IBM Data Analysis Capstone

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OUTLINE

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

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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

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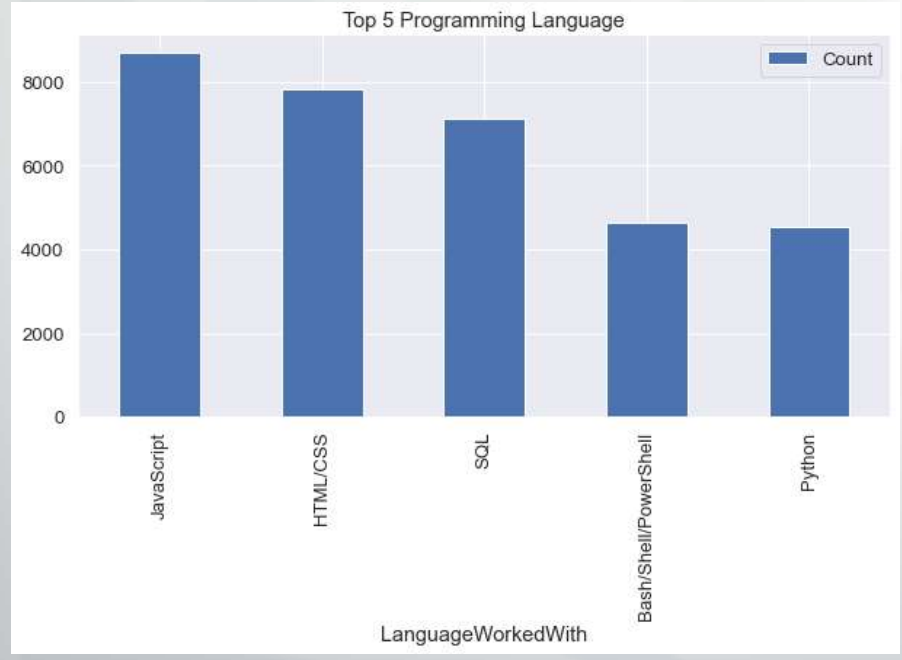
RESULTS

Results are based on this table:

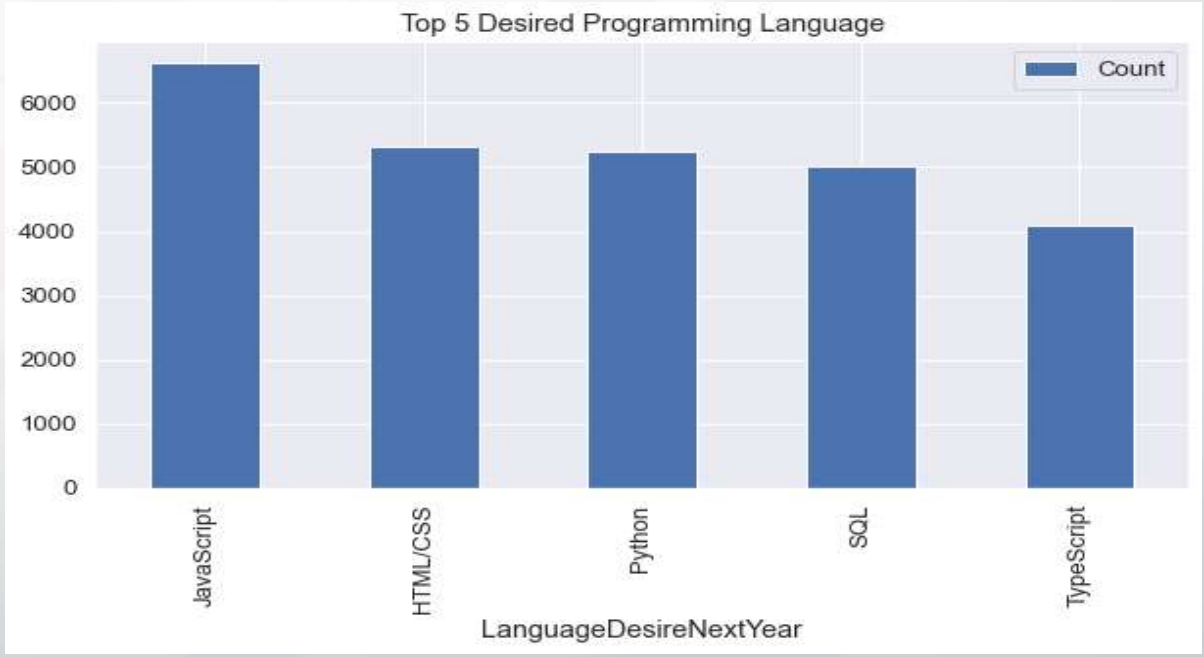
	Respondent	LanguageWorkedWith	LanguageDesireNextYear	DatabaseWorkedWith	DatabaseDesireNextYear	PlatformWorkedWith
0	4	C	C	MySQL	MySQL	Linux
1	4	C++	C#	SQLite	SQLite	Windows
2	4	C#	JavaScript	NaN	NaN	NaN
3	4	Python	SQL	NaN	NaN	NaN
4	4	SQL	NaN	NaN	NaN	NaN
...	...	...	...	...	...	...
74584	25142	Go	Python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



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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

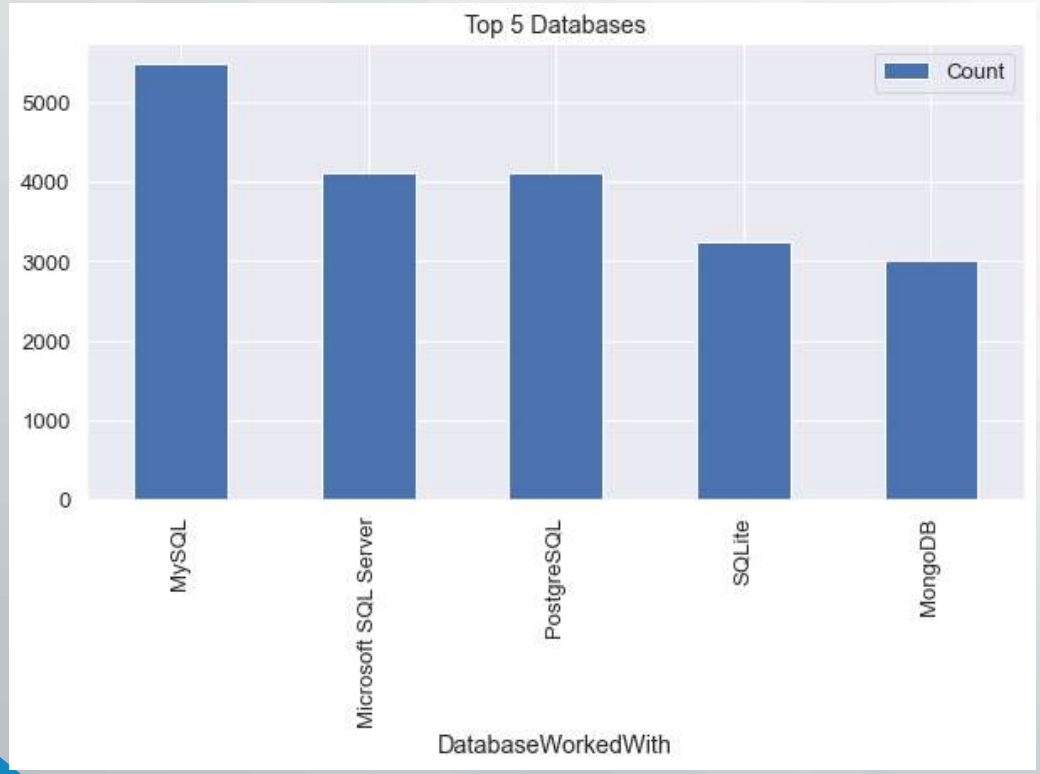
- JavaScript, HTML/CSS, SQL are top 3 this year
- Python and Typescript becoming popular next year
- PowerShell edged out in next year

Implications

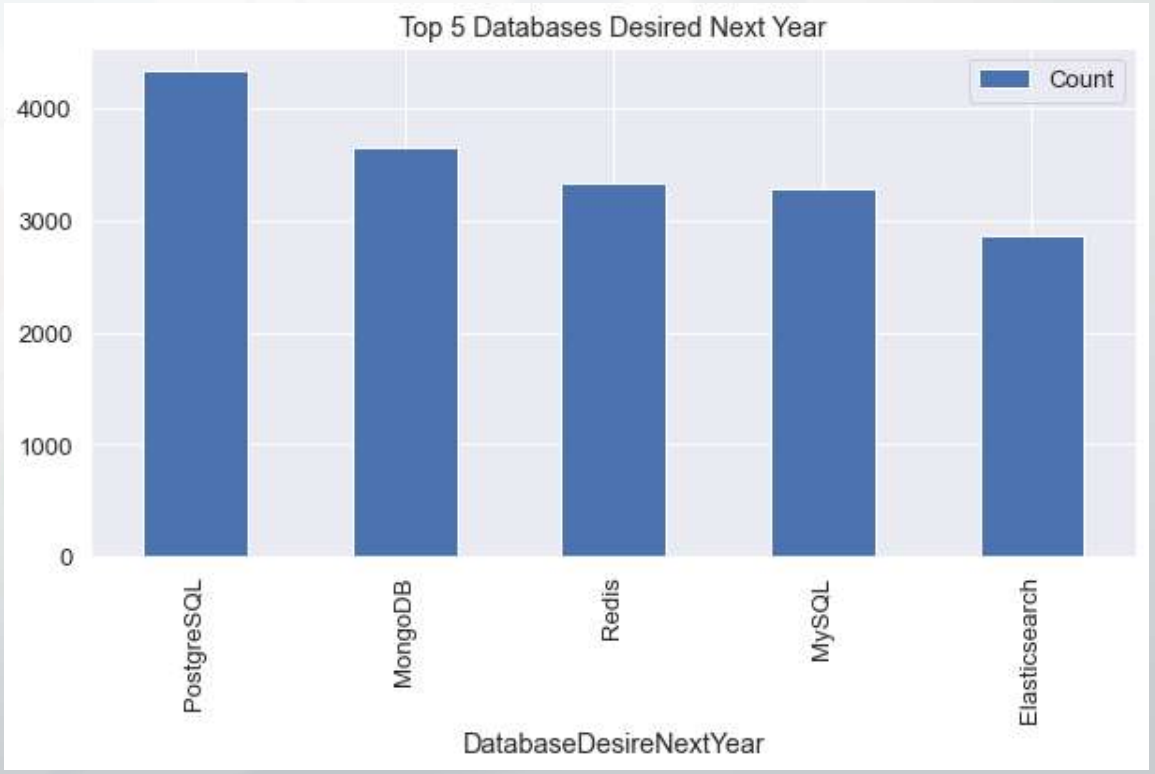
- Web development are still in high demand
- Big Data technology in companies still requires SQL
- With AI and ML in rising demand, Python is best choice

DATABASE TRENDS

Current Year



Next Year



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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

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DASHBOARD

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https://eu-gb.dataplatform.cloud.ibm.com/dashboards/a324d420-a9c5-454c-98ee-105e4c6eca2f/view/5068ea373eee28c852eac8e4079b7e037d352154e6bbd10ad1d67b495a352497f03c45c4c82f4d0fd3435365f6ba470ac9

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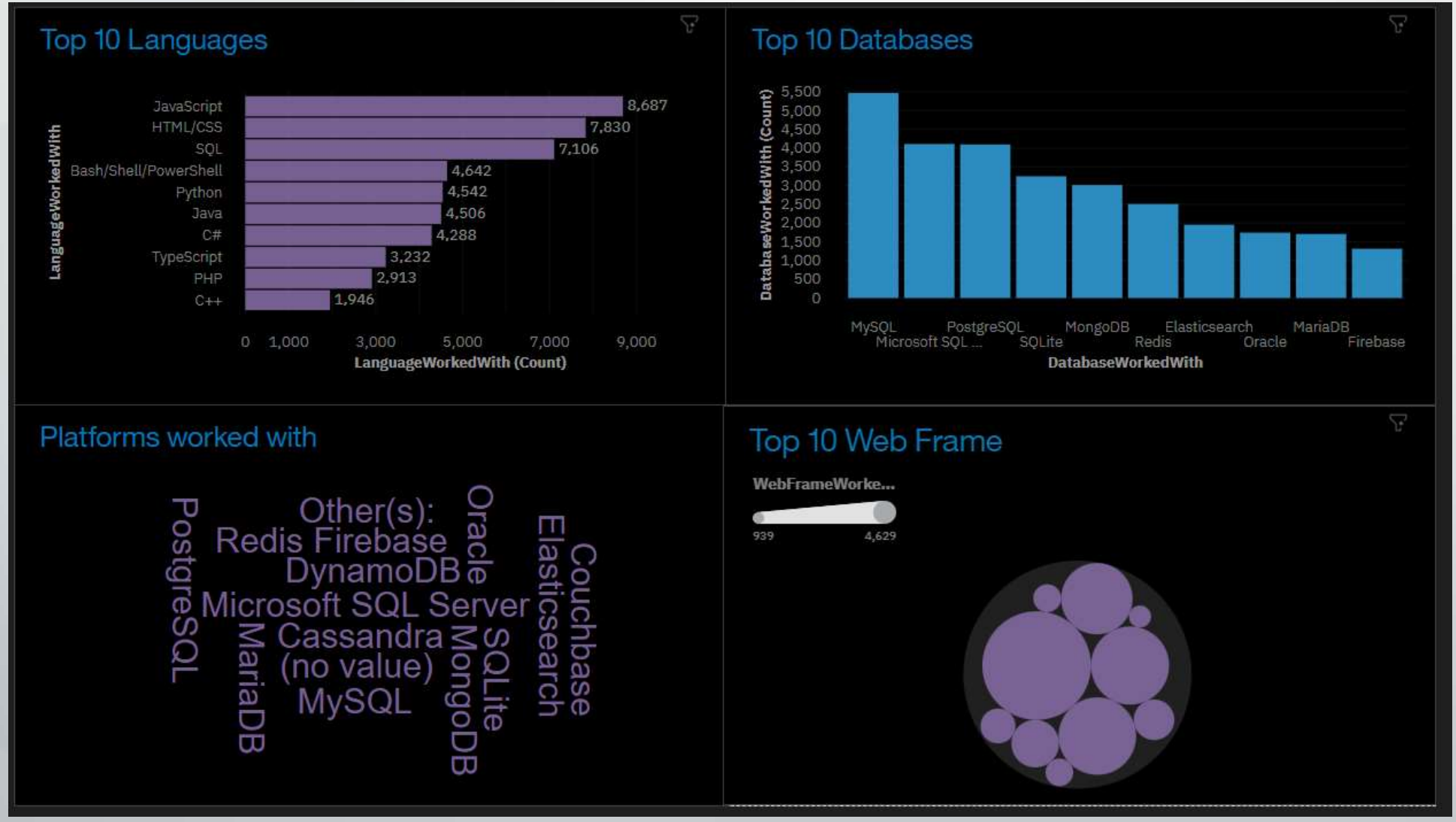
CURRENT TECHNOLOGY USAGE DASHBOARD



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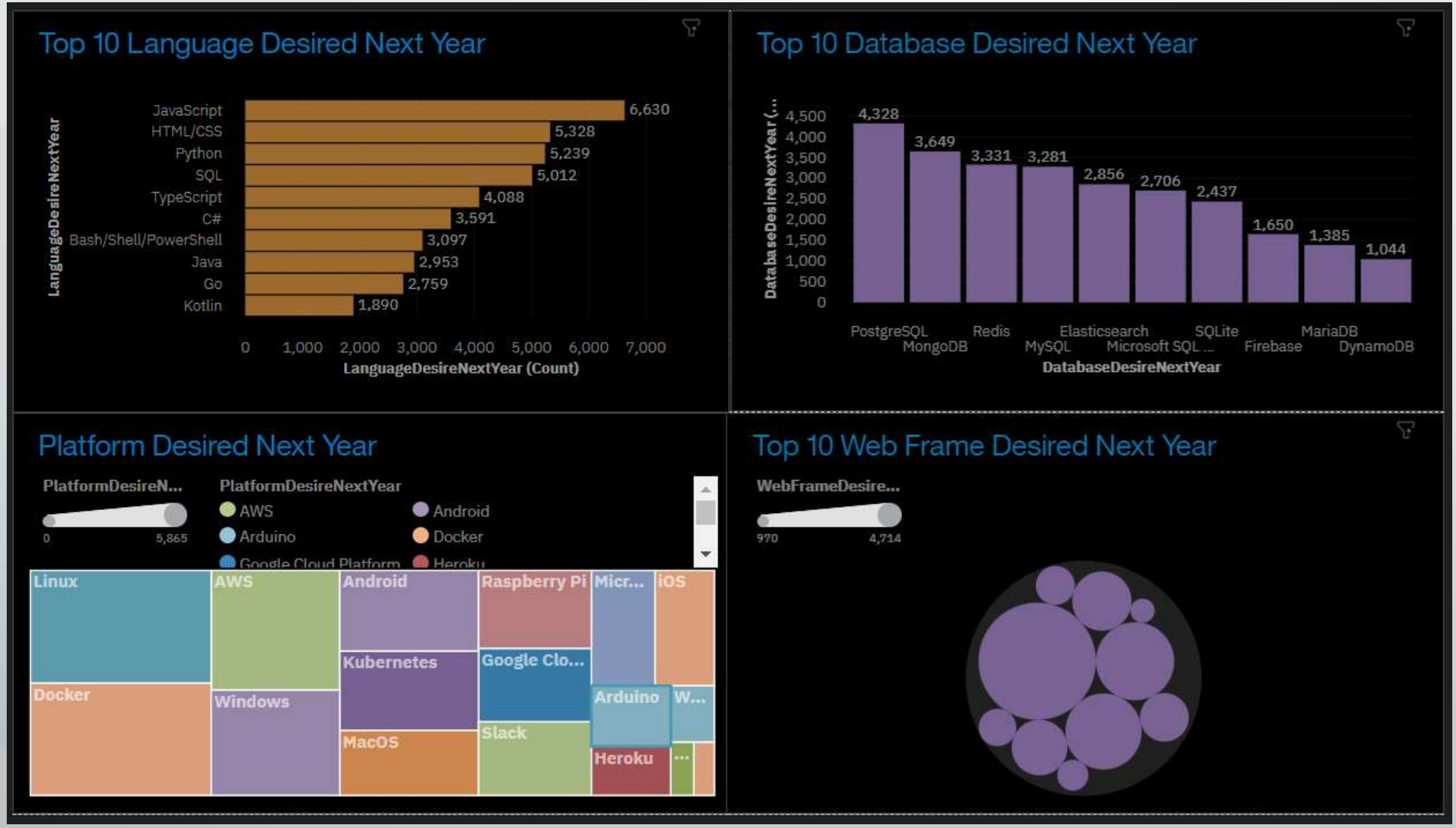
FUTURE TECHNOLOGY TREND DASHBOARD



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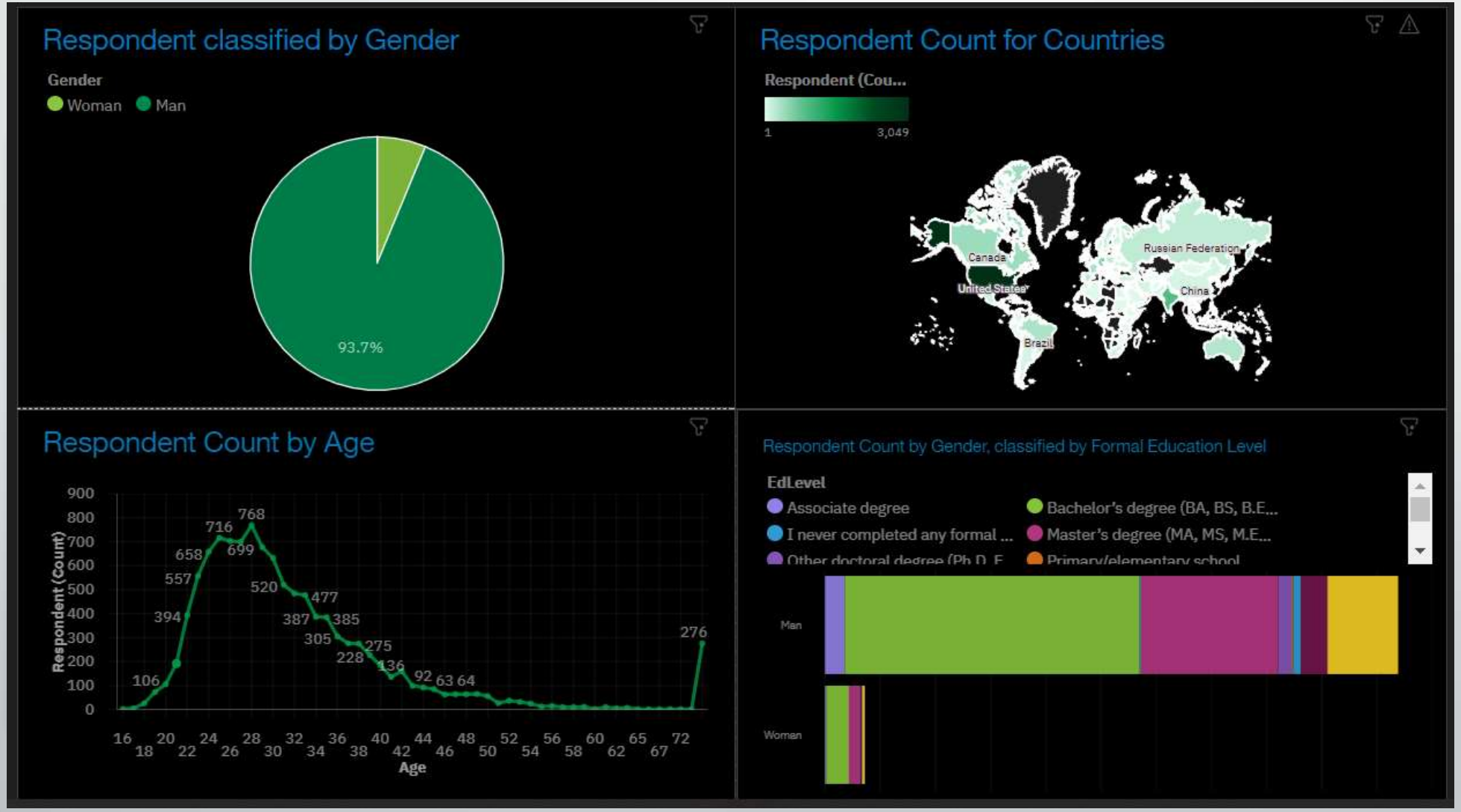
DEMOGRAPHICS DASHBOARD



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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

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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

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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

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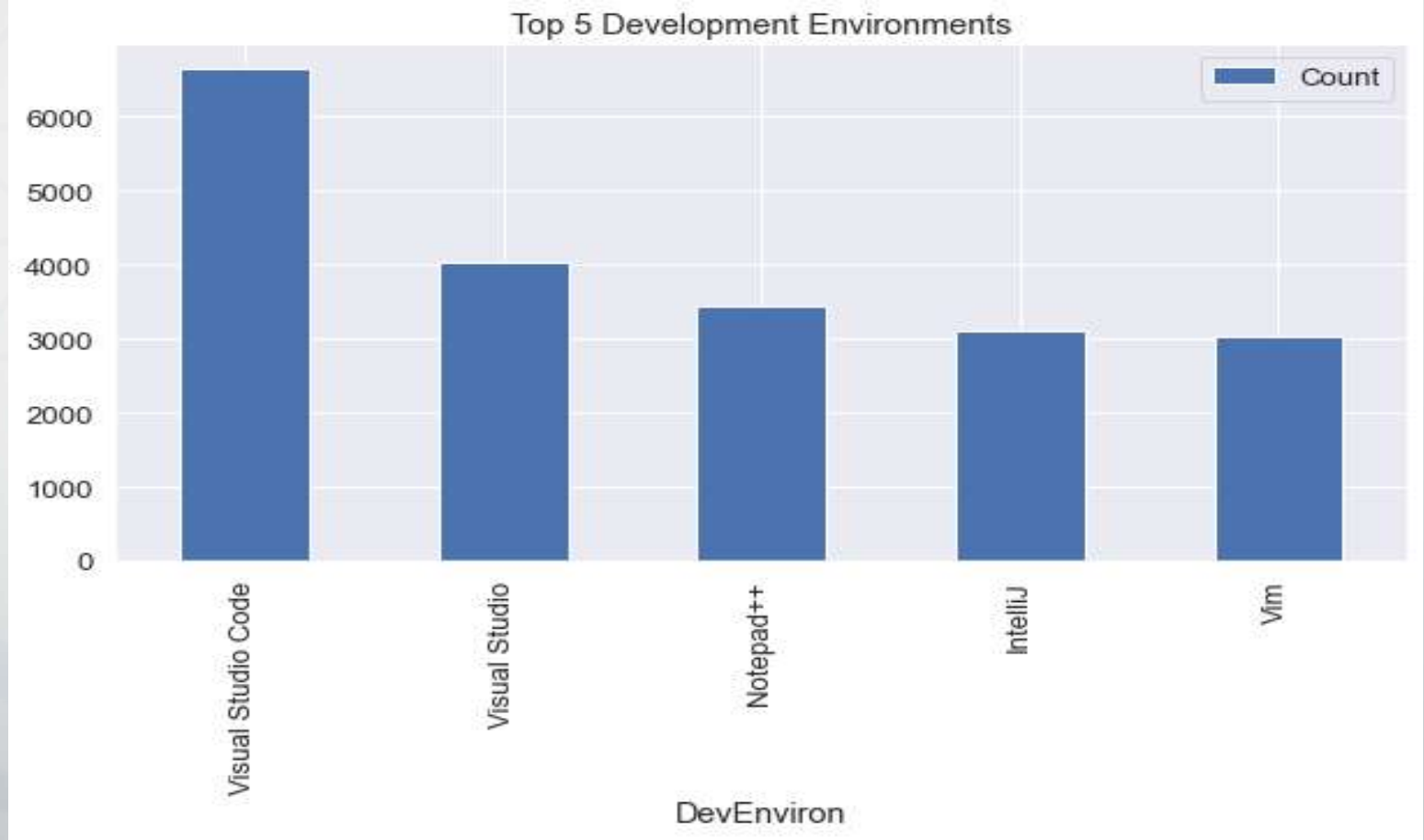
APPENDIX



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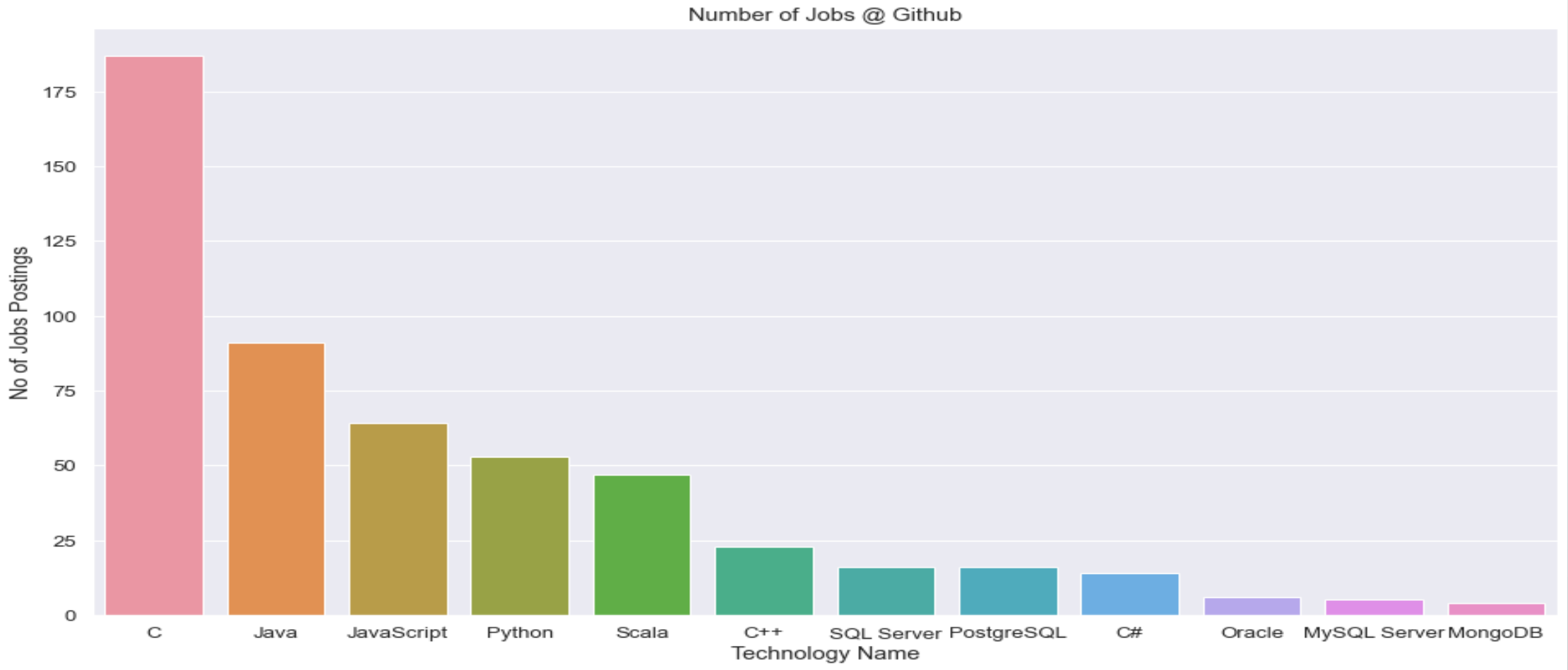
GITHUB JOB POSTINGS



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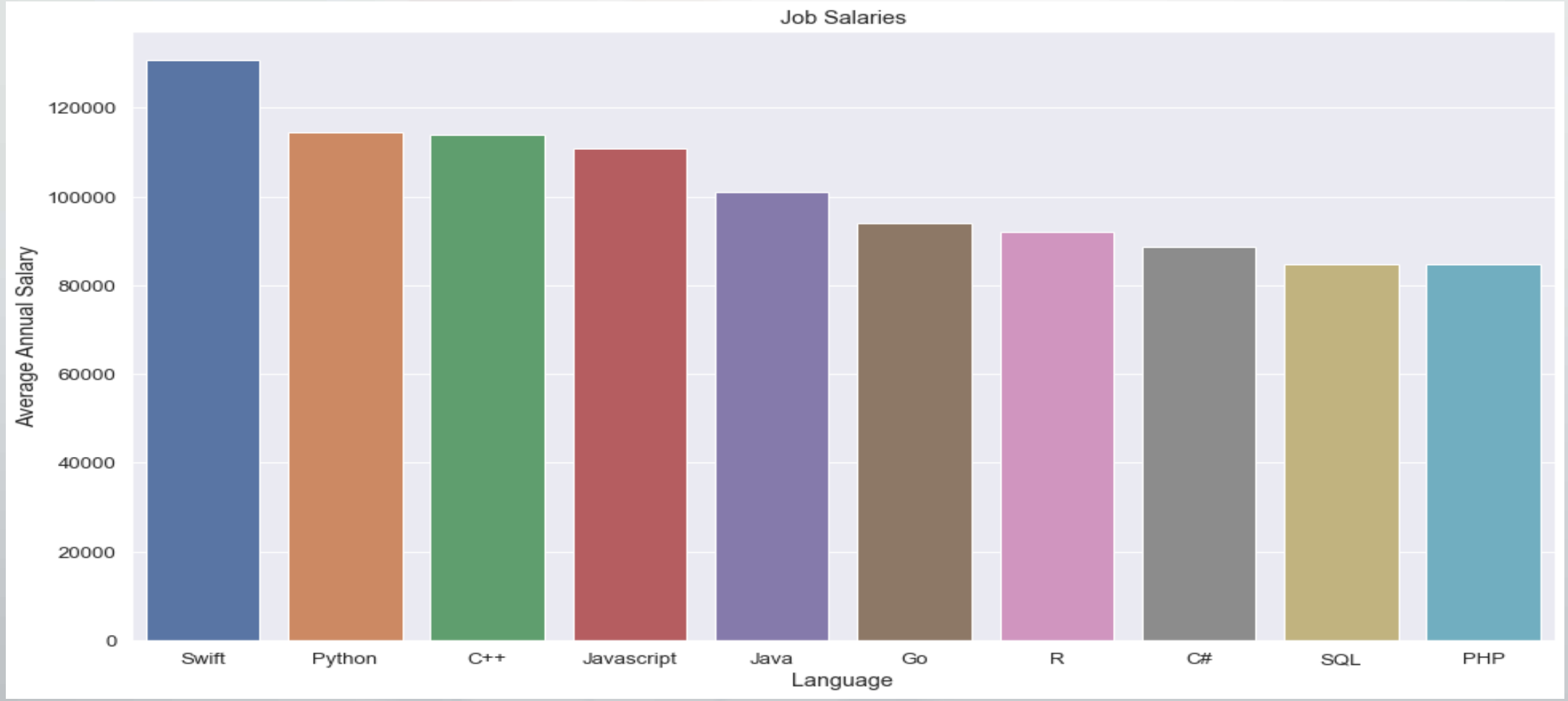
POPULAR LANGUAGES BY SALARY



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