Stack Overflow Developer Survey (2019)

Key Findings & Implications

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May 2022

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EXECUTIVE SUMMARY

- Current Technology Usage Trend
  - Top 10 Languages
  - Top 10 Databases
  - Platforms in Usage
  - Top 10 Web Frames
- Future Technology Trends
  - Top 10 Languages Desired for Next Year
  - Top 10 Databases Desired for Next Year
  - Platforms Desired for Next Year
  - Top 10 Web Frames Desired for Next Year
- Demographics
  - Gender
  - Age
  - Education Level
  - Country

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INTRODUCTION

- This analysis is built with a subset of "Stack Overflow Annual Developer Survey"
- The objective is to analyze technology trends among developers over the world
  - Top programming languages
  - Top databases
  - Top web frames
  - Identify skill requirements for the future
  - Show correlation between numerical data
- Audience
  - Professionals in technology industry
  - Developers
  - IT students
  - IT leaders

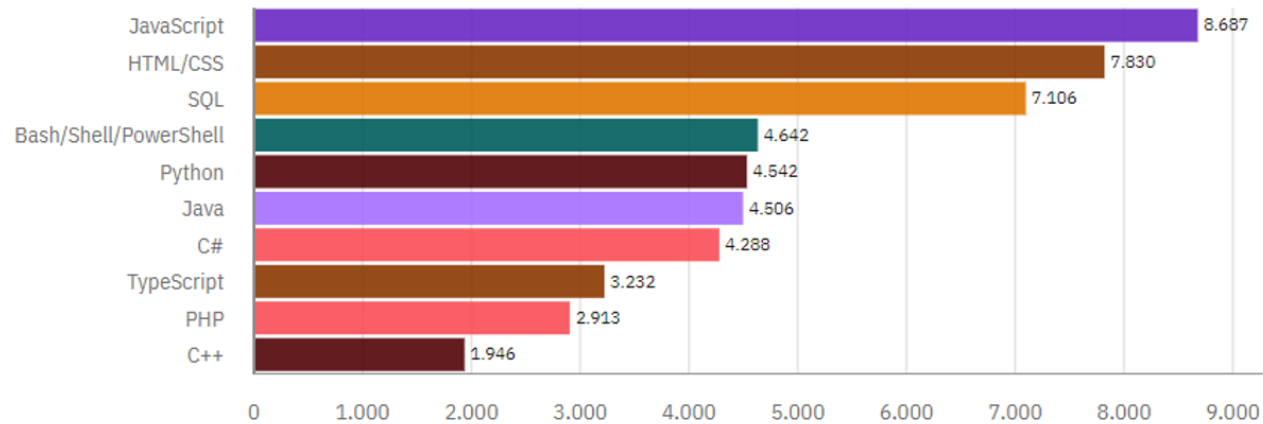IBM **Developer**

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METHODOLOGY

- Data Source
  - "Stack Overflow Developer Survey (2019)"
- Data Exploration
  - Python
  - Pandas Library
  - SQL
- Data Wrangling
  - A subset of the survey provided by IBM was cleaned using Pandas Library and SQL
  - Procedures: Data Normalization, Duplicates Removal, Data Imputation
- Data Visualization
  - IBM Cognos
- Data Presentation
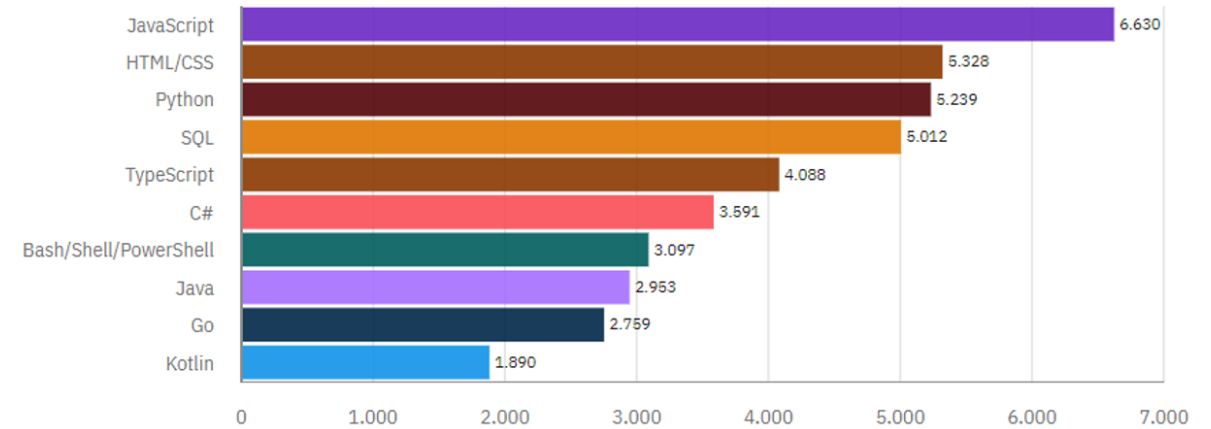 - Microsoft PowerPoint

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RESULTS

PROGRAMMING LANGUAGE TRENDS

- Top 10 Most Popular Languages in Use

- Top 10 Desired Languages for Next Year

Top 10 Most Popular Languages in Use

Language	Value
JavaScript	8.687
HTML/CSS	7.830
SQL	7.106
Bash/Shell/PowerShell	4.642
Python	4.542
Java	4.506
C#	4.288
TypeScript	3.232
PHP	2.913
C++	1.946

Top 10 Desired Languages for Next Year

Language	Value
JavaScript	6.630
HTML/CSS	5.328
Python	5.239
SQL	5.012
TypeScript	4.088
C#	3.591
Bash/Shell/PowerShell	3.097
Java	2.953
Go	2.759
Kotlin	1.890

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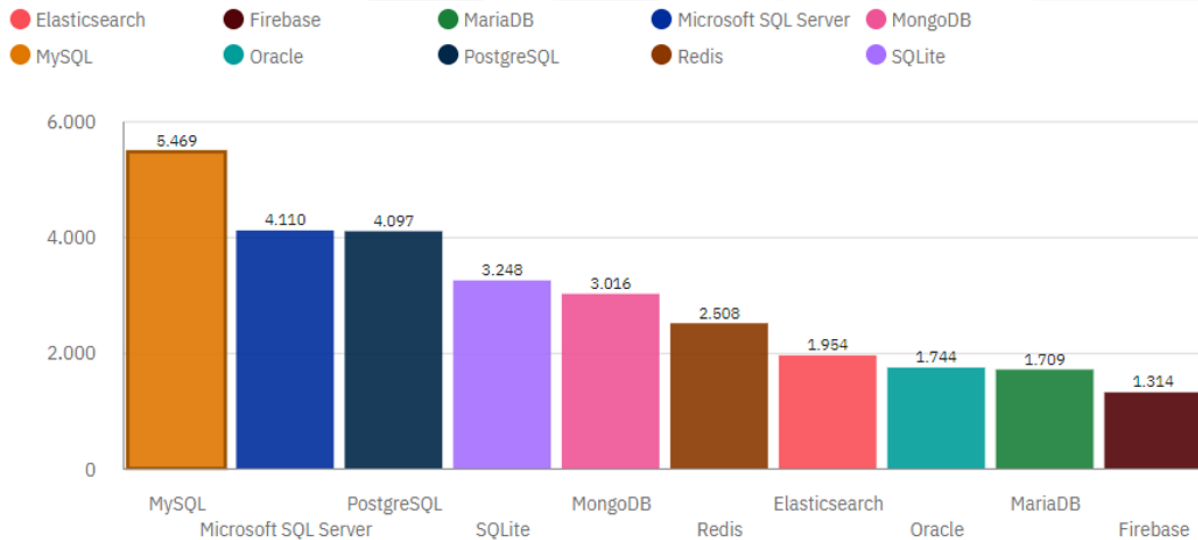# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript and HTML/CSS were the most popular languages in 2019 and still remaining for the next year
- SQL was popular in 2019 and likely to remain in the next year
- Python and TypeScript were rising trend
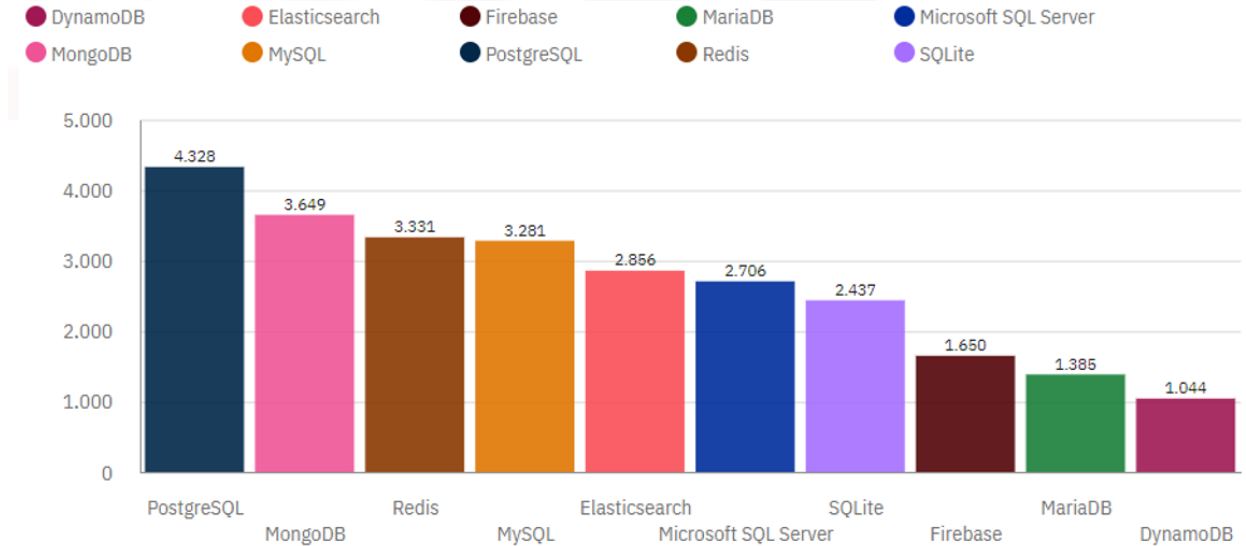- Decreasing interest in Bash/Shell/PowerShell

Implications

- Web Development is still in high demand due to the popularity of JavaScript and HTML/CSS
- Python is a rising trend especially because of areas like AI, Data Science and ML
- SQL still is the preferred language for databases and Big Data

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DATABASE TRENDS

- Top 10 Most Popular Databases in Use
- Top 10 Desired Databases for Next Year

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Relational Databases were the dominant trend in 2019 with MySQL in the lead
- PostgreSQL was increasing popularity over SQL
- MongoDB and Redis were popular in 2019 and still increasing interest for the next year

Implications

- It seems necessary for the developer to gain skills over NoSQL databases, since it its gaining popularity over RDBMS
- OpenSource databases are gaining interest in the developers community
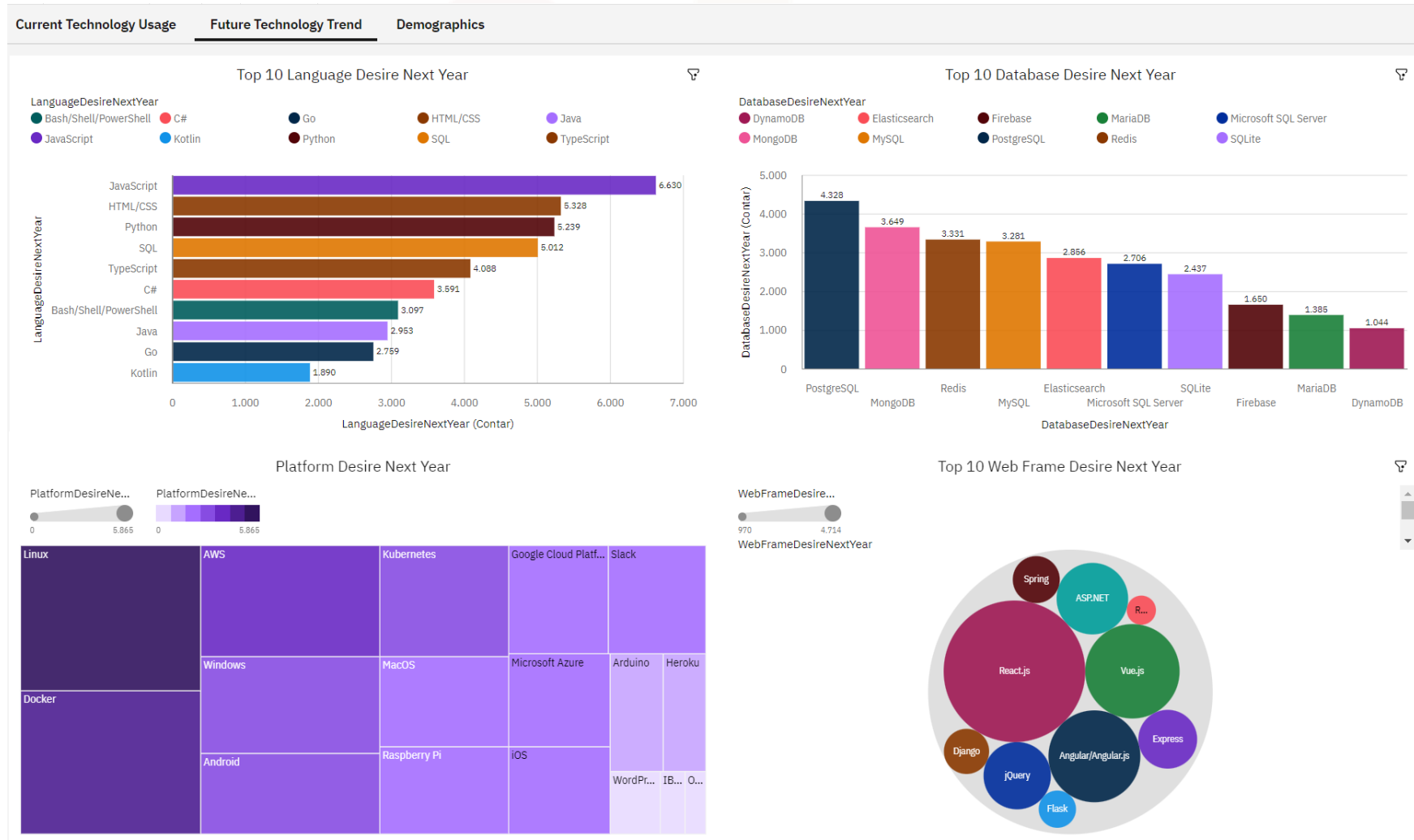- Big Data will became very popular in the subsequent year

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DASHBOARD

The permanent link of the read-only view of the Cognos dashboard:

shorturl.at/bfpIU

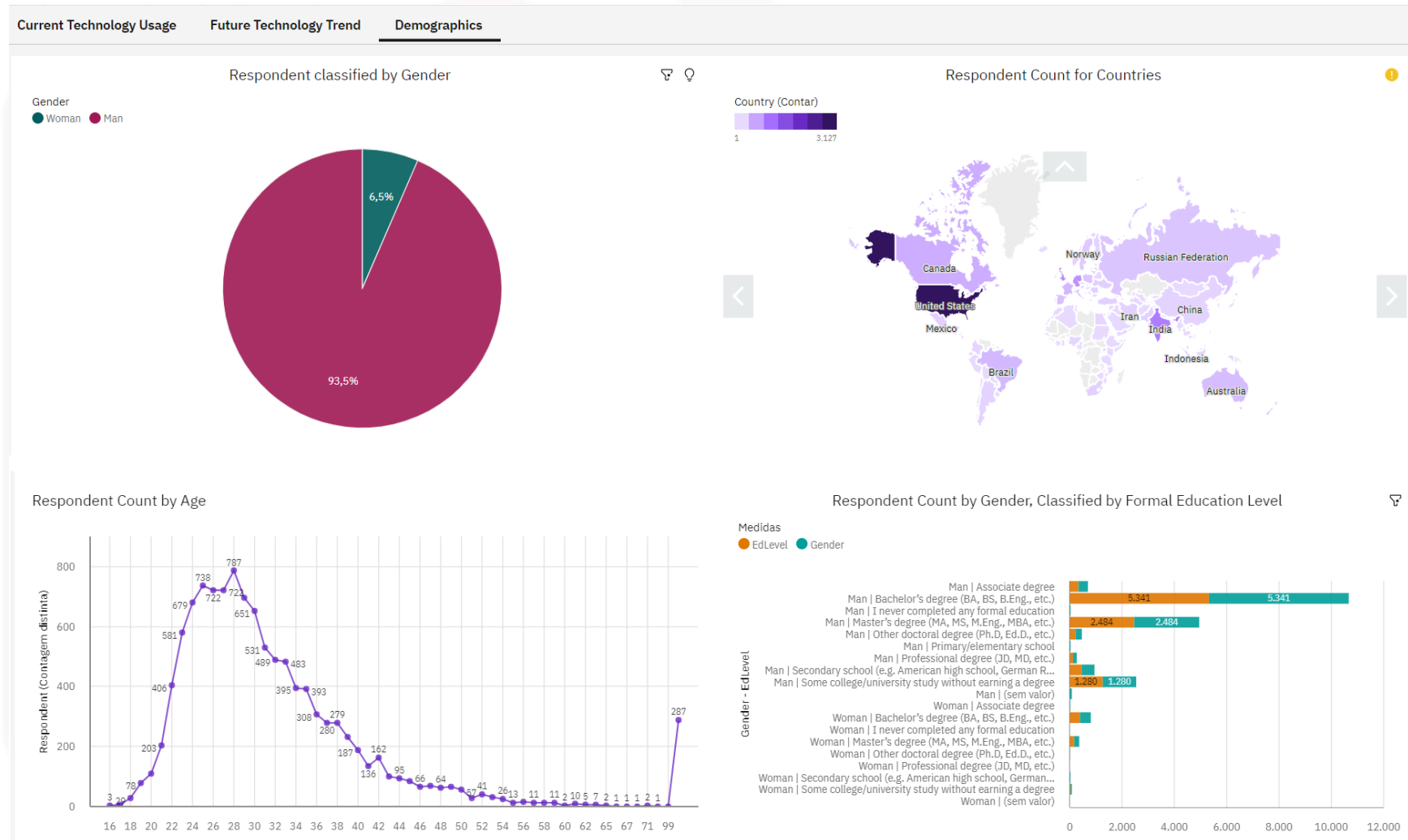IBM **Developer**

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DASHBOARD A: Current Technology Use

DASHBOARD B: Future Technology Trend

DASHBOARD C: Demographics

DISCUSSION

This analysis brought to light several aspects about IT industry like:

- Which technologies were in high demand in 2019

- New skills that the developers should consider to learn

- Demographics parameters about the industry

- The gap in gender, age and education level

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript and HTML/CSS still dominate the industry while TypeScript is rising

- Python is trending up

- NoSQL databases are getting more space in the market

- RDBMS are still relevant, SQL have more developers interest and PostgreSQL is rising

- Difference in countries' technology industry

Implications

- Big Data, AI and ML are growing, with that fact is important that developers learn more about Python, SQL and NoSQL

- Web Development shows a constant rising trend, even though JavaScript and HTML/CSS are the key tools for developers, TypeScript is a language to be considered in the skill set

- The gender representation gap shows a big difference in the industry, public policies show be implemented to reduce that problem

- The IT industry changes very fast, the companies have to be aware of those changes to stay competitive and evolve as they are demanded
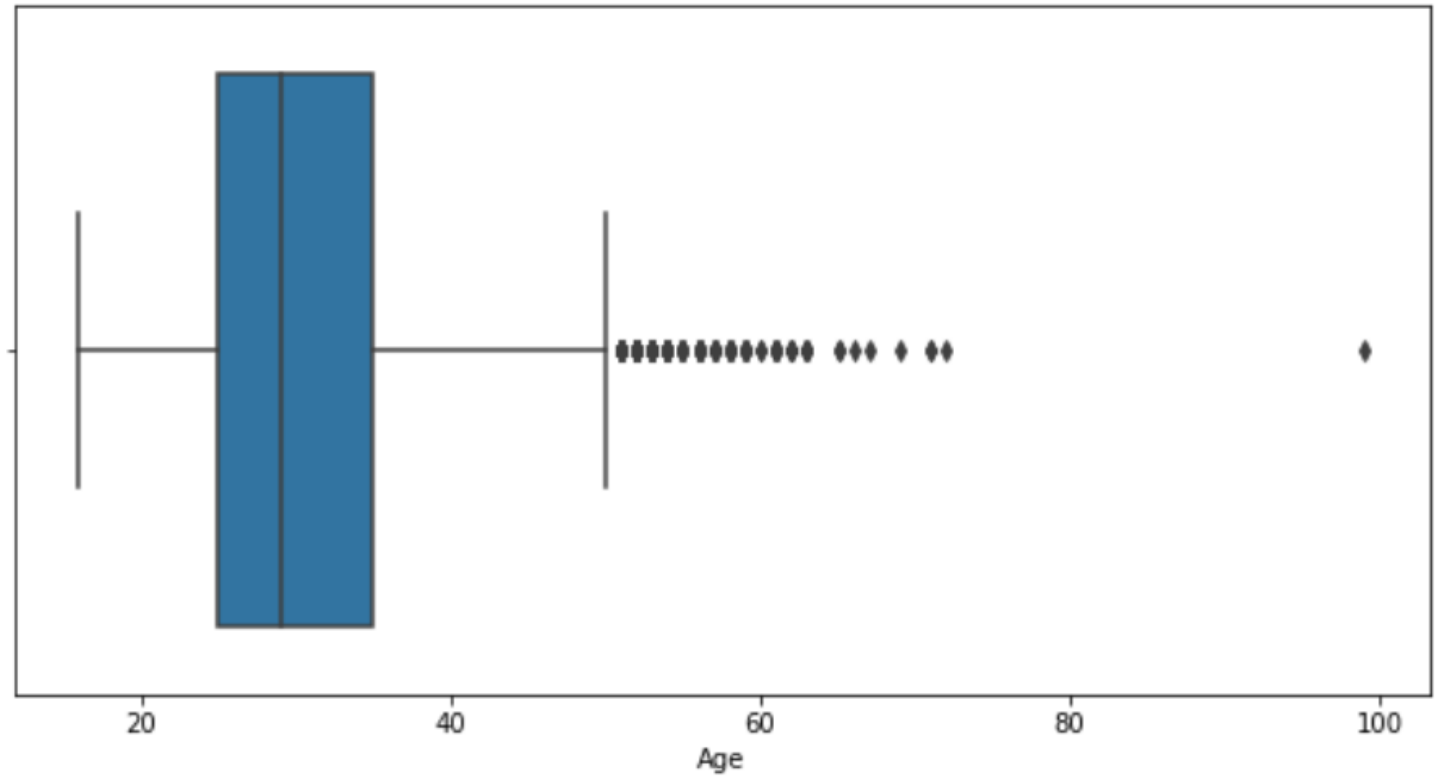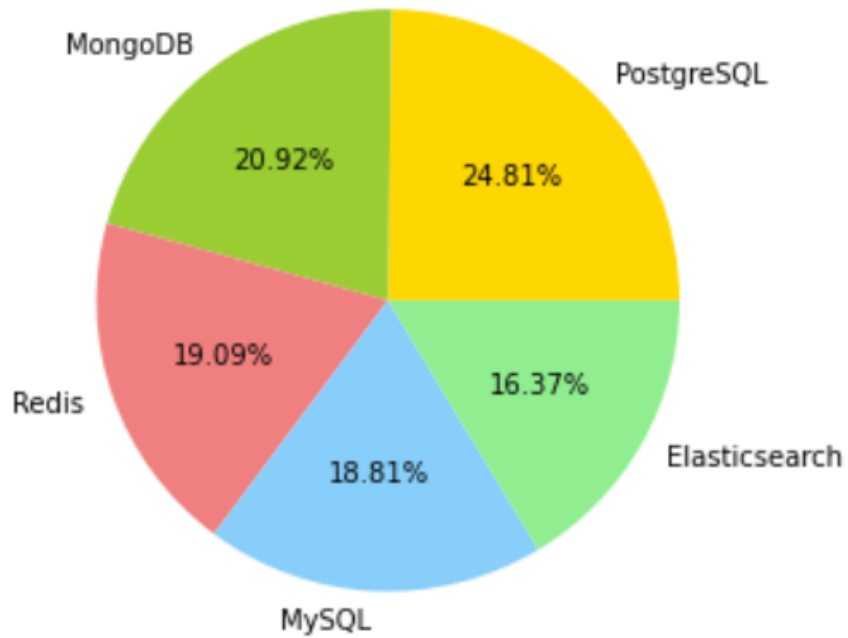
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CONCLUSION

- A subset provided by IBM of Stack Overflow Developer Survey (2019) was analyzed

- The analysis showed which technologies were in use in 2019 and which trends the developers should consider implement in their skill set

- This information is relevant for those who want to stay competitive or even want to enter this market
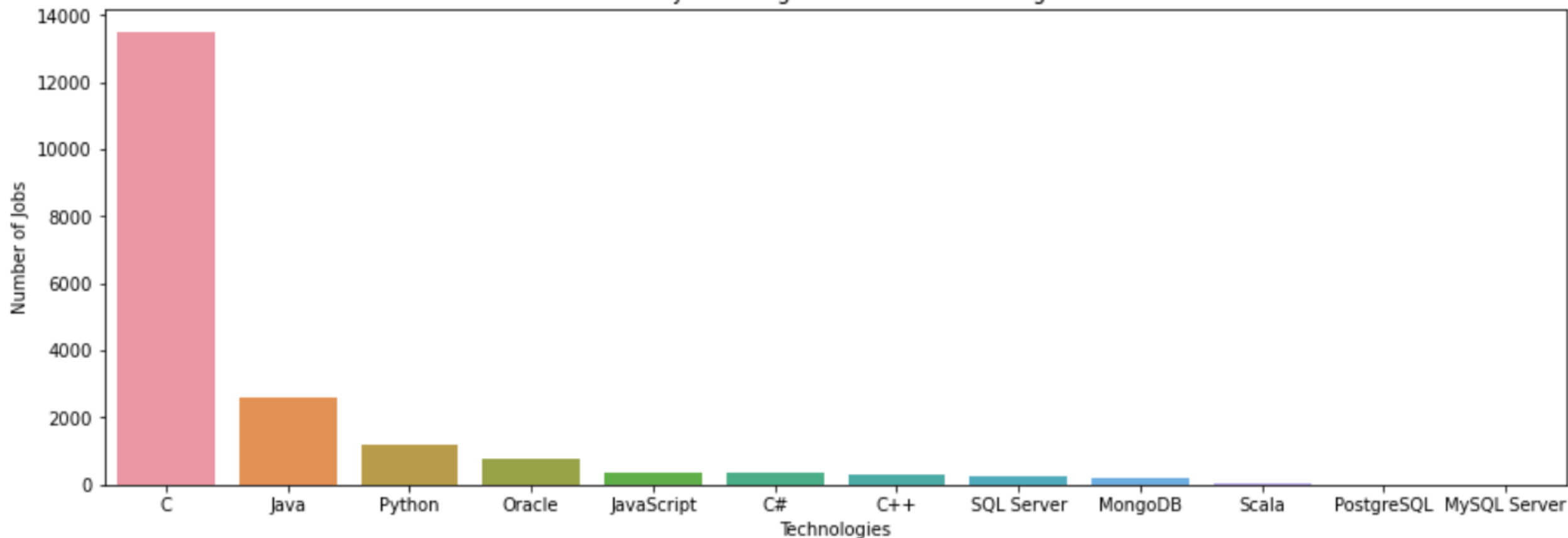
APPENDIX

Database Desire NextYear Percentages

- PostgreSQL 24.81%
- MongoDB 20.92%
- Redis 19.09%
- MySQL 18.81%
- Elasticsearch 16.37%

GITHUB JOB POSTINGS

GitHub Job Postings for Selected Technologies

POPULAR LANGUAGES

Popular Programming Languages by Average Annual Salary

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