

Identifying and Analyzing Current and Future Technology Trends

IBM Data Analyst Certificate Capstone Project

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OUTLINE

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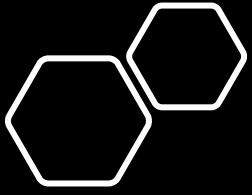


EXECUTIVE SUMMARY

- Trends in programming languages and databases
- Demographics survey
- Technological gap in countries
- Gender gap in jobs
- Top salaries per language

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 popular IDEs?
- Audience: IT Head and Human Resources



METHODOLOGY

- Collect the top programming skills that are most in demand:
 - Job postings
 - Training portals
 - Surveys
- Data Wrangling:
 - Identify duplicate rows in the data frame
 - Remove duplicate rows in the data frame
 - Find the number of missing values for all columns
 - Normalize the data
- Analyze the data:
 - Plot distribution curve, and histogram
 - Find the median, and outliers of particular columns
 - Create a new data frame
- Identify insights and trends:
 - What are the top programming languages in demand?
 - What are the top database skills in demand?
 - What are the popular IDEs?



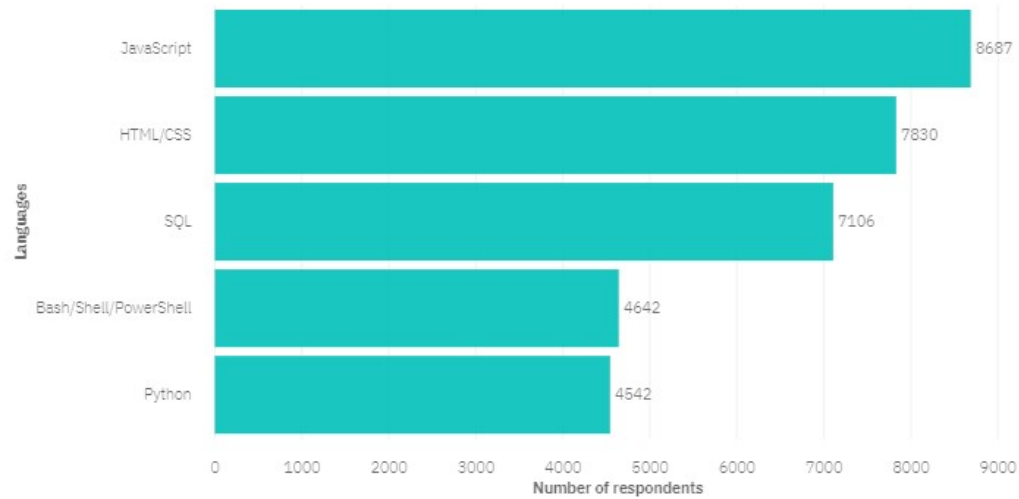
RESULTS

Results are based on this table:

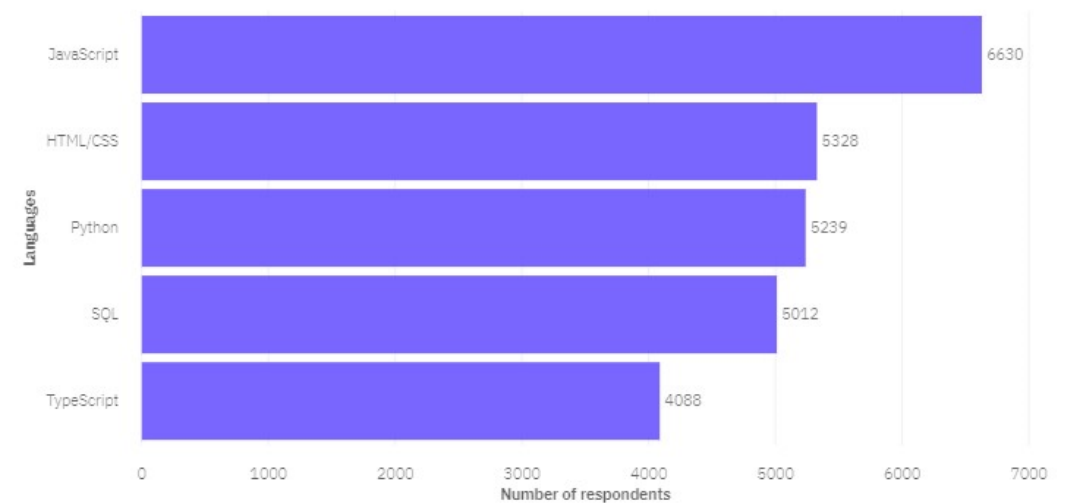
	Respondent	LanguageWorkedWith	LanguageDesireNextYear	DatabaseWorkedWith	DatabaseDesireNextYear	PlatformWorkedWith
0	4	C	C	MySQL	MySQL	Linux
1	4	C++	C#	SQLite	SQLite	Windows
2	4	C#	JavaScript	NaN	NaN	NaN
3	4	Python	SQL	NaN	NaN	NaN
4	4	SQL	NaN	NaN	NaN	NaN
...
74584	25142	Go	Python	NaN	NaN	NaN
74585	25142	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

Top 5 Programming Languages



Top 5 Programming Languages Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

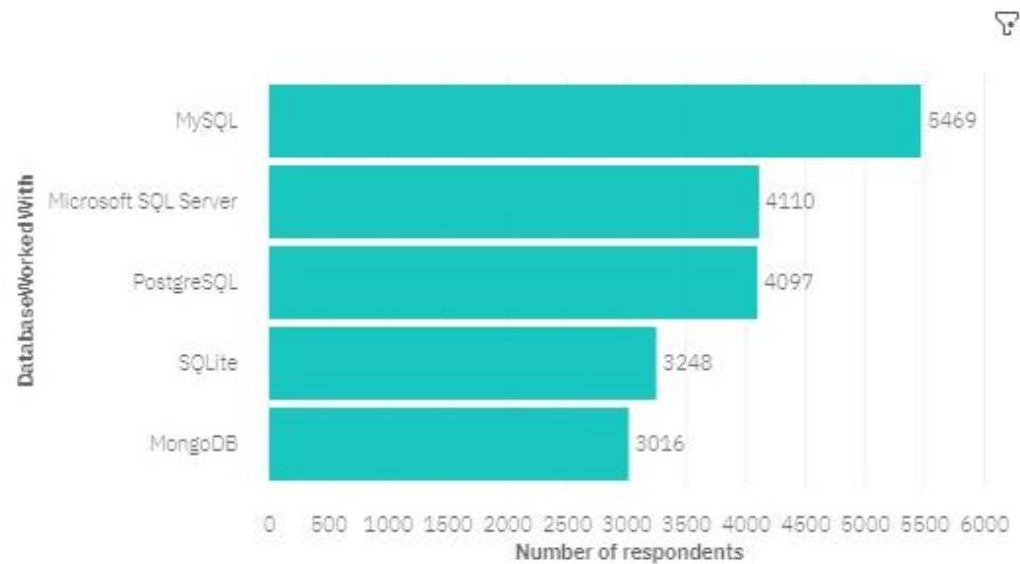
- JavaScript keeps being the most used and desired language to be learned.
- Python keeps gaining popularity.
- Bash/Shell/PowerShell seems to be losing desire.

Implications

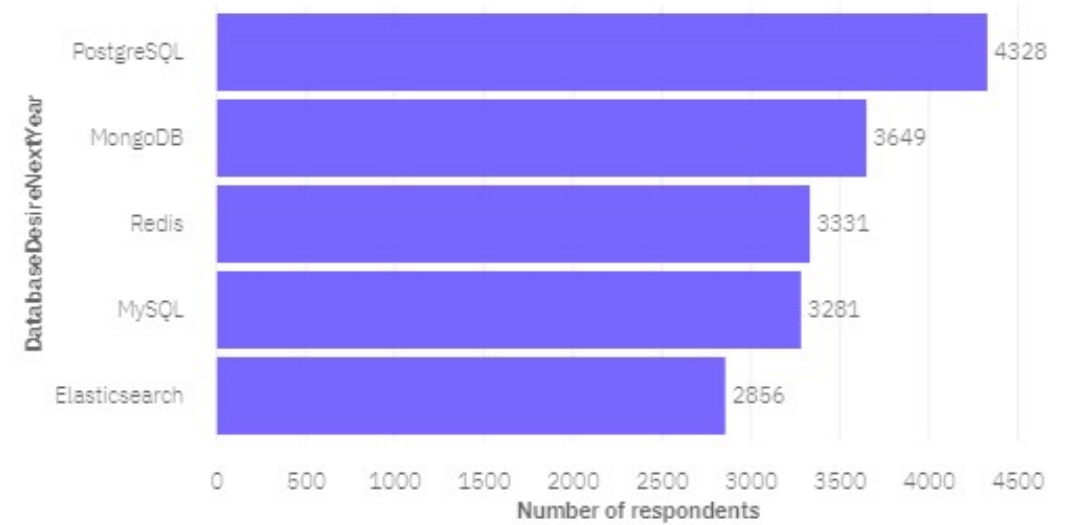
- Web development are still in high demand.
- Big Data technology in companies still requires SQL.
- With AI and ML in rising demand, Python is the current and future best choice.

DATABASE TRENDS

Top 5 Databases



Top 5 Databases Desire for Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

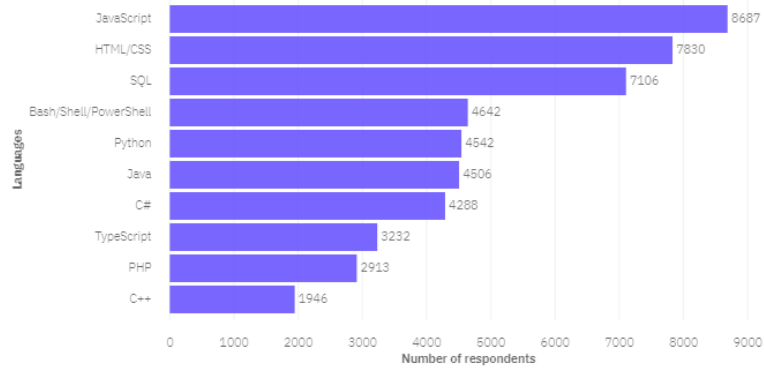
- MySQL is the most popular database now.
- MongoDB and Redis are becoming the favorites.
- Elasticsearch is gaining popularity.

Implications

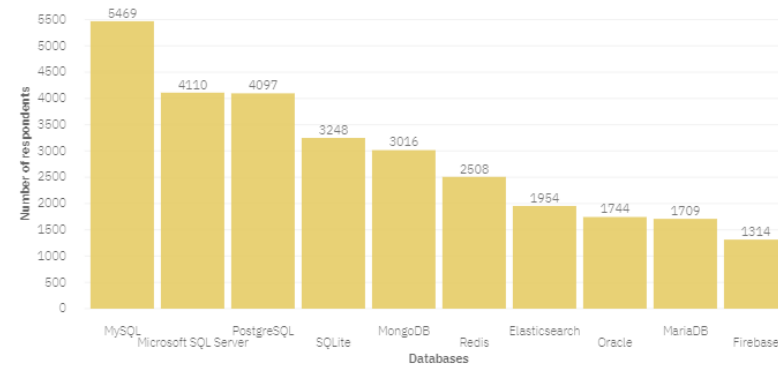
- Open-source databases are still preferable in companies.
- NoSQL databases will make an impact for storing non-relational data.
- Redit supports abstract data types.
- Pre-tuned search to website, app, or ecommerce store.

Current Technology Usage

Language Worked With



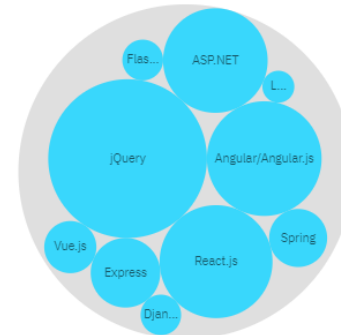
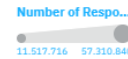
Database Worked With



Platform Worked With

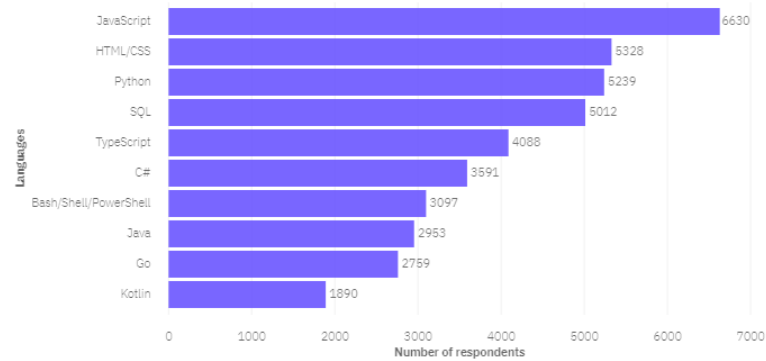


WebFrame Worked With

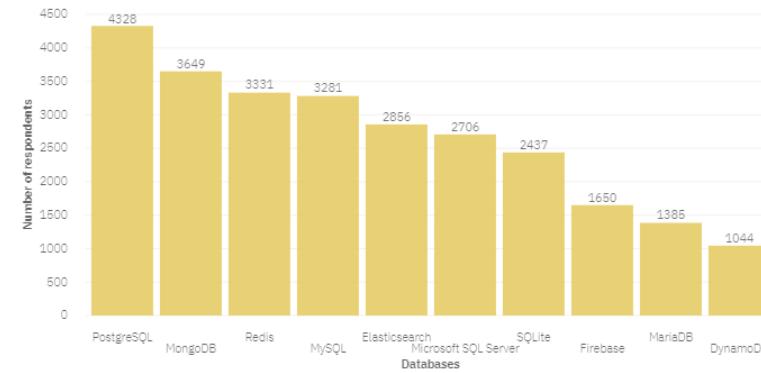


Future Technology Trend

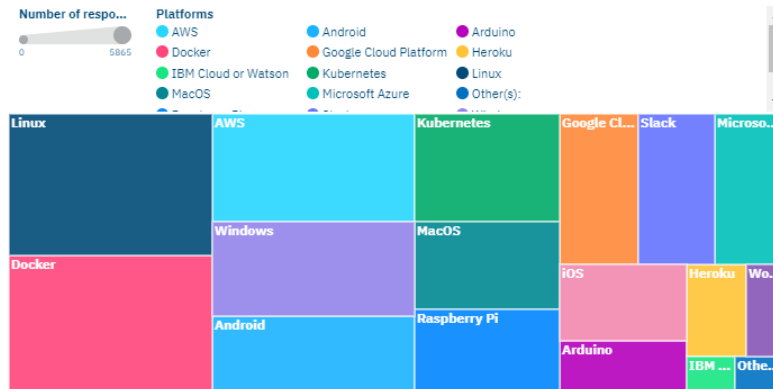
Language Desire Next Year



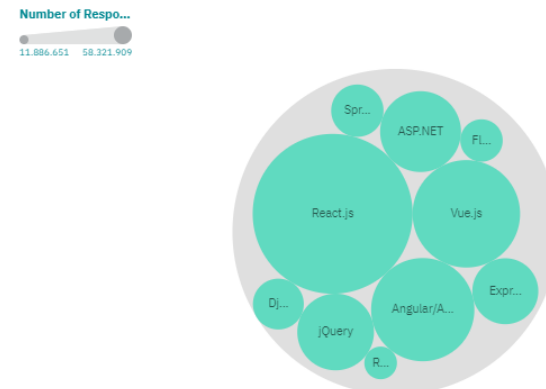
Database Desire Next Year



Platform Desire Next Year



WebFrame Desire Next Year

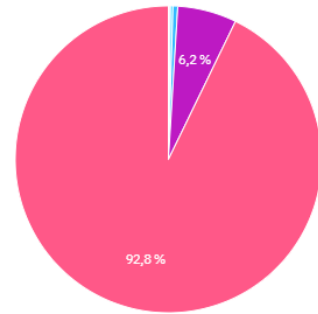


Demographics

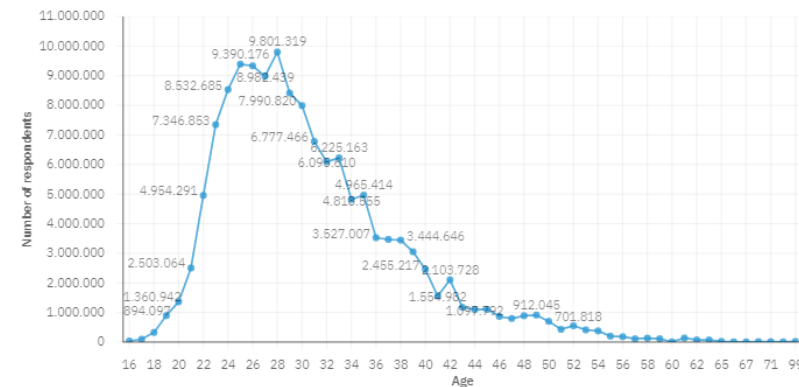
Respondent classified by Gender

Gender

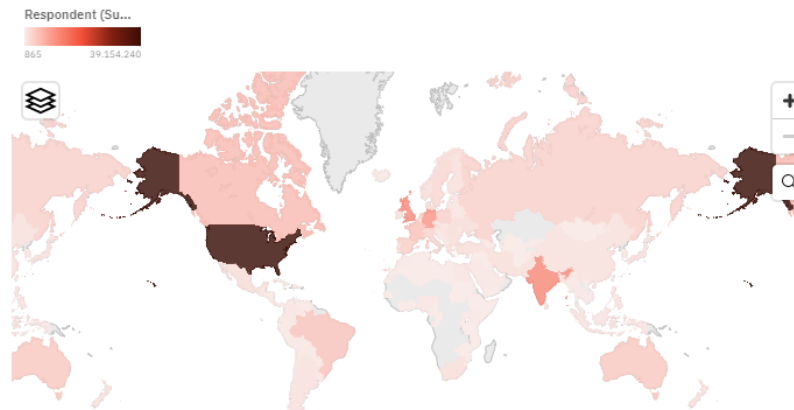
- Woman;Man;Non-binary, genderqueer, or gender non-conforming
- Woman;Man
- Woman;Non-binary, genderqueer, or gender non-conforming
- Man;Non-binary, genderqueer, or gender non-conforming
- Non-binary, genderqueer, or gender non-conforming
- Woman
- Man



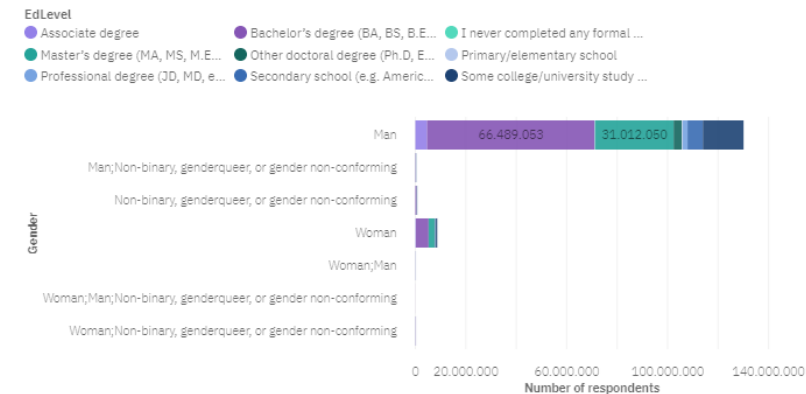
Respondent Count by Age



Respondent Count for Countries



Respondent Count by Gender, classified by Formal Education Level



DASHBOARD

- <<https://dataplatfom.cloud.ibm.com/dashboards/567c6805-af69-47d5-9ea1-1e2150c6b899/view/0e01a30d22913cd561fcd4e407907e002f36235fb7bb8756d6d77b4959657097f06a10c7c8274e0c8c430664a6bd1b5c9b>>

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 technologies every year.
- Concentration on several countries like USA and India
- Gender gap in technology jobs

Implications

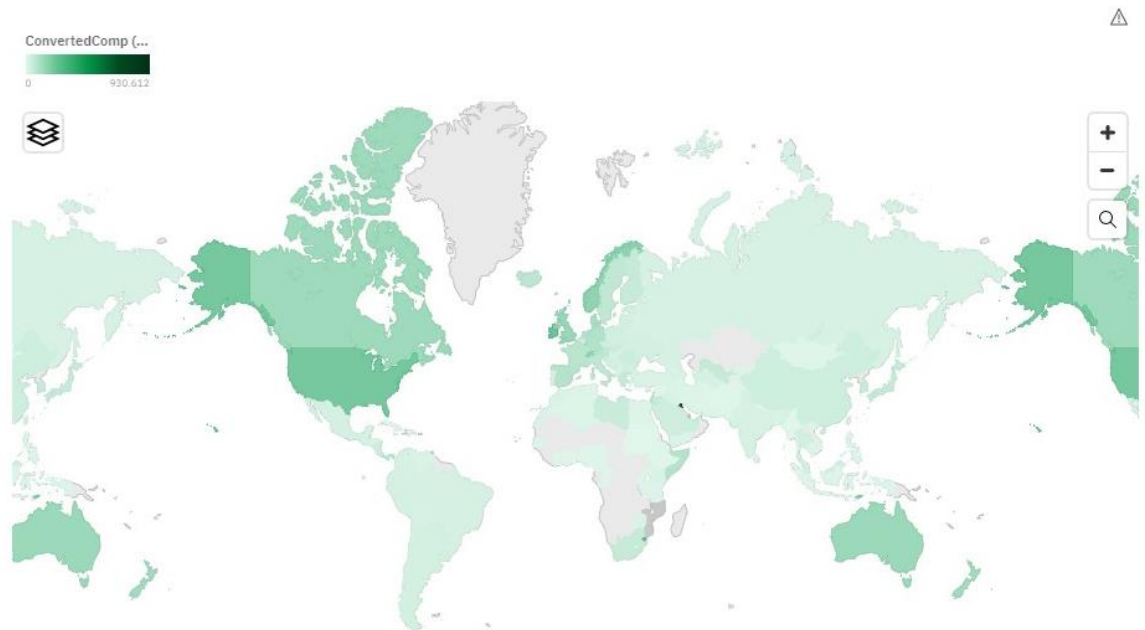
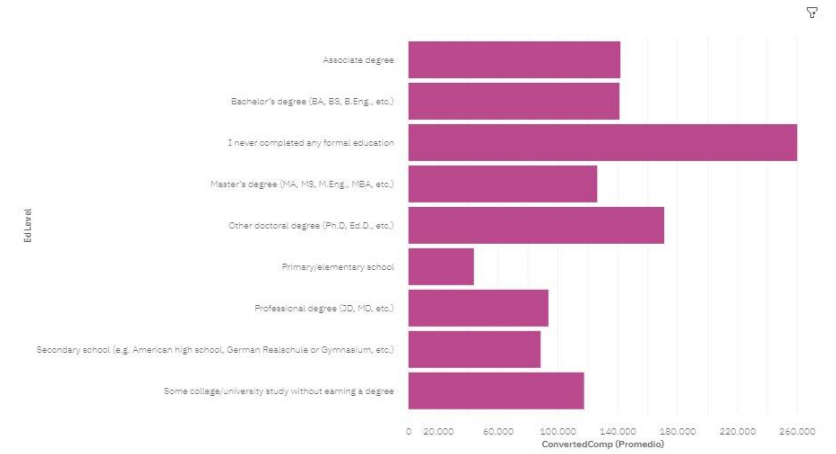
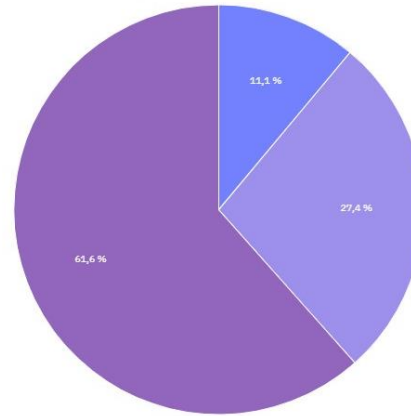
- Companies need to be flexible and adjust to rapid changes.
- Need to spread technology out to lagging countries
- Shift to faster app deployments and cloud services in the future

CONCLUSION

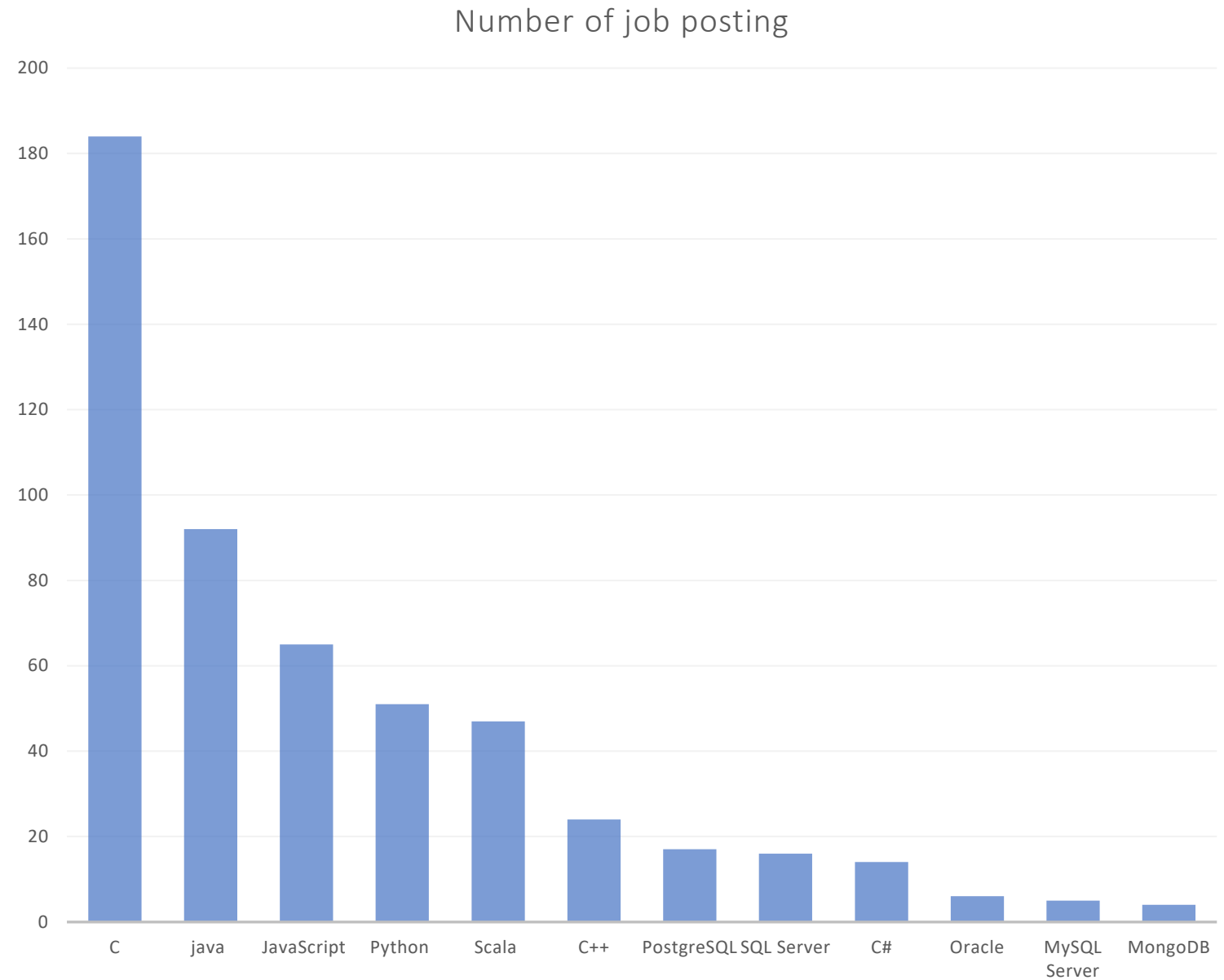
- Technology Trends for current and next year
- Programming Languages, Database and Platform overview
- Demographics overview
- Actions to be taken
- In future, incorporate Machine Learning to predict trends and salaries

APPENDIX

JobSeek
● I am actively looking for a job ● I am not interested in new job ... ● I'm not actively looking, but I ...



GITHUB JOB POSTINGS



POPULAR LANGUAGES

