Technology Trends & Analysis Presentation

Willie Conway

February 2025

IBM Developer

SKILLS NETWORK

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

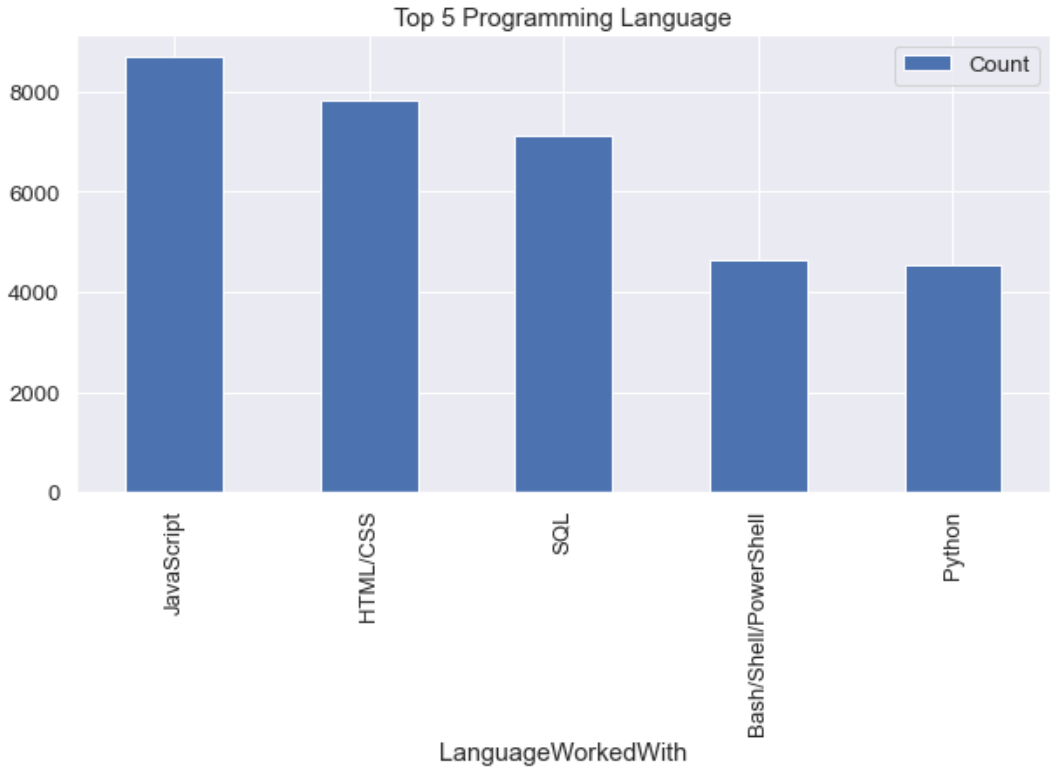
RESULTS

Results are based on this table:

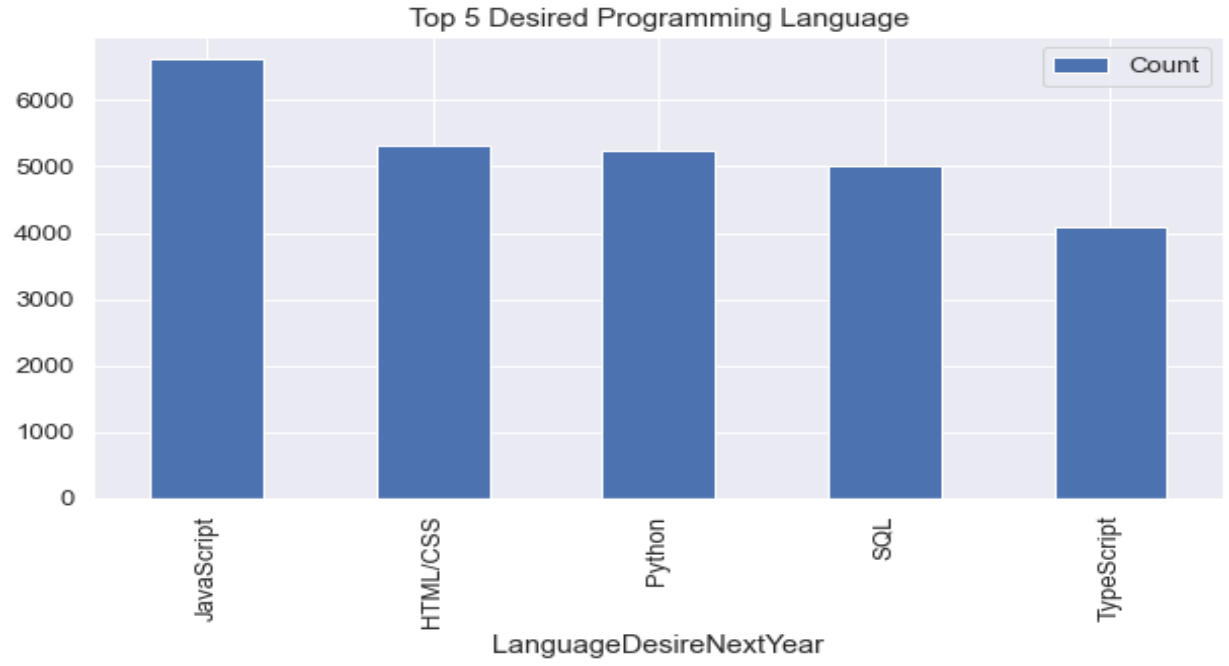
	Respondent	LanguageWorkedWith	LanguageDesireNextYear	DatabaseWorkedWith	DatabaseDesireNextYear	PlatformWorkedWith
0	4	C	C	MySQL	MySQL	Linux
1	4	C++	C#	SQLite	SQLite	Windows
2	4	C#	JavaScript	NaN	NaN	NaN
3	4	Python	SQL	NaN	NaN	NaN
4	4	SQL	NaN	NaN	NaN	NaN
...	...	...	...	...	...	...
74584	25142	Go	Python	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

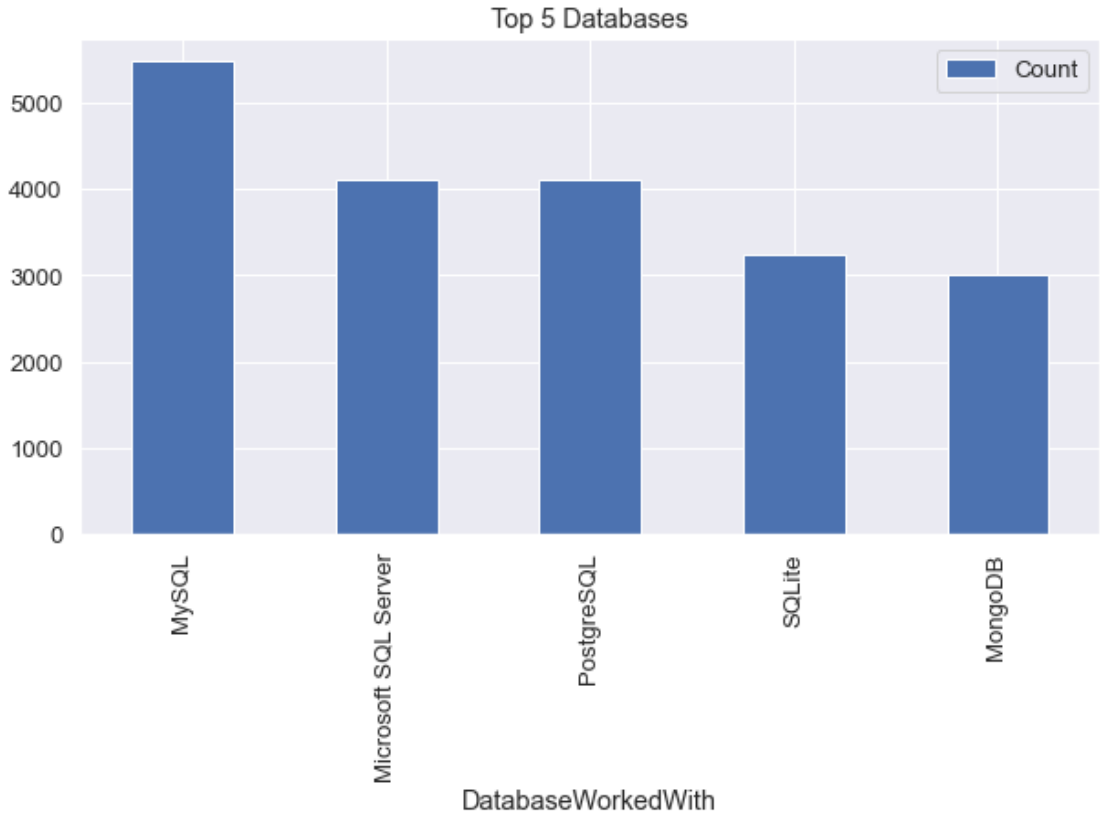
- JavaScript, HTML/CSS, SQL are top 3 this year
- Python and Typescript becoming popular next year
- PowerShell edged out in next year

Implications

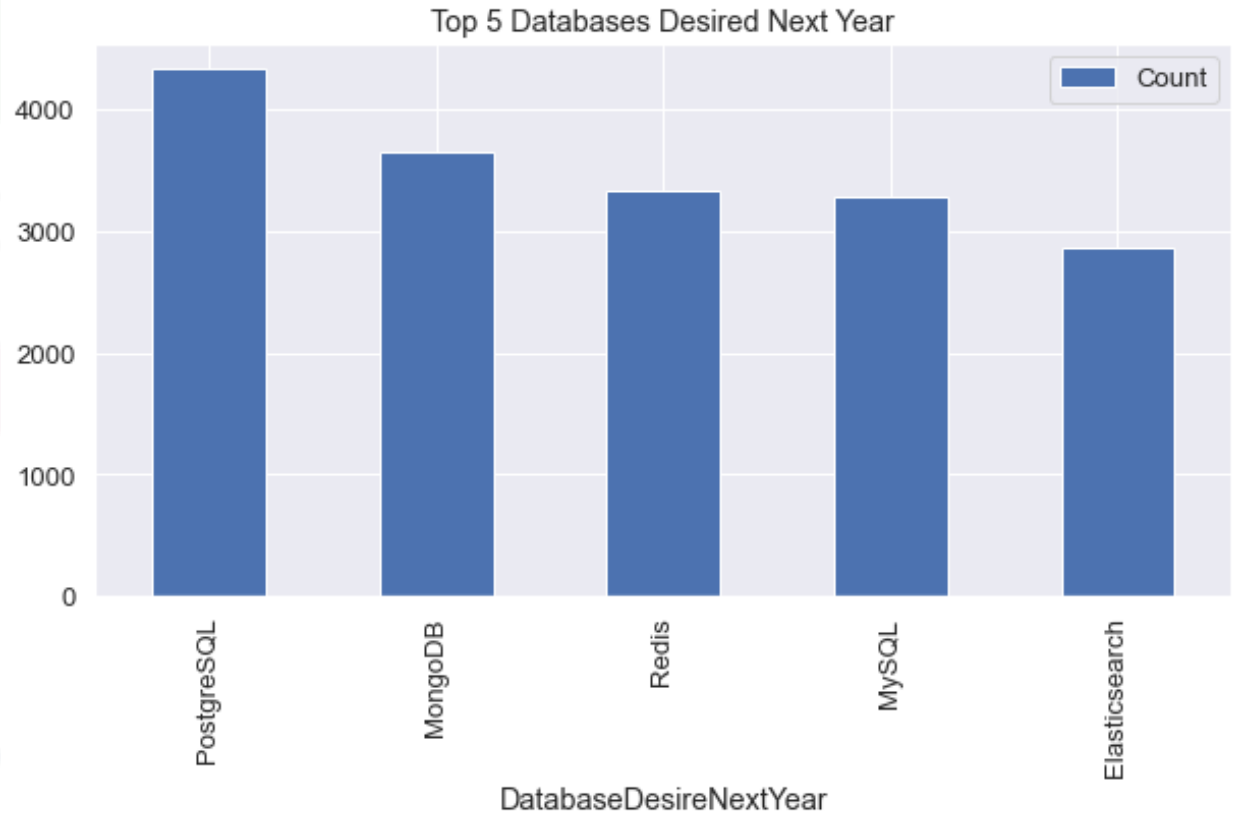
- Web development are still in high demand
- Big Data technology in companies still requires SQL
- With AI and ML in rising demand, Python is best choice

DATABASE TRENDS

Current Year



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

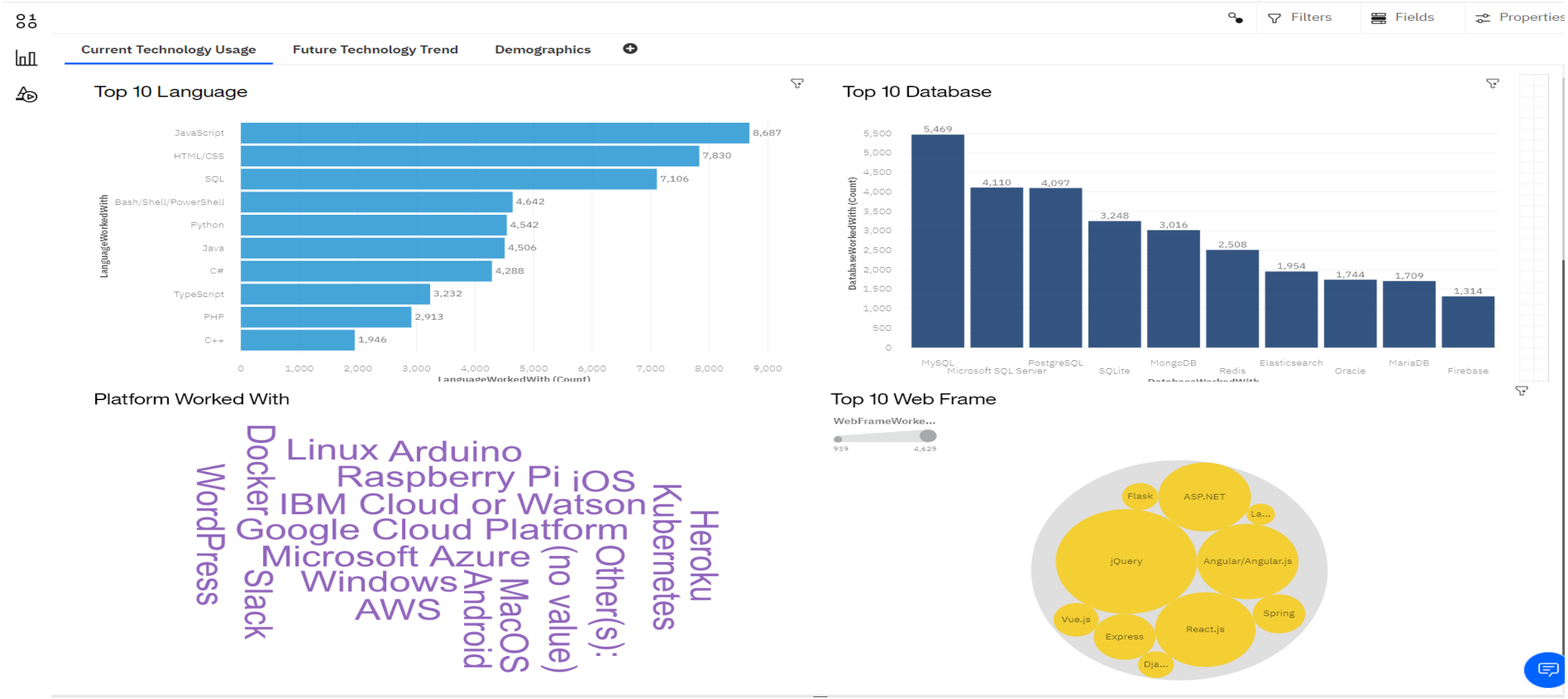
- Open-source databases are still preferable in companies
- NoSQL databases will make an impact for storing non-relational data
- Redis supports abstract data types
- Pre-tuned search to website, app, or ecommerce store

DASHBOARD

IBM COGNOS LINK DASHBOARD

https://dataplatform.cloud.ibm.com/dashboards/71f05cf2-51d4-4005-8bdb-67f4279f16b0/view/4364b81f39e9239610f5dce407992a0e2b622c5fb6bbd20380d47b490e357297a86045c2c82b1d08dc435637f4ba24102ccf

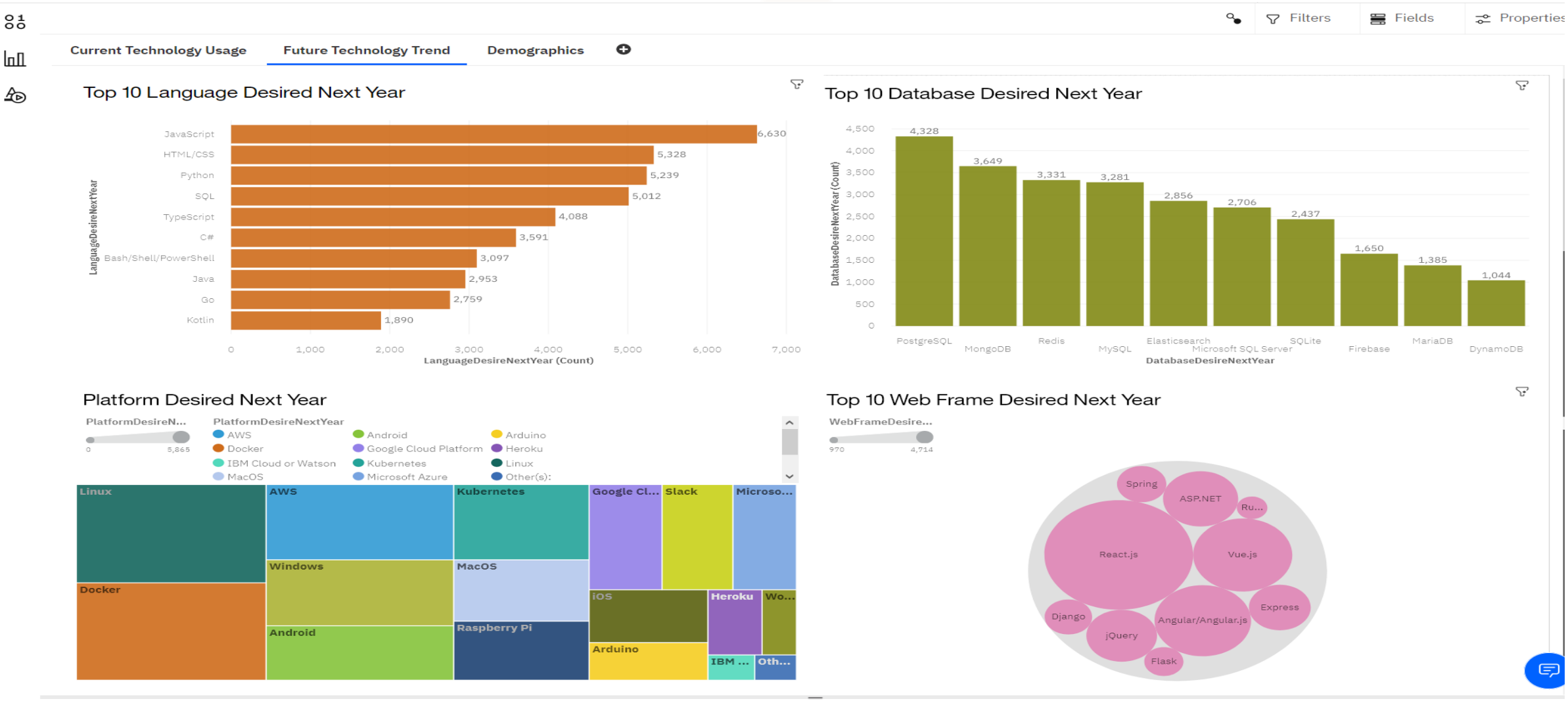
CURRENT TECHNOLOGY USAGE DASHBOARD



IBM Developer

SKILLS NETWORK

FUTURE TECHNOLOGY TREND DASHBOARD



IBM Developer

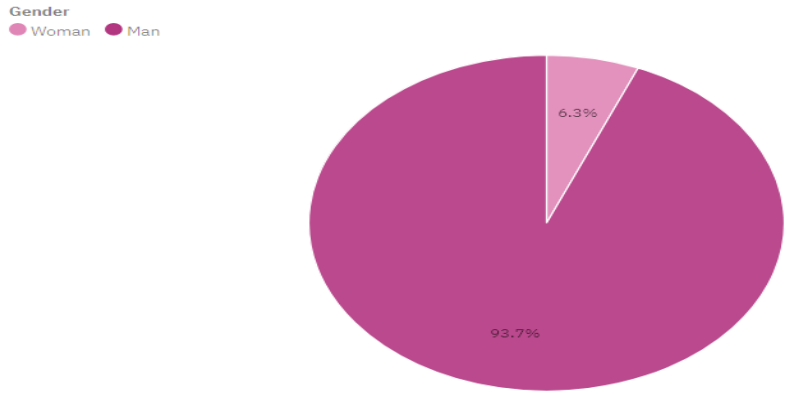
SKILLS NETWORK

DEMOGRAPHICS DASHBOARD

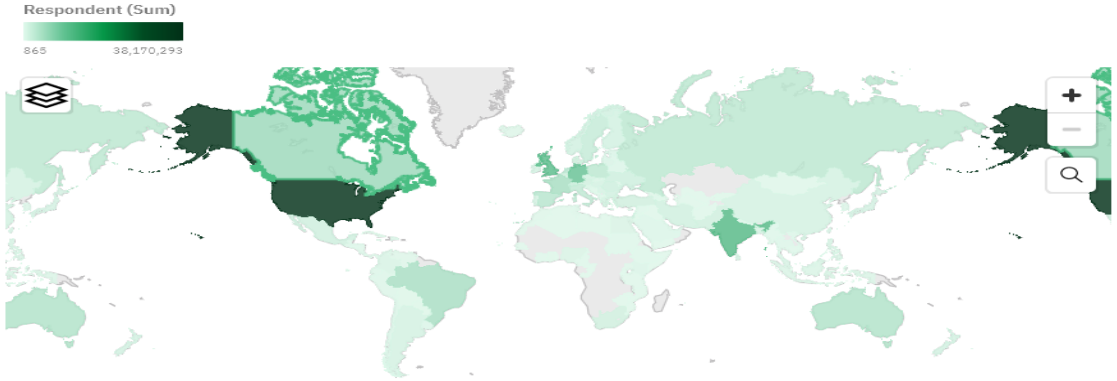
Filters | Fields | Properties

Current Technology Usage | Future Technology Trend | Demographics

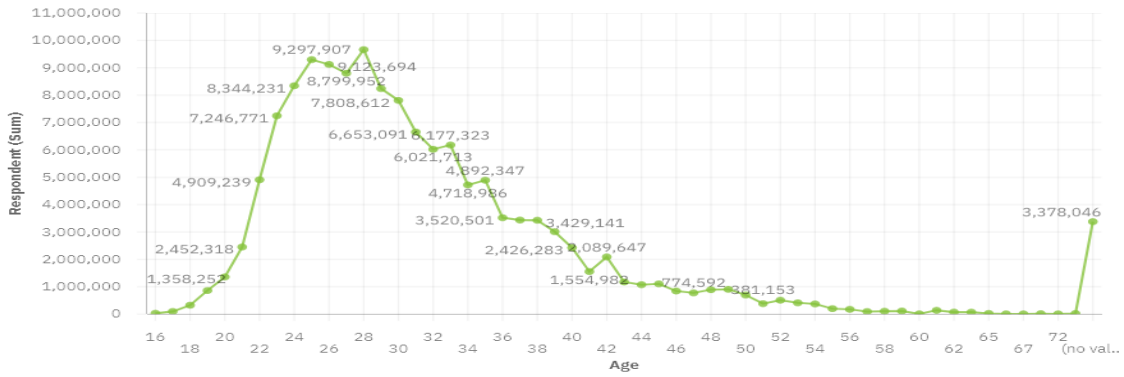
Respondent classified by Gender



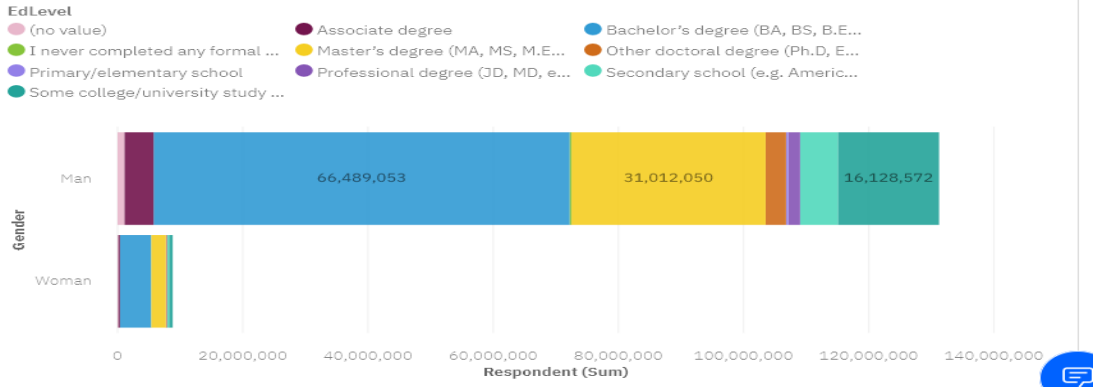
Respondent Count for Countries



Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level



IBM Developer

SKILLS NETWORK

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

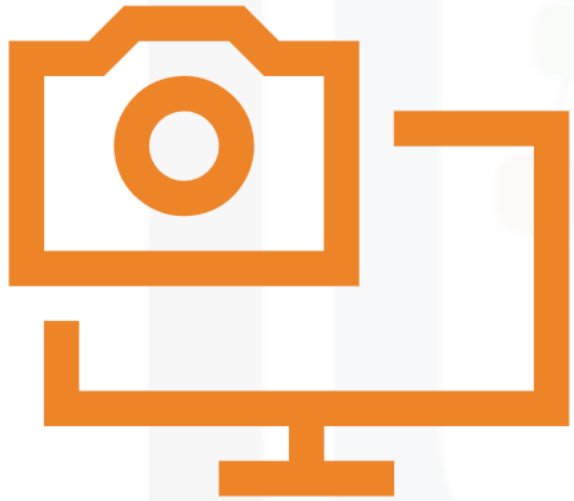
Implications

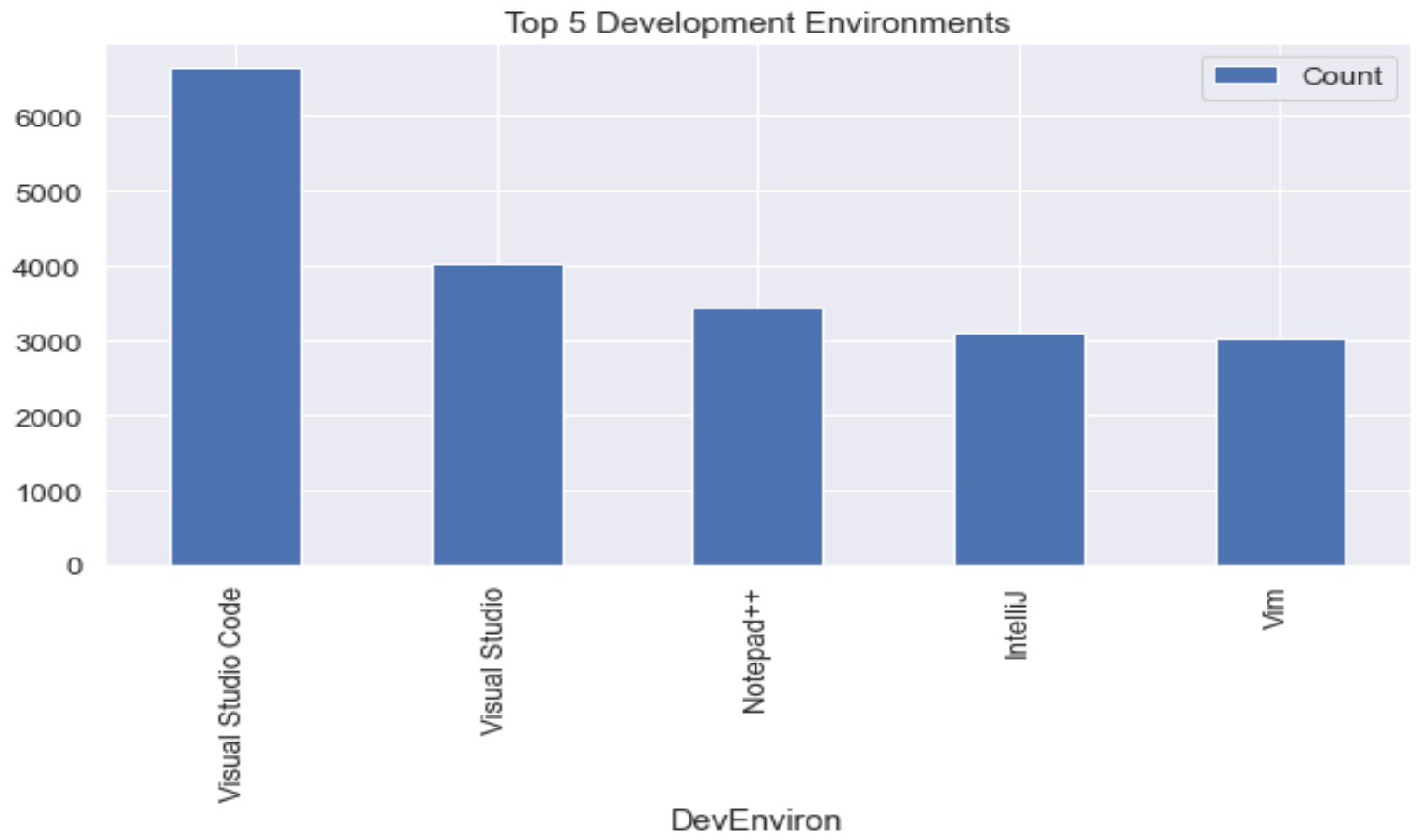
- Companies need to be flexible and adjust to rapid changes
- Need to spread technology out to lagging countries
- Impact of job hiring’s
- Shift to faster app deployments and cloud services in future

CONCLUSION

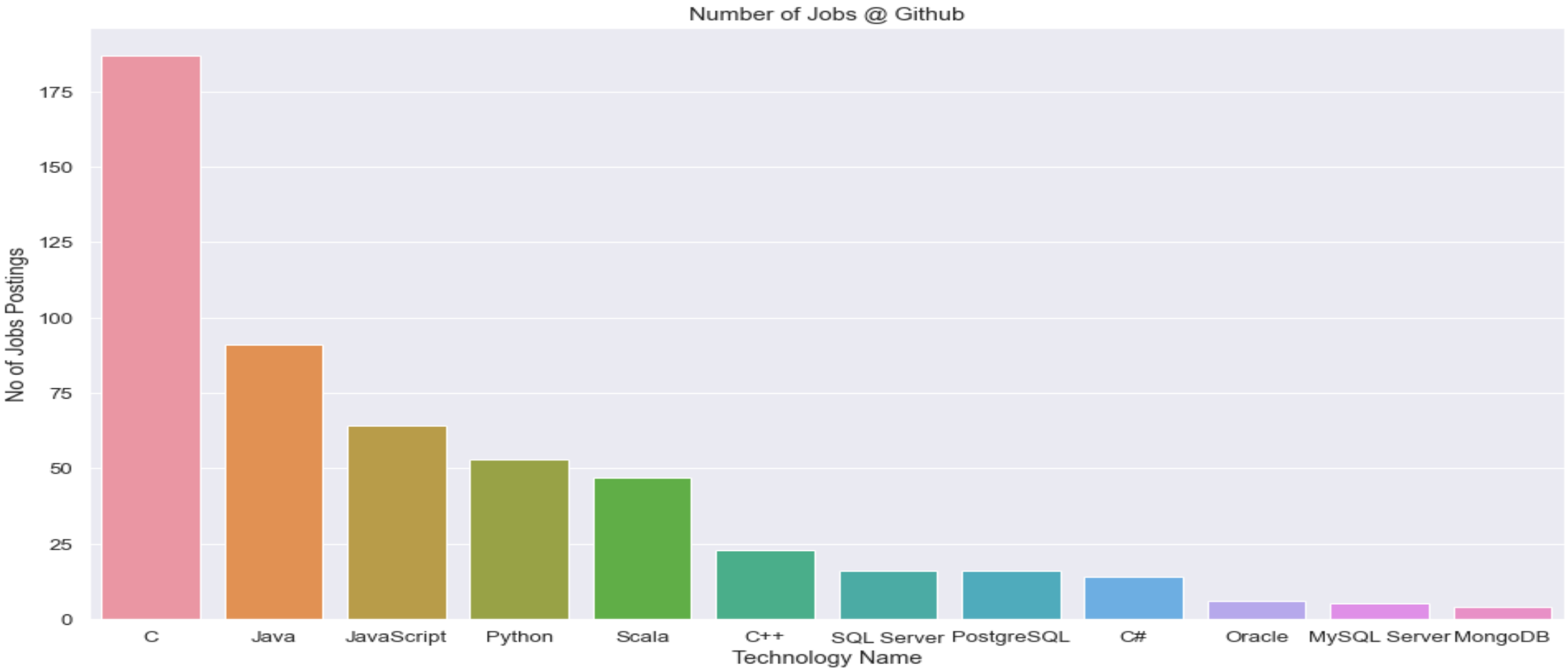
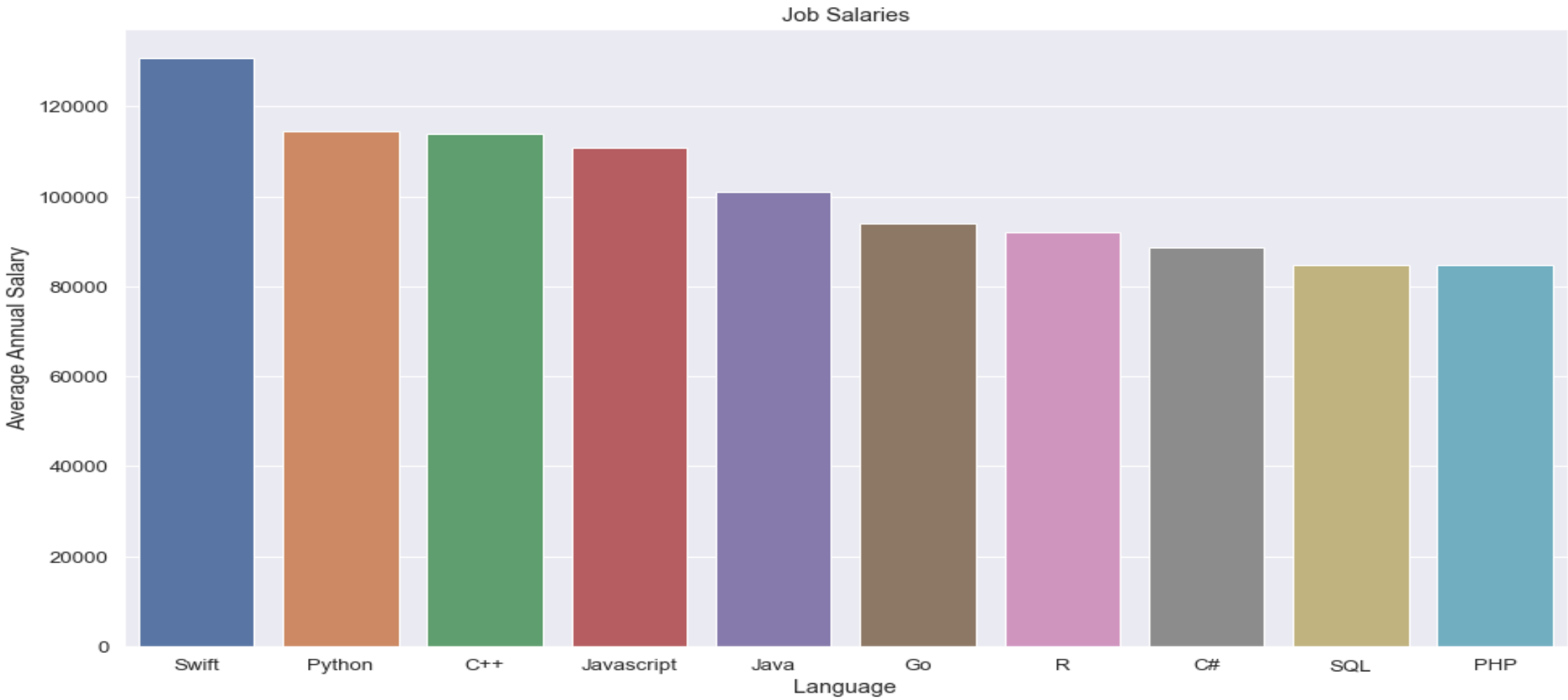
- Technology Trends for current and next year
- Programming Languages, Database and Platform overview
- Demographics overview
- Actions to be taken
- In future, incorporate Machine Learning to predict trends and salaries

APPENDIX




Top 5 Development Environments
Count
6000
5000
4000
3000
2000
1000
0
Visual Studio Code
Visual Studio
Notepad++
IntelliJ
Vim
DevEnviron

GITHUB JOB POSTINGS



POPULAR LANGUAGES BY SALARY