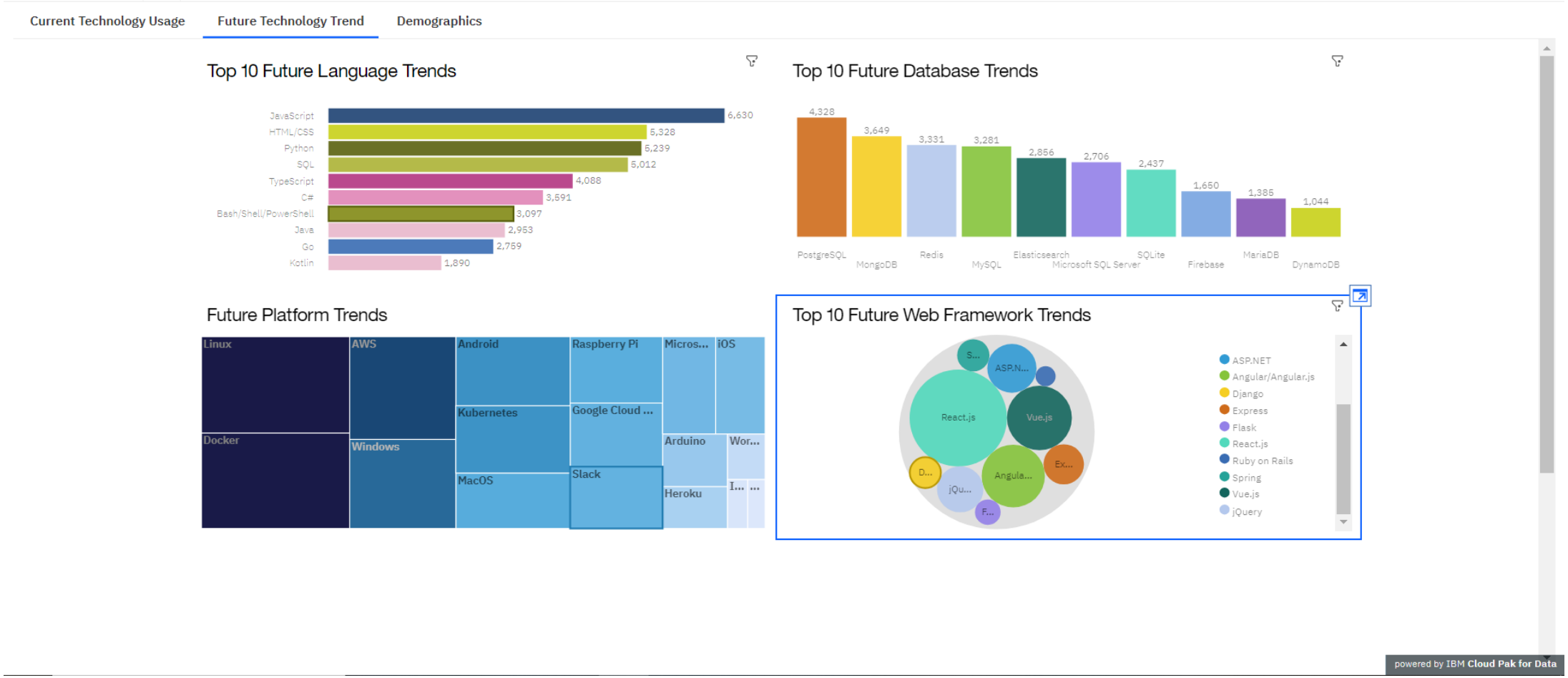
Current Platforms

Current Top 10 Web Frameworks

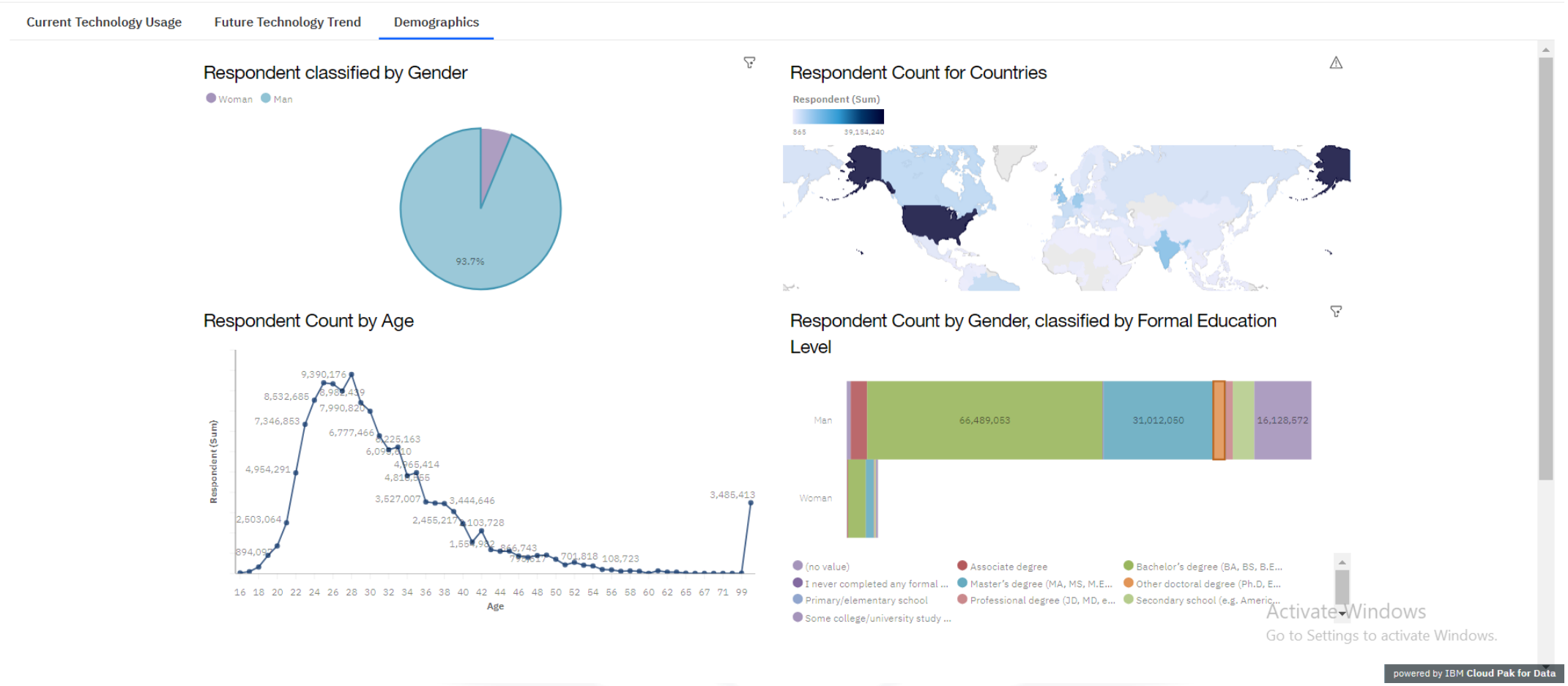


powered by IBM Cloud Pak for Data

DASHBOARD TAB 2



DASHBOARD TAB 3



DISCUSSION

Now we have answers for

- which programming language is most popularity.
- which database is growing these days?
- What type of frameworks are in demand?
- Which are the most desired platforms to work on?

OVERALL FINDINGS & IMPLICATIONS

FINDINGS

- Programming Languages - TypeScript is gaining significant interest and Python continues to grow as well.
- Databases - Redis, PostgreSQL and MongoDB are gaining more interest.
- Platforms - Interest Slack and Windows is dropping significantly.
- Web-Frames - Vue.js is gaining substantial interest and React.js continues to grow as well.

IMPLICATIONS

- Employ more people skilled in TypeScript and Python but continue to staff enough JavaScript and HTML/CSS .
- Employ more people skilled in Redis, PostgreSQL and MongoDB.
- Continue to staff enough ASP.NET but employ more people skilled in Vue.js and React.js.
- Continue to staff enough Linux, employ more people skilled in Docker, AWS and Android.

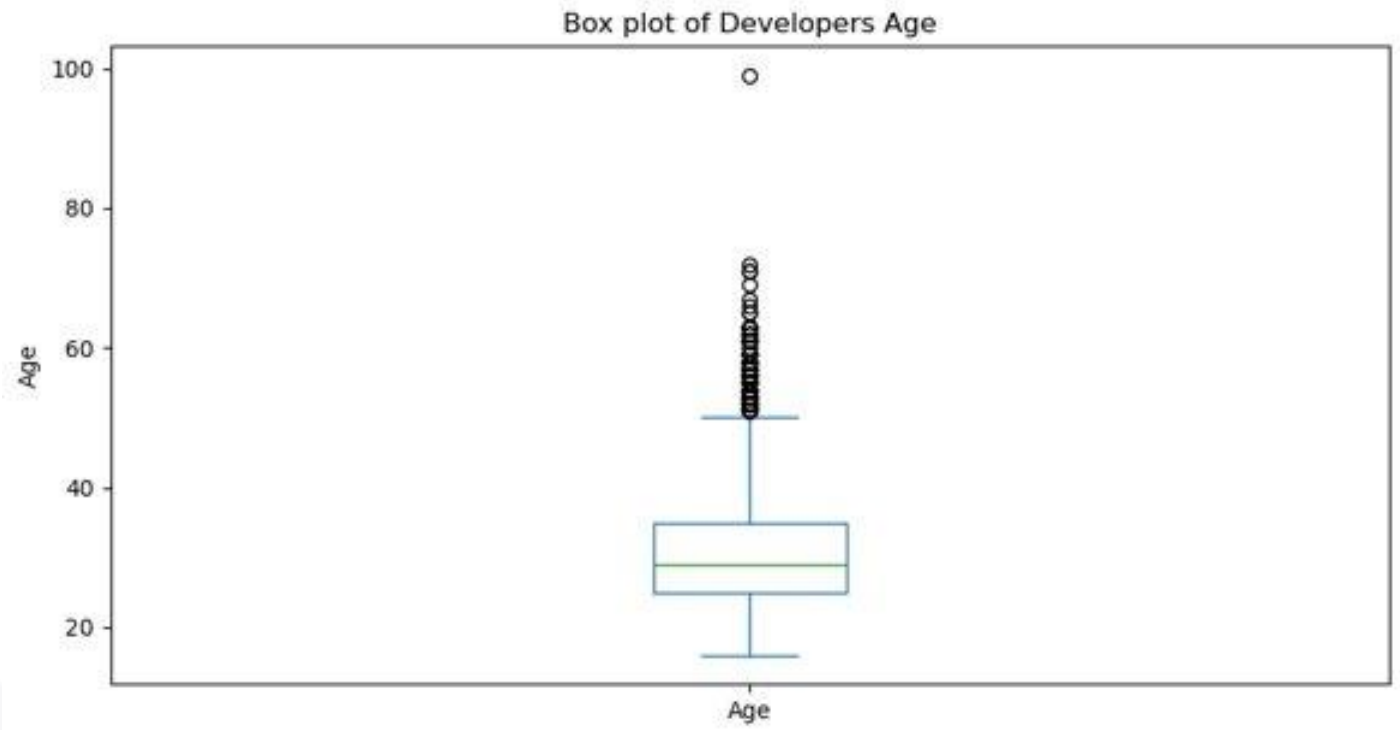
CONCLUSION

The Python, TypeScript, and JavaScript seem to be widely used technical skills in next years. So firm can certainly focus on investing more resources into these areas such as

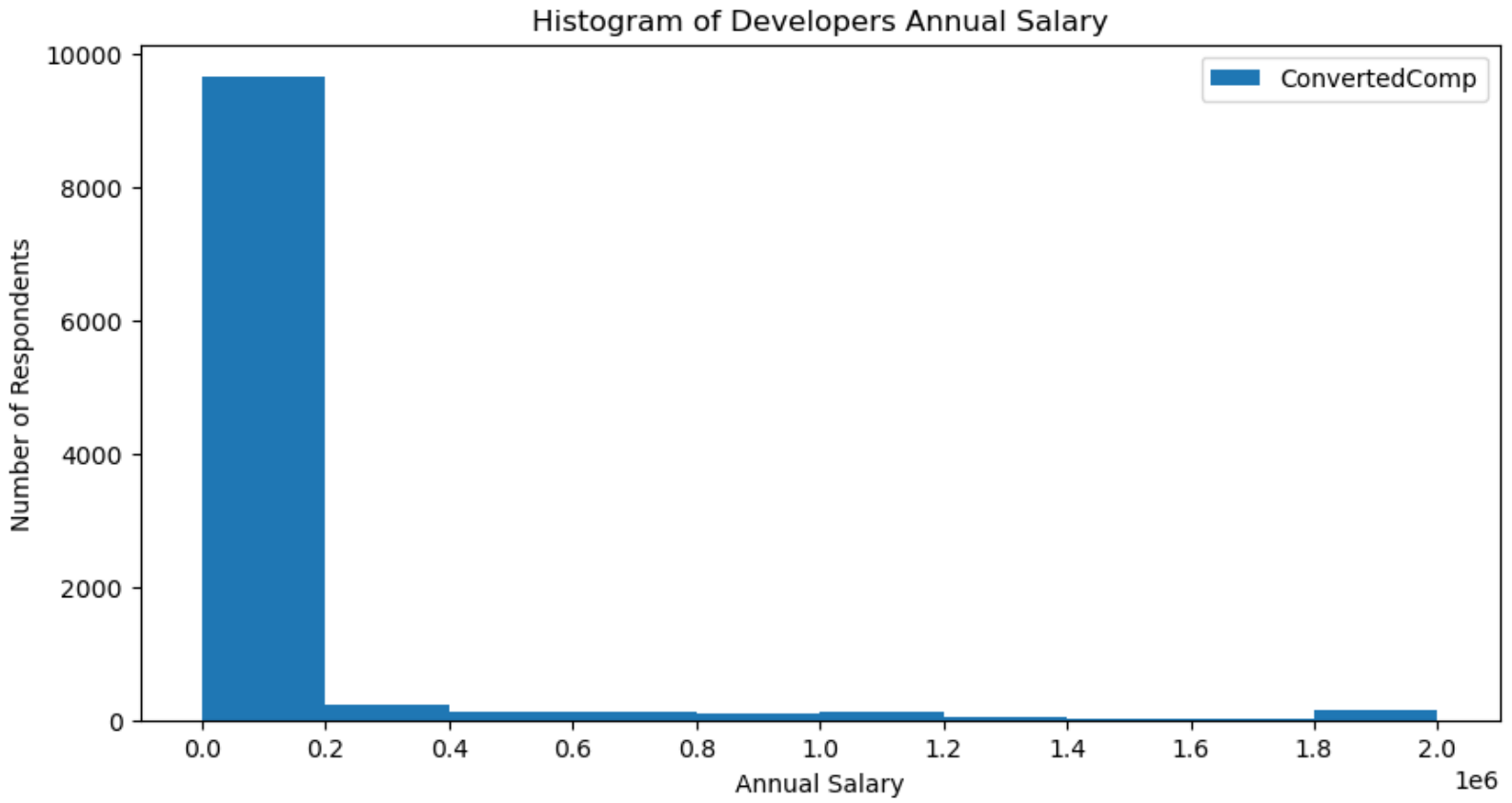
- Carve out budget in order to hire additional staff with skills needed to fill any gaps.
- Set aside budget or put a program in place to upskill those already employed.
- Make adjustments in staff for those skills no longer in demand.

APPENDIX

Developers Age

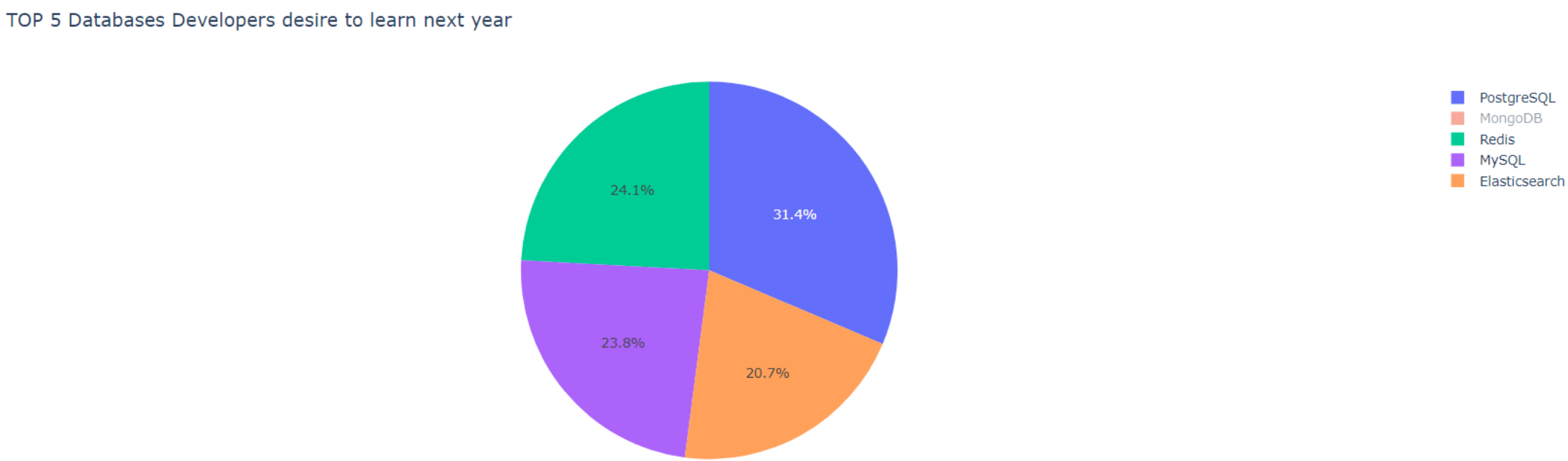


Developers Annual Salary

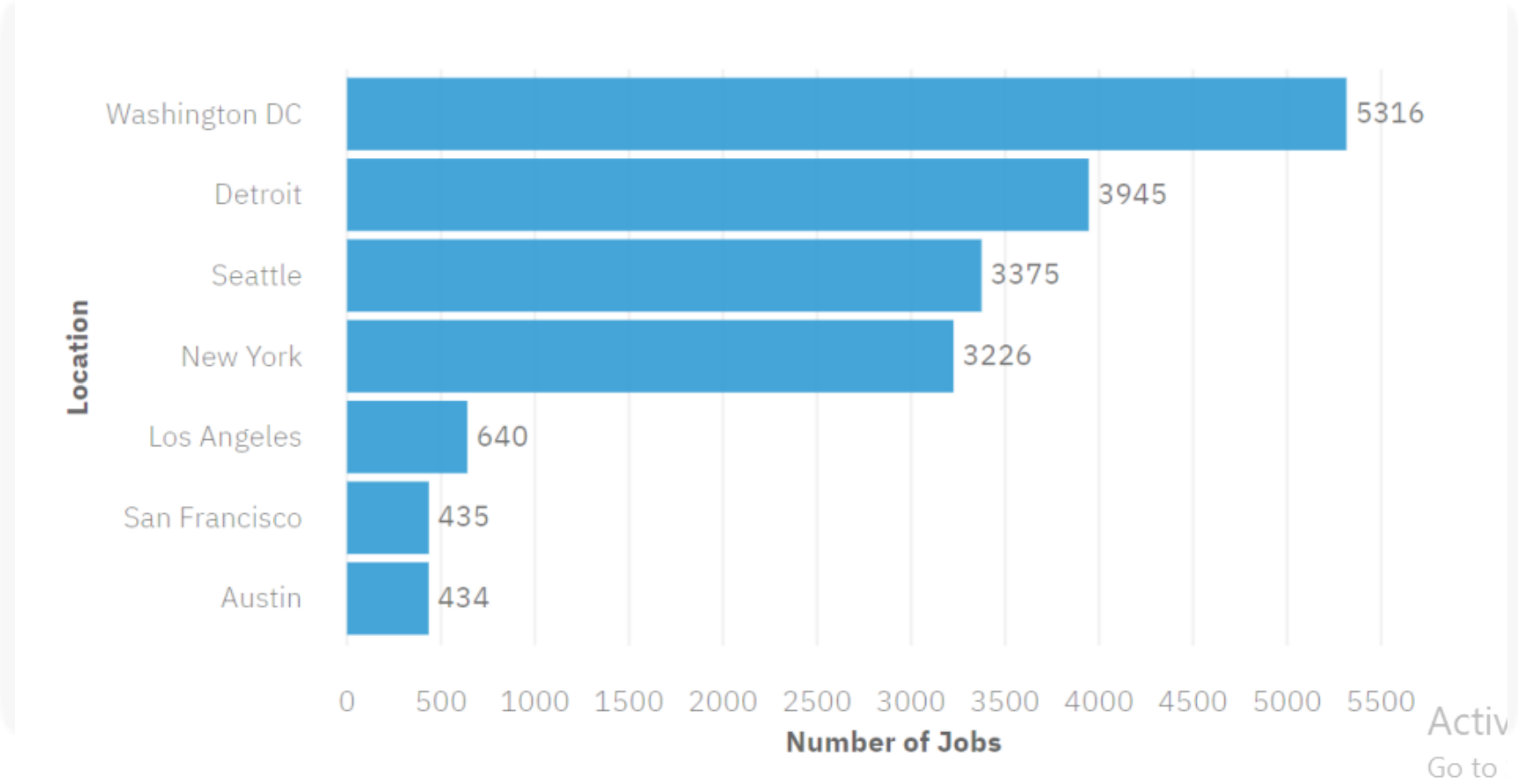


Developers Age and Weekly Working Hours

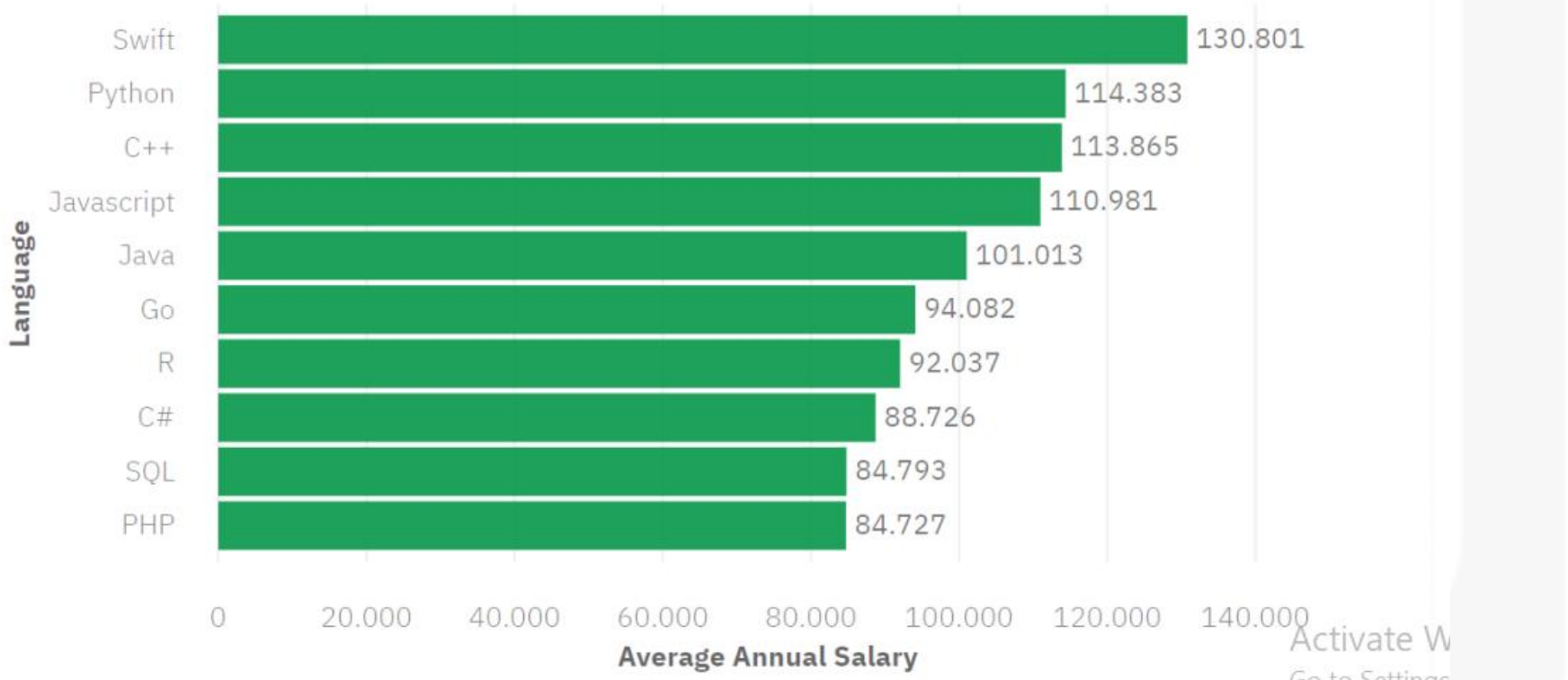
Desired Database Skills



JOB POSTINGS



POPULAR LANGUAGES



Activate W
Go to Settings

Resources

- https://stackoverflow.blog/2019/04/09/the-2019-stack-overflow-developer-survey-results-are-in/
- https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/LargeData/m5_survey_data_demographics.csv
- https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/LargeData/m5_survey_data_technologies_normalised.csv
- https://jobs.github.com/api
- https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html