



STACK OVERFLOW DEVELOPER SURVEY 2019

(Technology Trends and Analysis
Presentation)

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OUTLINE



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



- This presentation will show current and future trends in :
 - Programming languages
 - Databases
 - Platforms
 - WebFrames
- It also shows the technological gap in countries.
- It also shows gender gap in jobs.

INTRODUCTION



- This presentation is about analyzing trends in software technology.
- This is to identify future skill requirements and trends to keep pace with advanced and changing technologies.
- Questions for analysis:
 - What are the top programming languages in demand?
 - What are the top database skills in demand?
 - What are the top platforms?
 - What are the popular WebFrameworks?

METHODOLOGY



- Data Collection Sources.
 - From Stack Overflow Developer 2019 Survey
 - Github Job Postings
- Data Wrangling
 - finding and removing duplicates
 - finding and input missing values
 - normalizing data
- Exploratory Data Analysis
 - finding outliers
 - Finding correlation
- Data Visualization
 - Building a dashboard using IBM Cognos Analytics



RESULTS

PROGRAMMING LANGUAGE TRENDS

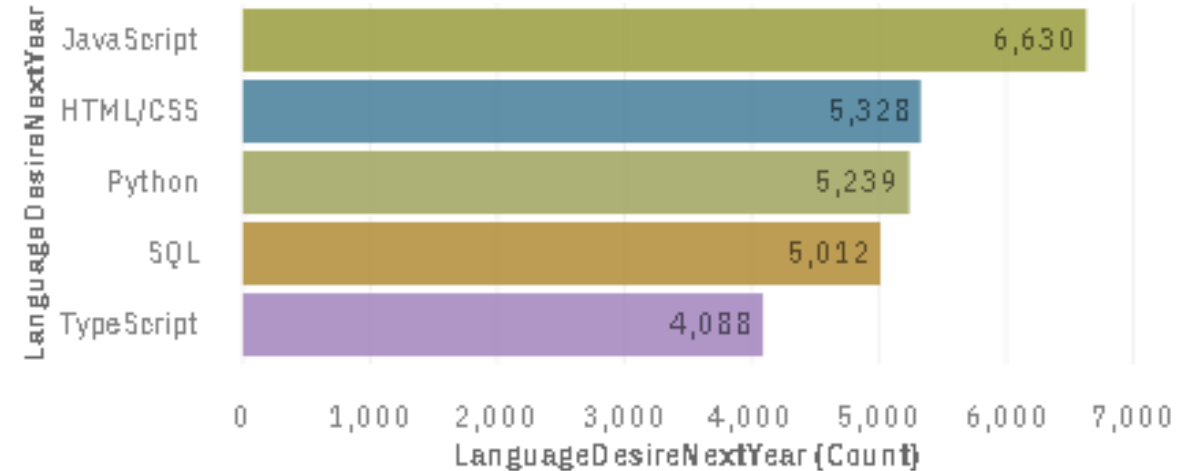
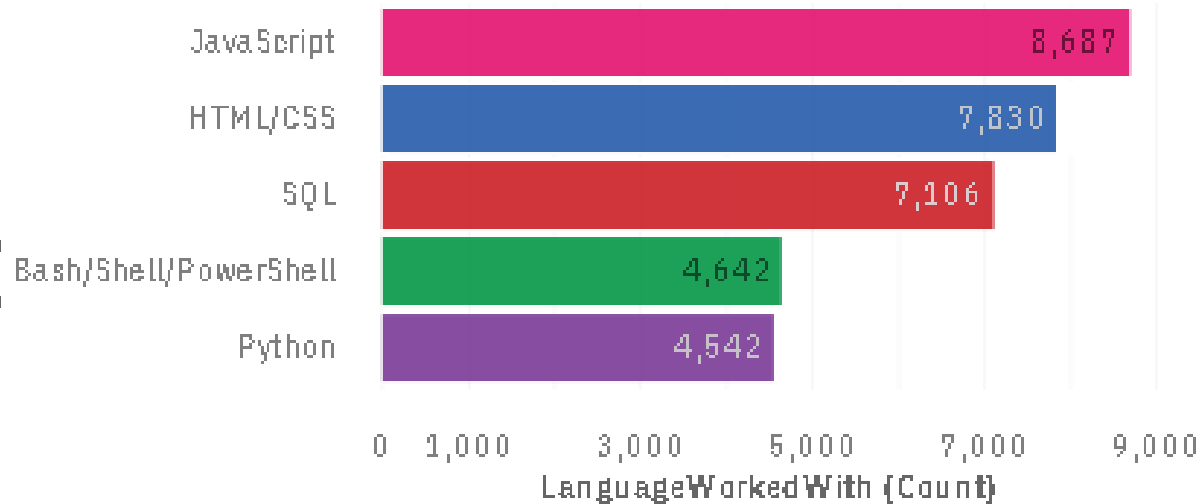
Current Year

Next Year

Top 10 LanguageWorkedWith

Top 10 LanguageDesireNextYear

LanguageWorkedWith



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 are becoming popular next year.
- Interest in SQL and Bash/Shell/Powershell has decreased

Implications

- With AI and ML in rising demand, Python is best choice
- Companies continue to employ people skilled in JavaScript and HTML/CSS.
- Big Data Technology companies still requires SQL as their programming language.

DATABASE TRENDS

Current Year

Top 10 DatabaseWorkedWith

DatabaseWorkedWith

Microsoft SQL Server MongoDB MySQL
PostgreSQL SQLite

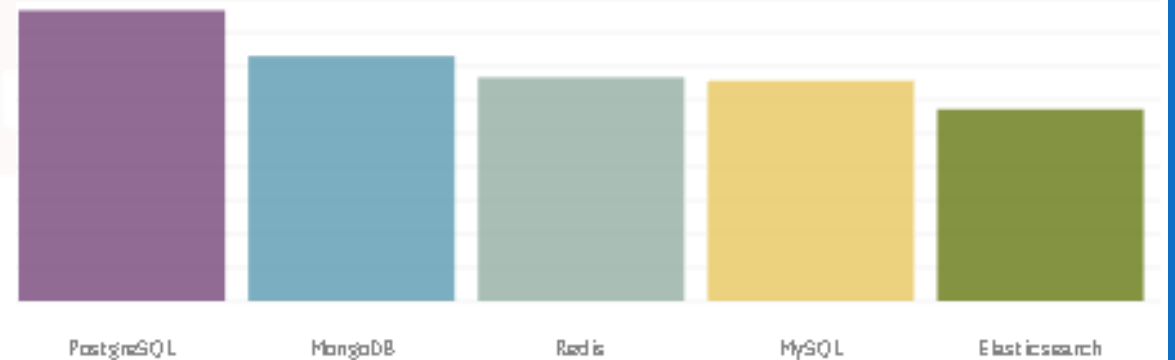


Next Year

Top 10 DatabaseDesireNextYear

DatabaseDesireNextYear

Elasticsearch MongoDB MySQL PostgreSQL
Redis



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is the most popular in the current year but interest in MySQL will decreased for next year.
- Interest in PostgreSQL and MongoDB have increased compared to the current year.
- There is gained interest in Redis and Elasticsearch for next year.

Implications

- Open-source databases like MySQL and PostgreSQL are still preferable in companies.
- Redis supports abstract data types.
- Companies will employ more people skilled in PostgreSQL and MongoDB.

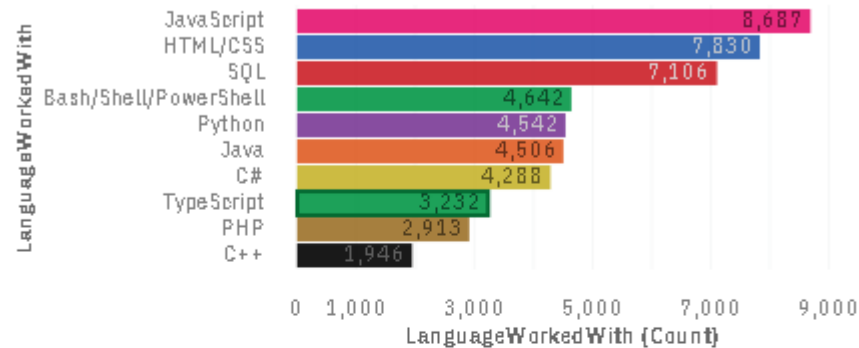
DASHBOARD



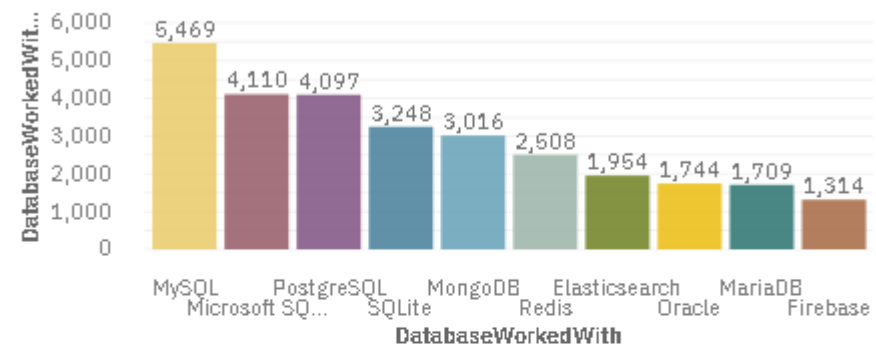
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Current Technology Usage Dashboard

Top 10 LanguageWorkedWith



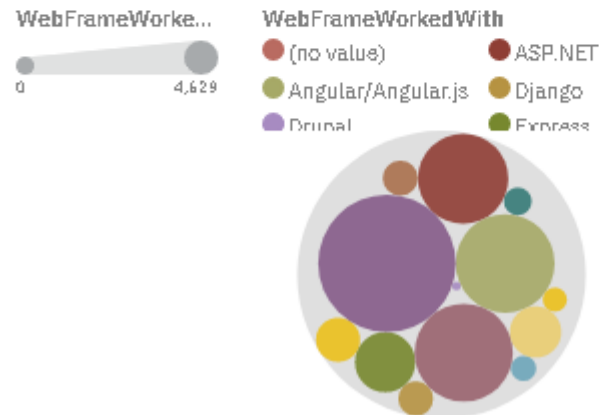
Top 10 DatabaseWorkedWith



PlatformWorkedWith

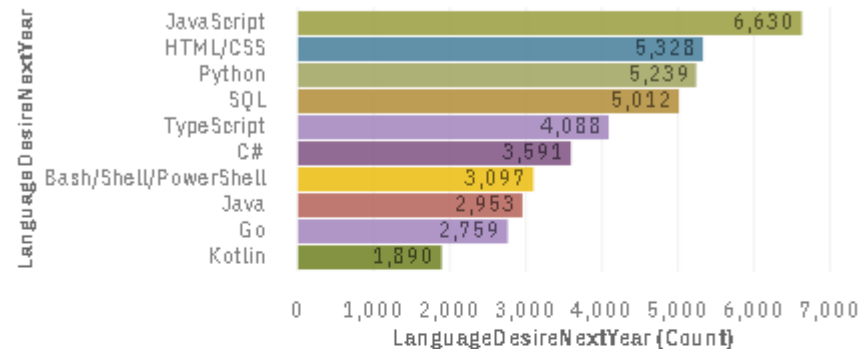


Top 10 WebFrameWorkedWith

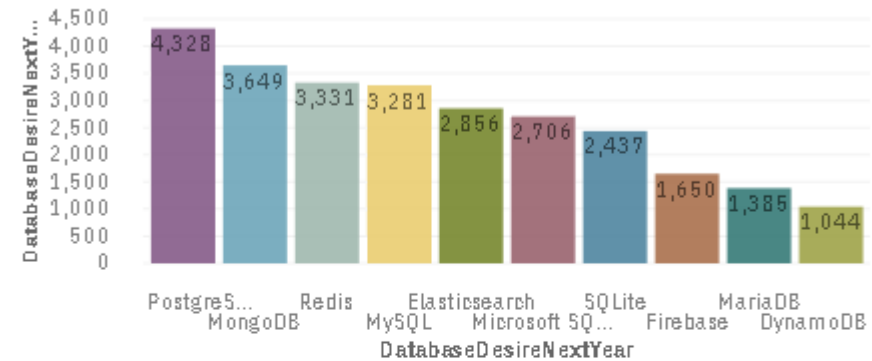


Future Technology Trend Dashboard

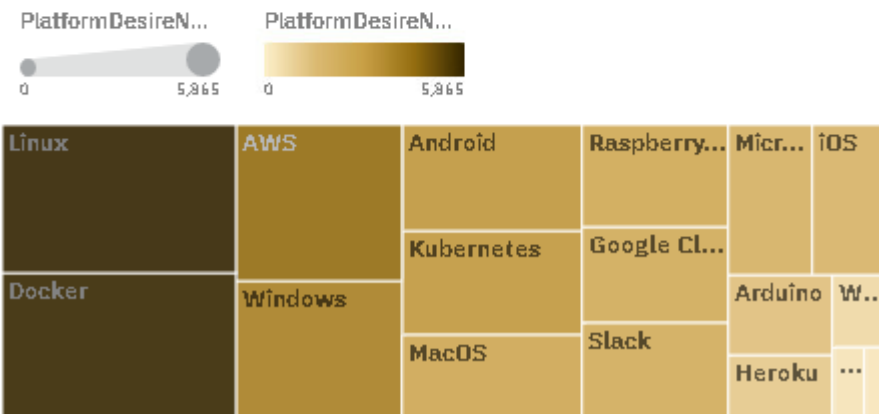
Top 10 LanguageDesireNextYear



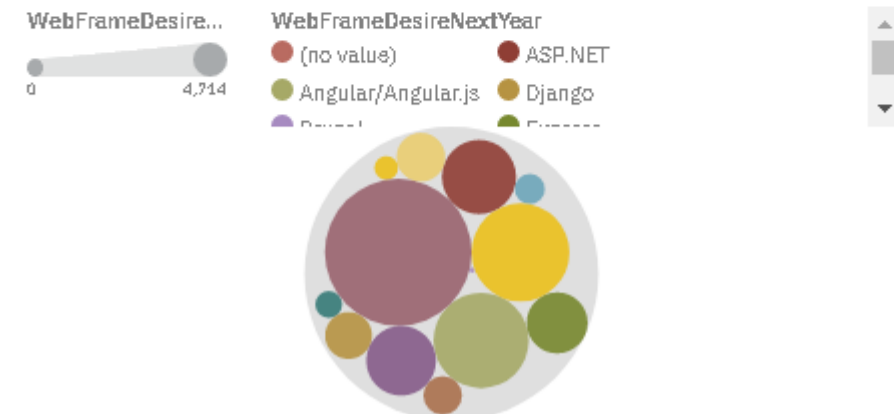
Top 10 DatabaseDesireNextYear



PlatformDesireNextYear



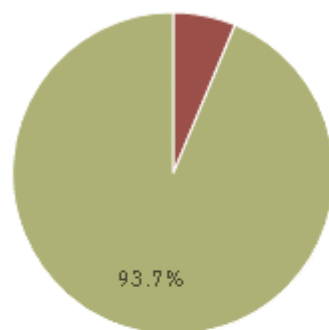
Top 10 WebFrameDesireNextYear



Demographics Dashboard

Respondent classified by Gender

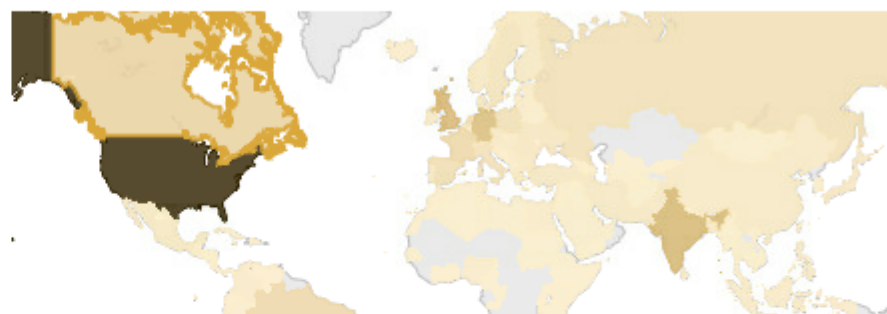
Gender
● Woman ● Man



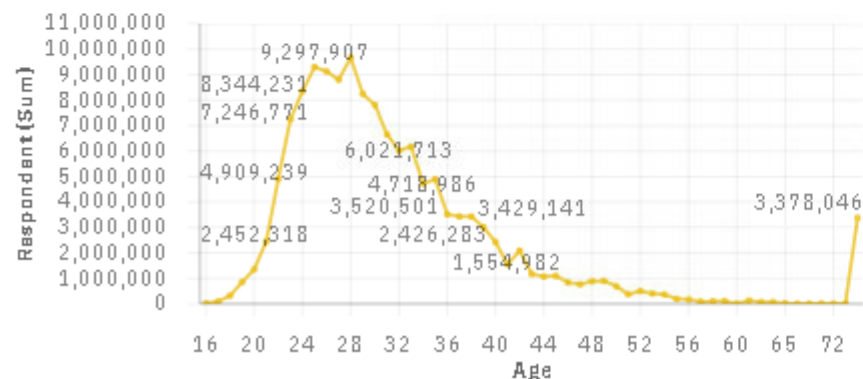
Respondent Count for Countries

Respondent (Sum)

865 39,170,293



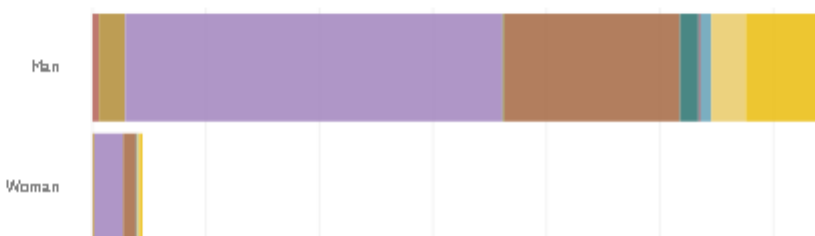
Respondent count by Age



Respondent Count by Gender, classified by Formal Education Level

EdLevel

● (no value) ● Associate degree
● Bachelor's degree (BA, BS, B.E...) ● I never completed any formal ...



DISCUSSION



- There is a low female participation in the technology field.
- There is a technology gaps in developing countries.
- There is a need to train and reskill employees to keep up with the technology trends.

OVERALL FINDINGS & IMPLICATIONS

Findings

- Fast changing technology every year
- Big gender gap in technology jobs
- Python continues to grow as a programming language.

Implications

- Companies need to be flexible to the fast-paced technology
- Need to educate more about the technology to the less developed countries.

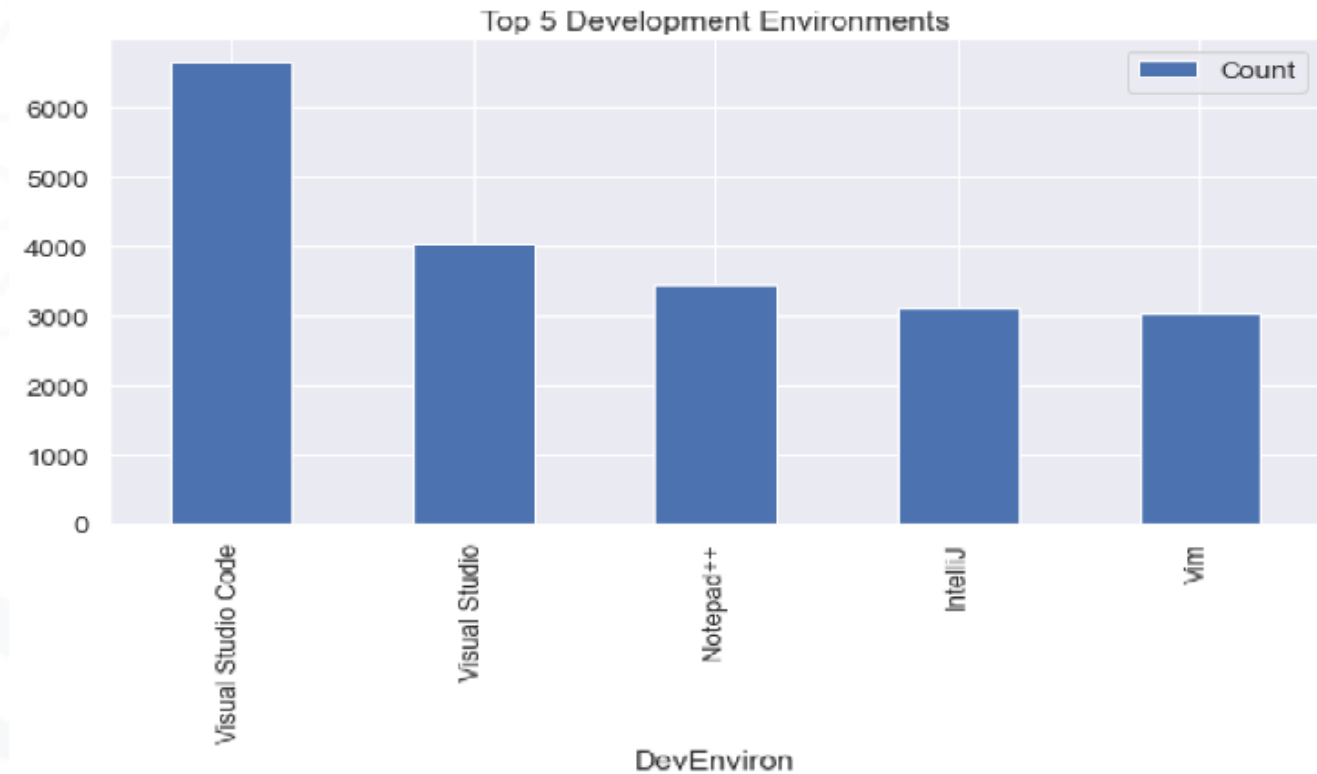
CONCLUSION



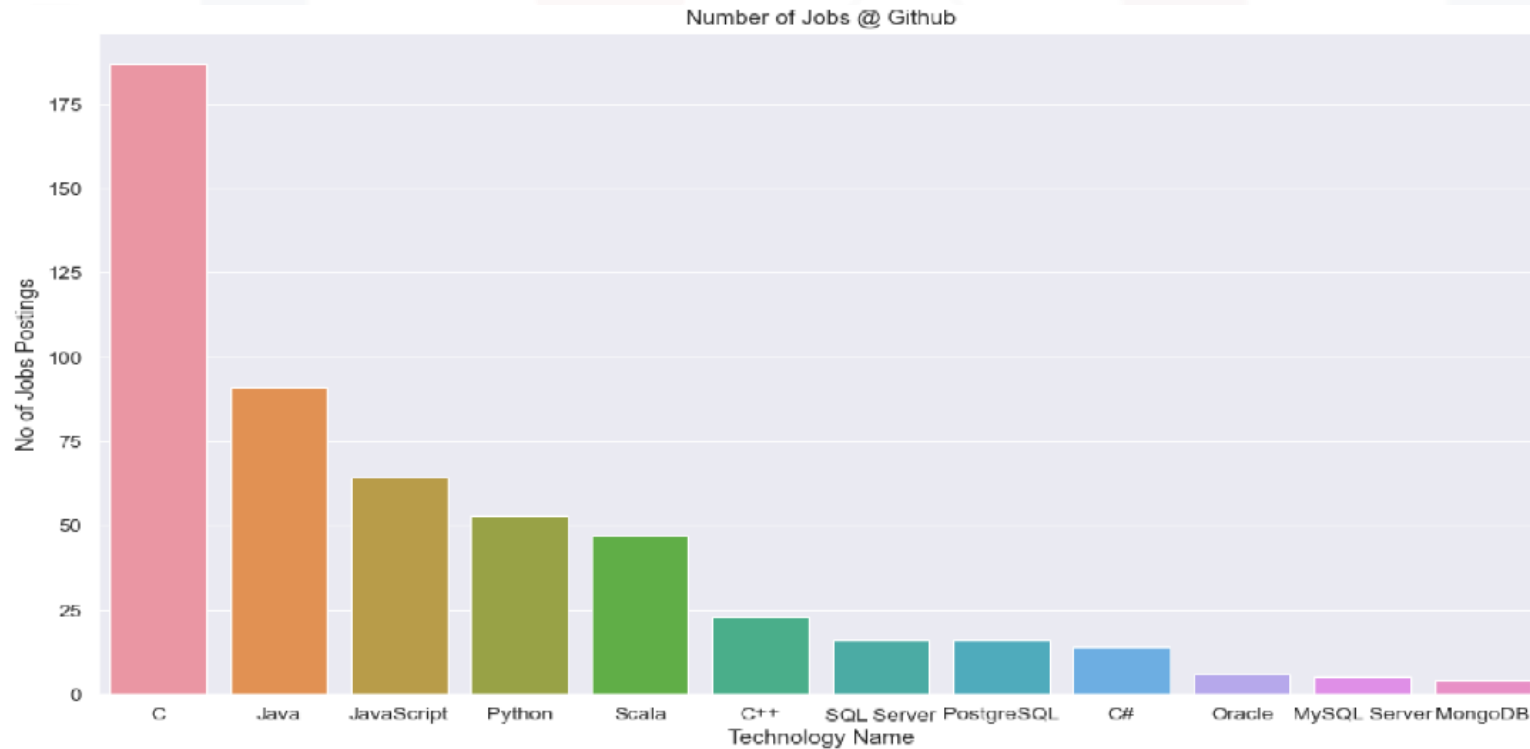
- Encourage more women to enter technology field.
- Make adjustments by giving trainings or establish a program to upskill those who are already employed.
- Companies need to incorporate Machine Learning to predict trends and salaries.

APPENDIX

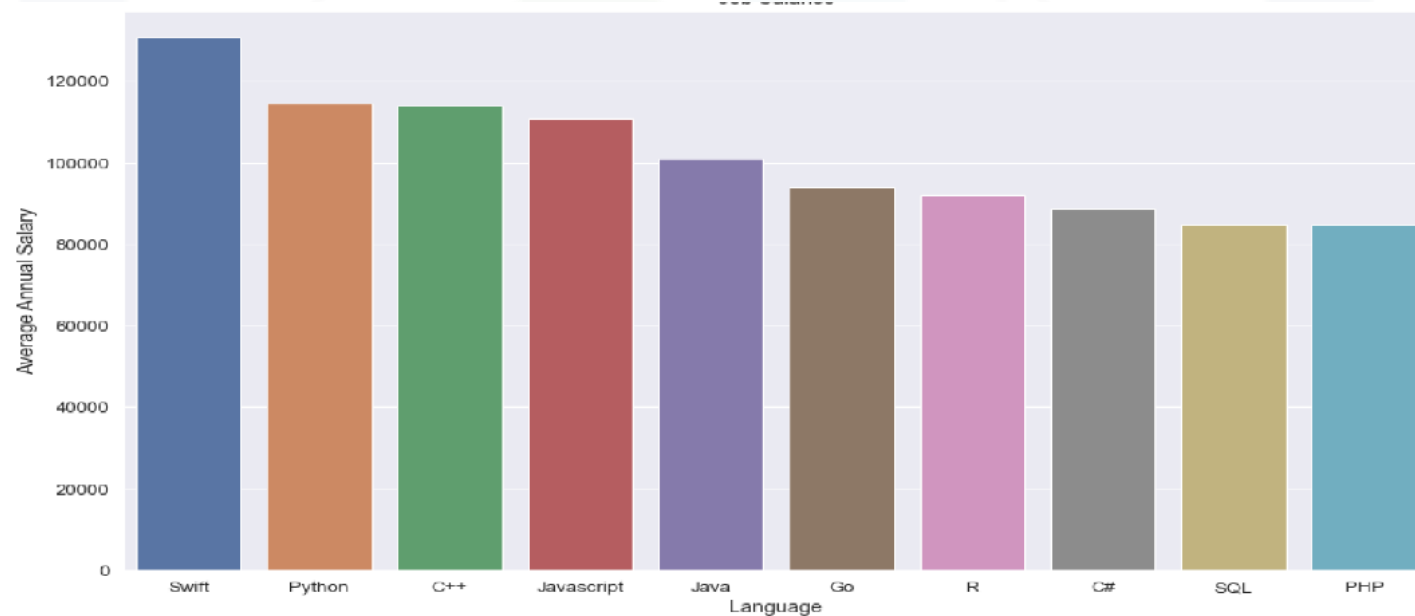
- Top 5 Development Environments



JOB POSTINGS



POPULAR LANGUAGES



Resources

- The dataset comes from the following source: <https://stackoverflow.blog/2019/04/09/the-2019-stackoverflow-developer-survey-results-are-in/> under a **ODbL: Open Database License**.
- https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/LargeData/m2_survey_data.csv