



Technology Trends & Analysis Presentation

Huynh-Thanh N. Ho

November 9, 2021

OUTLINE



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

EXECUTIVE SUMMARY



- Trends in programming languages and databases
- Demographics survey
- Technological gap in countries
- Gender gap in jobs

INTRODUCTION



- About: Analyzing the trends in software development
- Purpose:
 - Identify skill requirements for future
 - What are the top programming languages in demand?
 - What are the top database skills in demand?
 - What are the popular IDEs?
- Audience: Human Resource and IT Head

METHODOLOGY



- Data Collection Sources
 - Stack Overflow Developer 2019 Survey
 - GitHub Job Postings
 - Programming Languages Annual Salary
- Data Exploration
- Data Cleaning
- Data Visualization
- Presentation

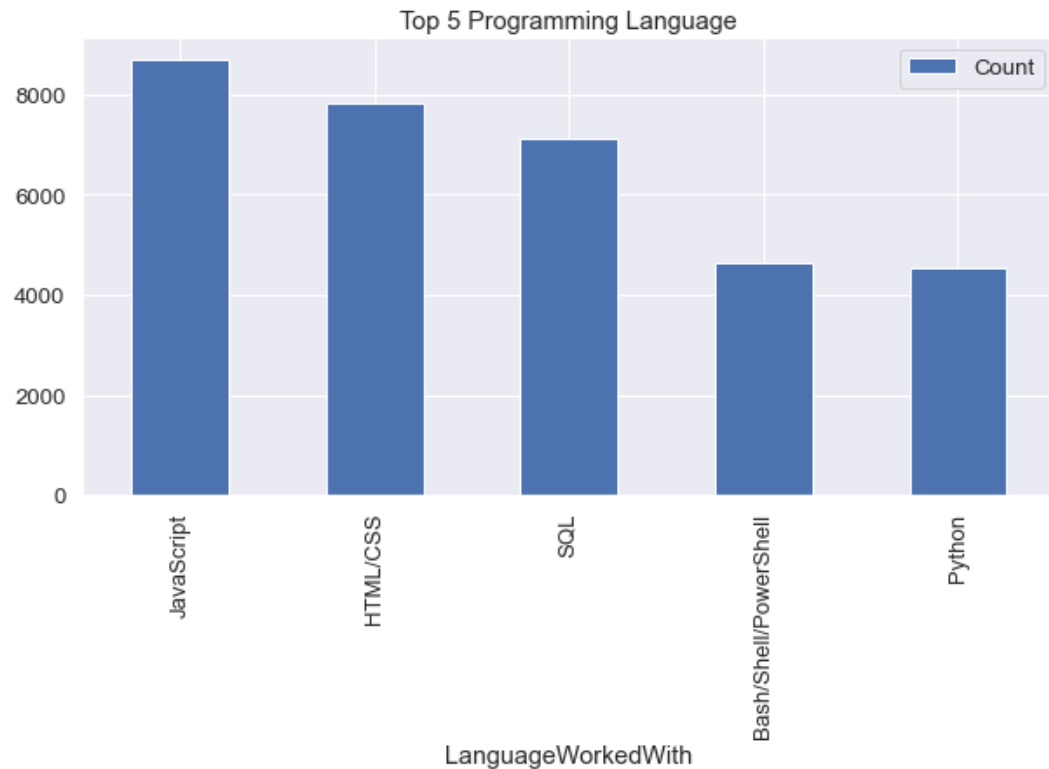
RESULTS

Results are based on this table:

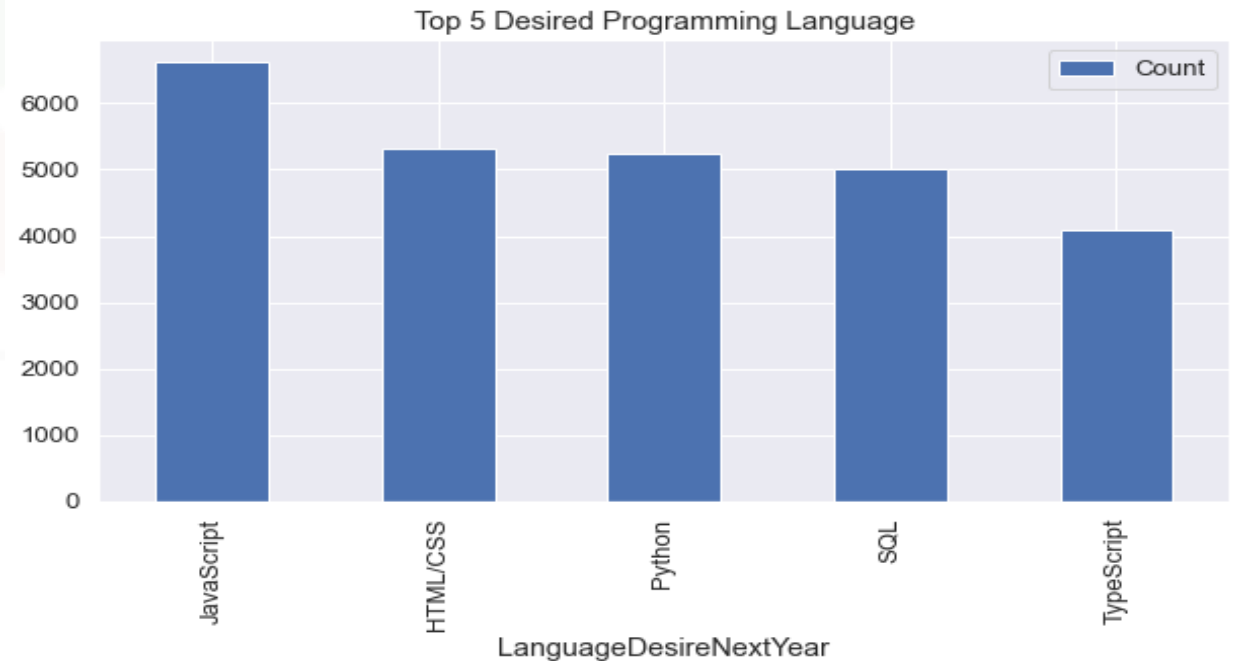
	Respondent	LanguageWorkedWith	LanguageDesireNextYear	DatabaseWorkedWith	DatabaseDesireNextYear	PlatformWorkedWith
0	4	C	C	MySQL	MySQL	Linux
1	4	C++	C#	SQLite	SQLite	Windows
2	4	C#	JavaScript	NaN	NaN	NaN
3	4	Python	SQL	NaN	NaN	NaN
4	4	SQL	NaN	NaN	NaN	NaN
...
74584	25142	Go	Python	NaN	NaN	NaN
74585	25142	HTML/CSS	R	NaN	NaN	NaN
74586	25142	PHP	NaN	NaN	NaN	NaN
74587	25142	Python	NaN	NaN	NaN	NaN
74588	25142	R	NaN	NaN	NaN	NaN

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript, HTML/CSS, SQL are top 3 this year
- Python and Typescript becoming popular next year
- PowerShell edged out in next year

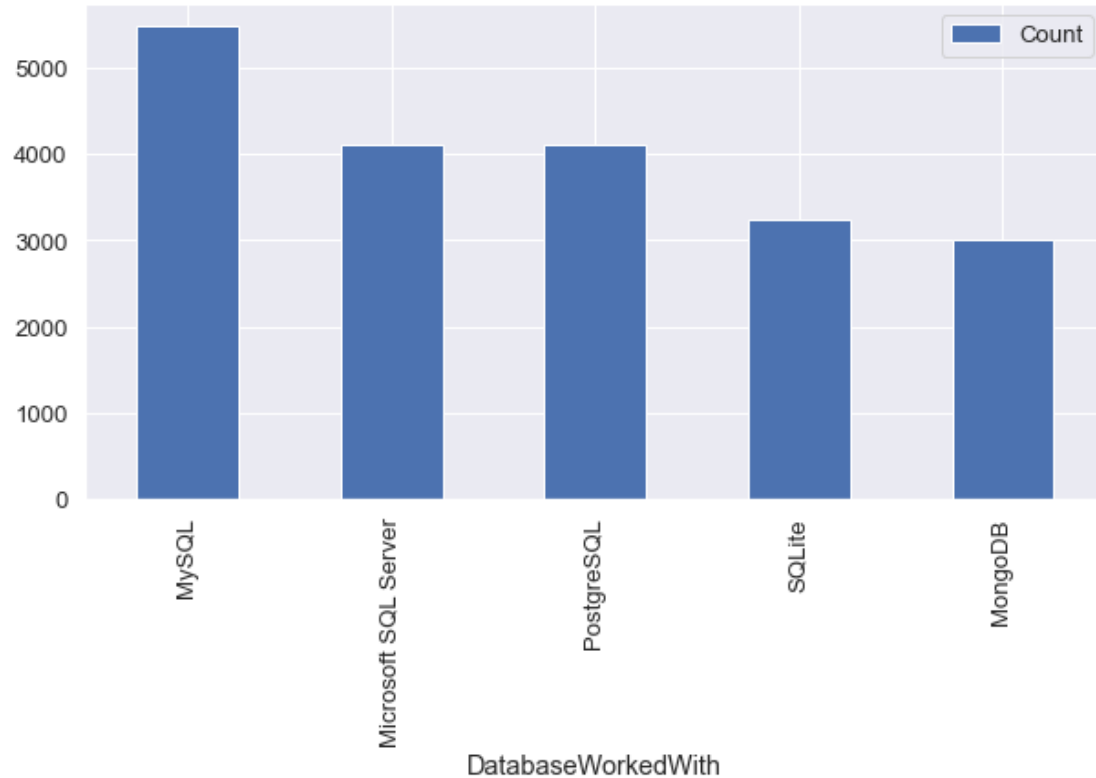
Implications

- Web development are still in high demand
- Big Data technology in companies still requires SQL
- With AI and ML in rising demand, Python is best choice

DATABASE TRENDS

Current Year

Top 5 Databases



Next Year

Top 5 Databases Desired Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL most popular
- Behind is Microsoft SQL
- MongoDB and Redis are upcoming favorites
- New kid on the block: Elasticsearch

Implications

- Open-source databases are still preferable in companies
- NoSQL databases will make an impact for storing non-relational data
- Redis supports abstract data types
- Pre-tuned search to website, app, or ecommerce store

DASHBOARD

IBM COGNOS LINK DASHBOARD



<https://dataplatform.cloud.ibm.com/dashboards/e5e25651-1f39-40f6-85b1-cd49b2470097/view/0762a52d629022d017c0c0e4079928027932275ae7bb8b5786d67b490f637697f33d4697c8284b09d3140330f6ef460898>

CURRENT TECHNOLOGY USAGE DASHBOARD



Filters



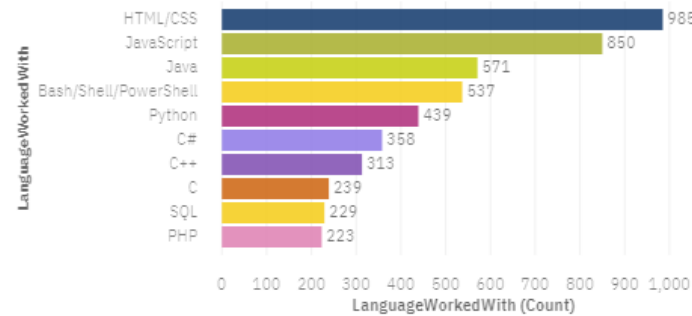
Current Technology Usage

Future Technology Trend

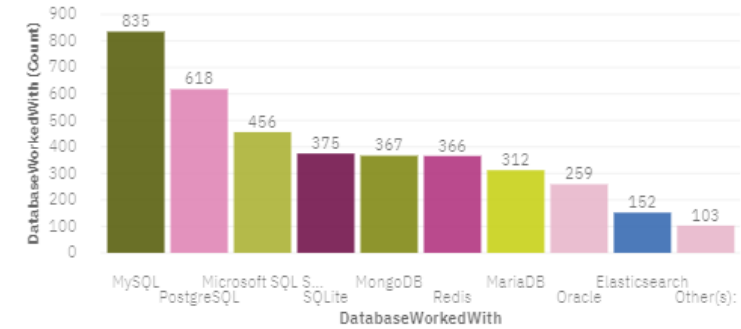
Demographics



Top 10 LanguageWorkedWith



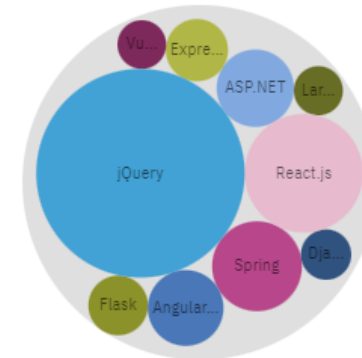
Top 10 DatabaseWorkedWith



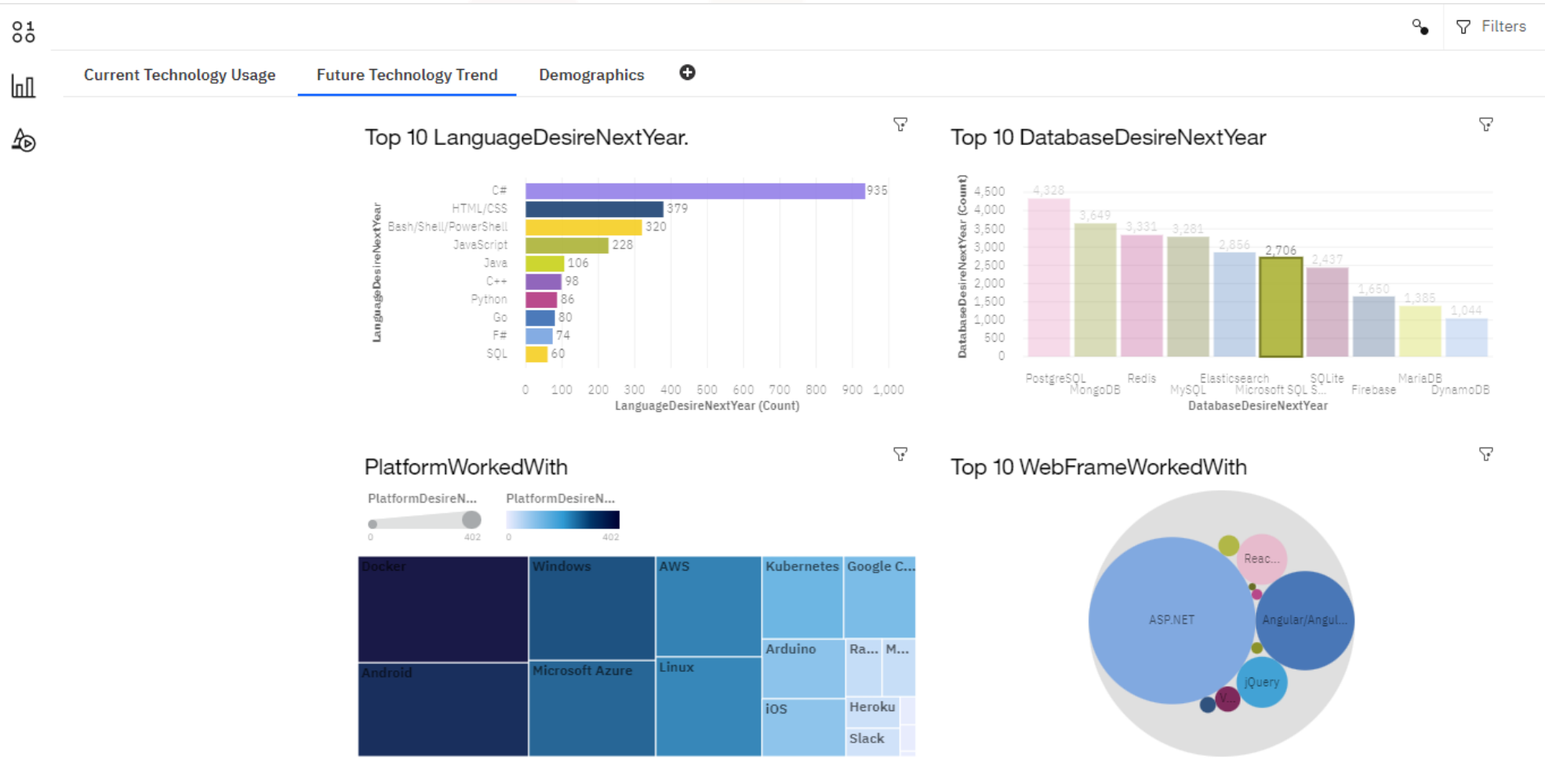
PlatformWorkedWith



Top 10 WebFrameWorkedWith.



FUTURE TECHNOLOGY TREND DASHBOARD



DEMOGRAPHICS DASHBOARD

01

Filters

Current Technology Usage

Future Technology Trend

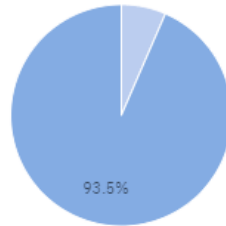
Demographics

+

Ad

Respondent Count for Countries

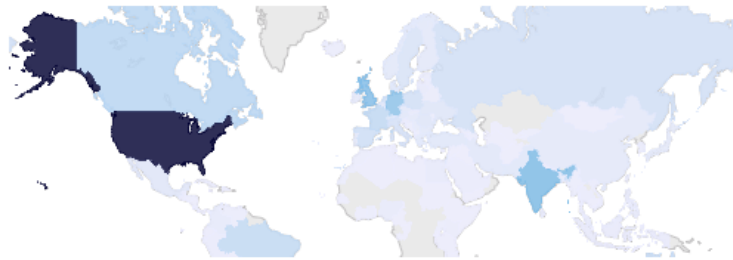
Gender
● Woman ● Man



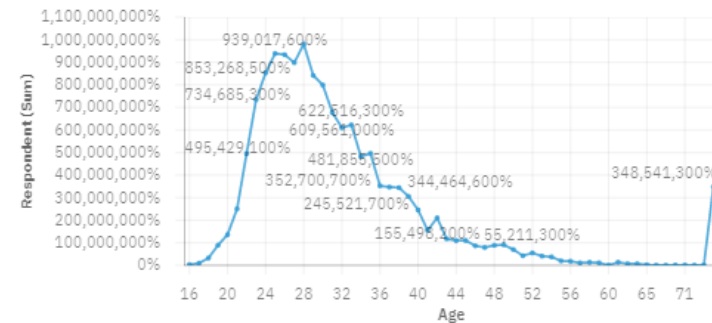
Respondent Count by Age

Respondent (Sum)

86,500%
3,915,424,000%

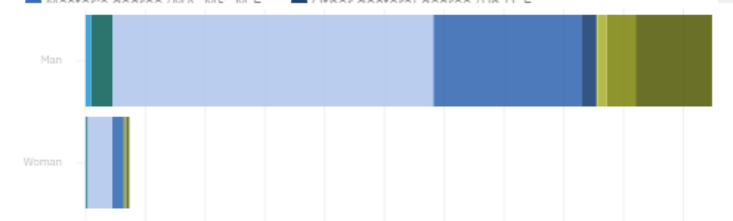


Respondent Count by Age



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 ...
● Master's degree (MA, MS, M.F) ● Other doctoral degree (Ph.D, E



DISCUSSION



- Technology Trends now and future
- Training and Reskilling workers
- Females participation in Technology field
- Bridge divide of technology gaps in developing countries
- Eliminate age and education discrimination in employment

OVERALL FINDINGS & IMPLICATIONS

Findings

- Fast changing technology every year
- Concentration on several countries like USA and India
- Gender gap in technology jobs
- Platforms like Docker and AWS are growing

Implications

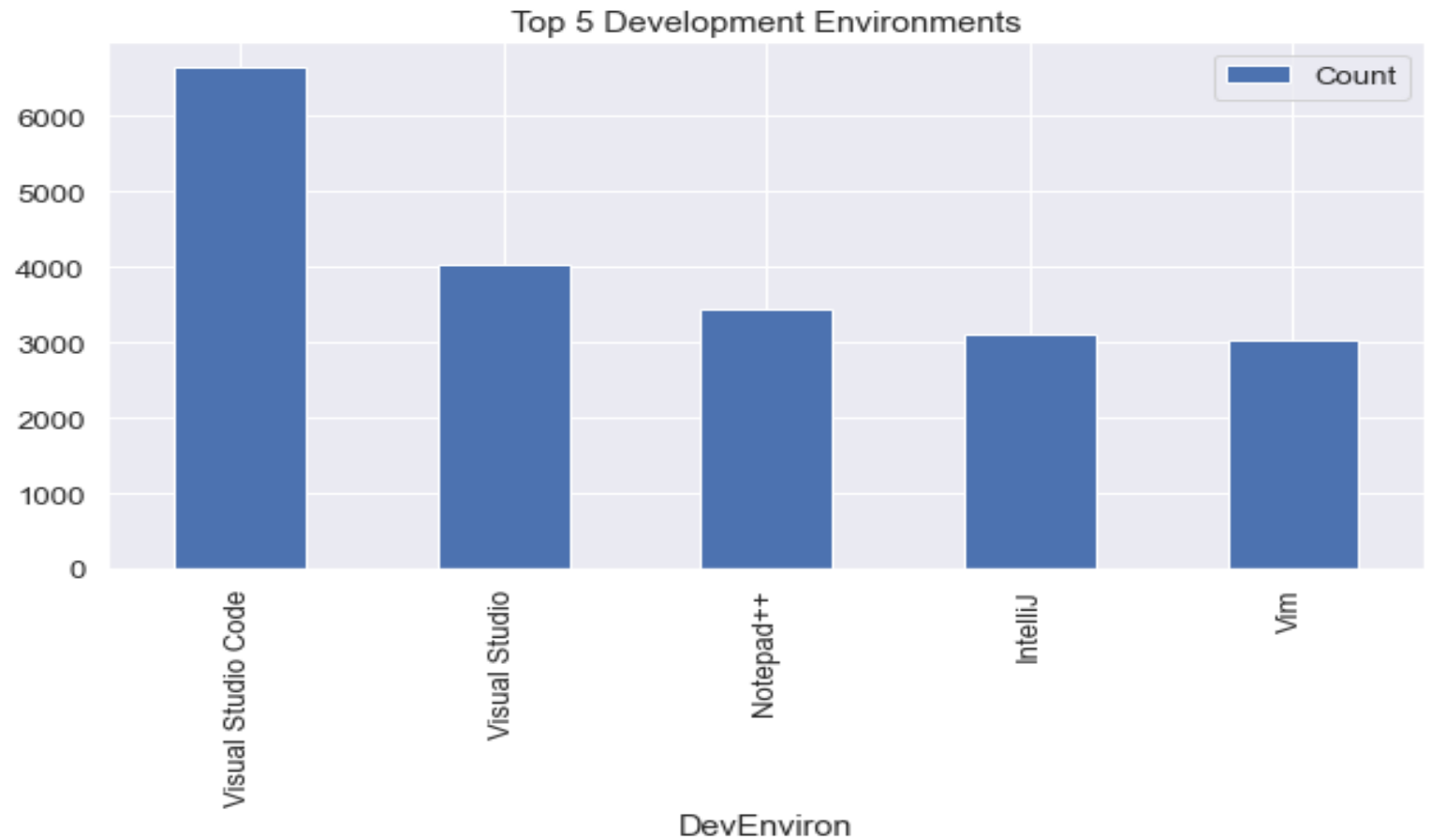
- Companies need to be flexible and adjust to rapid changes
- Need to spread technology out to lagging countries
- Impact of job hiring's
- Shift to faster app deployments and cloud services in future

CONCLUSION



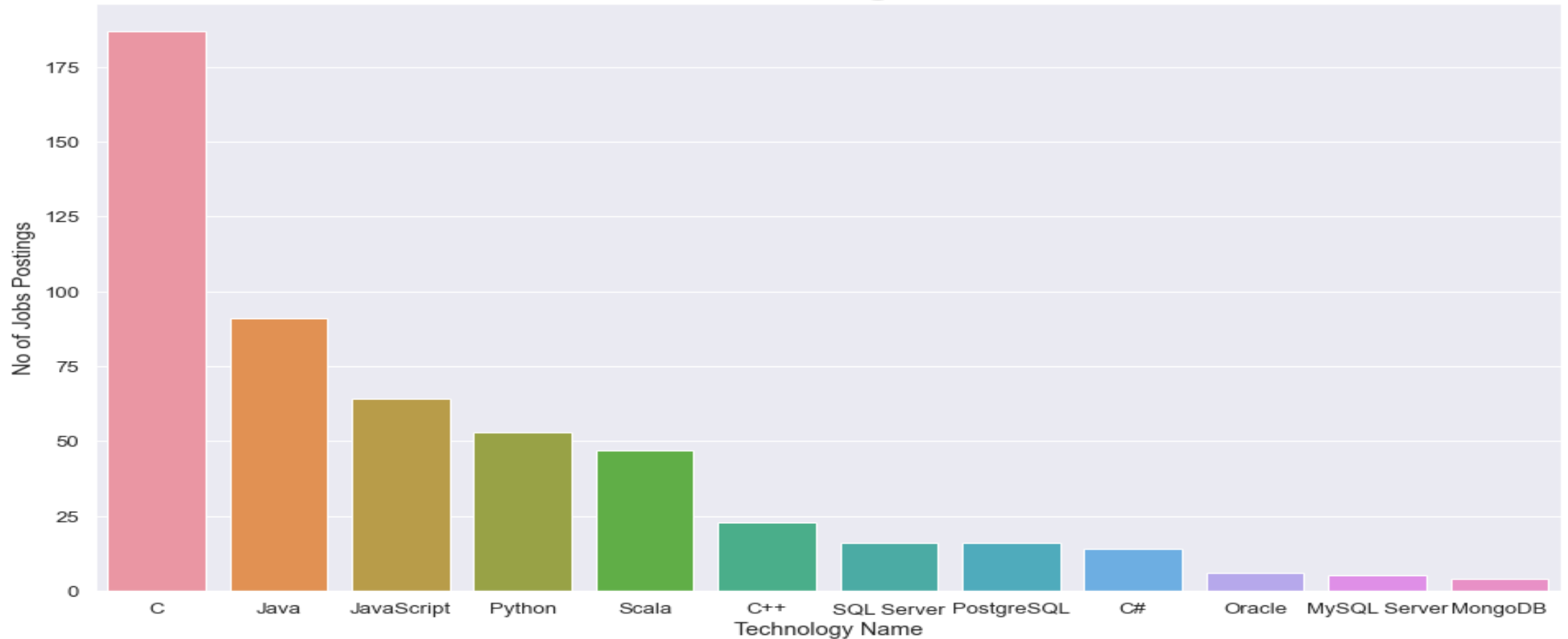
- Technology Trends for current and next year
- Programming Languages, Database and Platform overview
- Demographics overview
- Actions to be taken
- In future, incorporate Machine Learning to predict trends and salaries

APPENDIX



GITHUB JOB POSTINGS

Number of Jobs @ Github



POPULAR LANGUAGES BY SALARY

