



# IBM Data Analyst Capstone Project

Sally Huynh  
May 2021

# OUTLINE

---



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

# EXECUTIVE SUMMARY

---



- JavaScript, Python, HTML/CSS, SQL, and TypeScript are the most desirable programming languages for next year.
- PostgreSQL, MongoDB, Redis, MySQL, and ElasticSearch are the most desirable databases for next year.
- Gender gap in the IT industry.
  - Male = 93.7%
  - Female = 6.3%

# INTRODUCTION

---



- Stack Overflow, a popular website for developers, conducted a survey amongst developers from around the world about technology trends in 2019.
  - Programming Languages
  - Databases
  - Demographics
- Target audience:
  - IT professionals
  - Anyone interested in the IT field

# METHODOLOGY

---

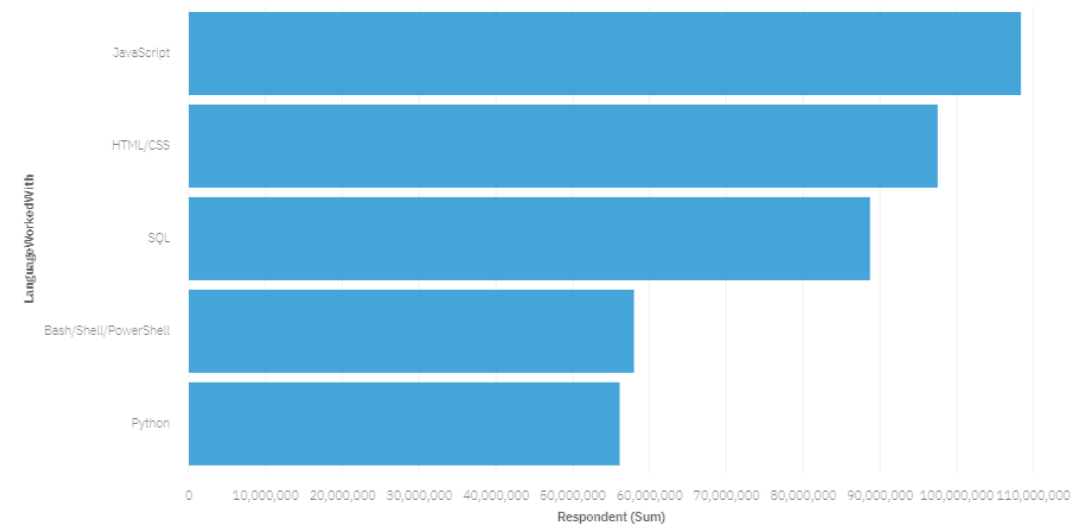


- Data Sources:
  - Stack Overflow Developers Survey 2019
  - Github Job Posting
  - Programming Language Annual Salary
- Data Exploration and Cleaning
  - Python
- Data Visualization
  - IBM Cognos Analytics
- Presentation

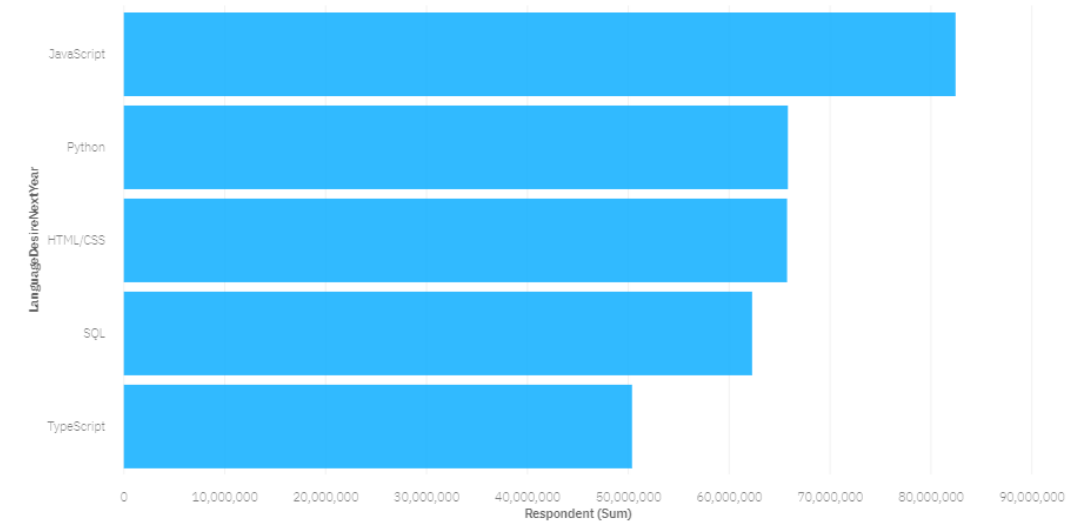
# RESULTS

# PROGRAMMING LANGUAGE TRENDS

Top 5 Programming Languages Worked With



Top 5 Programming Languages Desired for Next Year



# PROGRAMMING LANGUAGE TRENDS – FINDINGS & IMPLICATIONS

---

## Findings

- JavaScript is the most in demand programming language.
- Python, HTML/CSS, and SQL are other in demand programming languages.
- Skills in TypeScript is more desirable than Bash/Shell/PowerShell for next year.

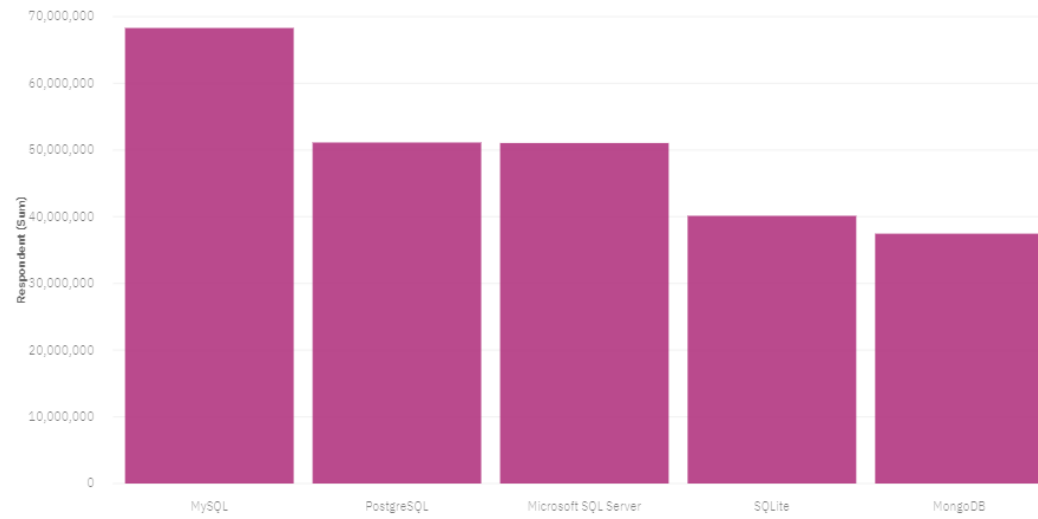
## Implications

- Python's increase in demand may overtake JavaScript in the future.
- JavaScript, Python, HTML/CSS, and SQL are consistently in demand.
- Web development remains in high demand.

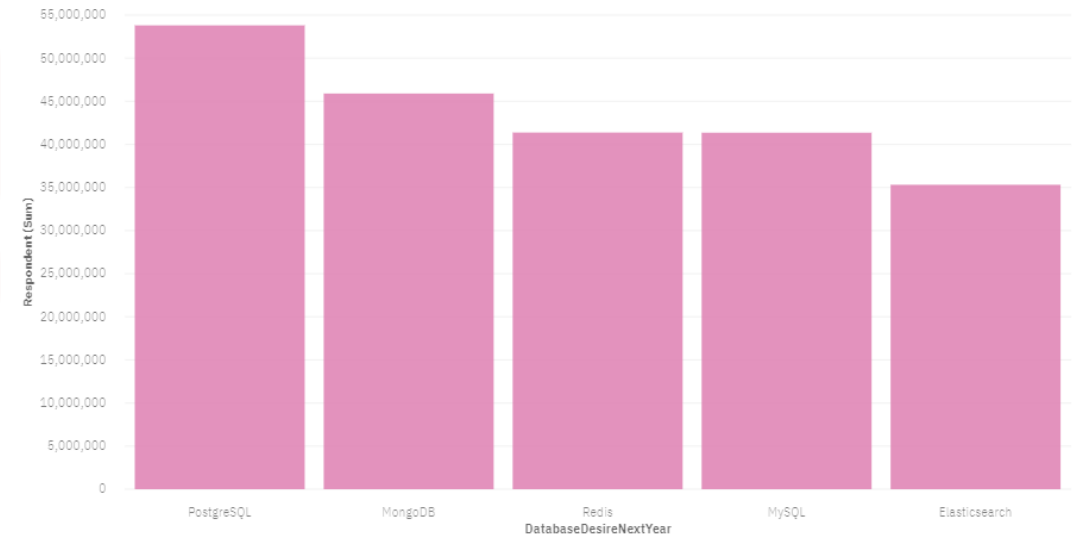


# DATABASE TRENDS

Top 5 Databases Worked With



Top 5 Databases Desired for Next Year



# DATABASE TRENDS – FINDINGS & IMPLICATIONS

---

## Findings

- PostgreSQL and MongoDB have an increase in demand.
- MySQL has a decrease in demand for next year.
- Skills in Redis and Elasticsearch are more desirable than Microsoft SQL Server and SQLite for next year.

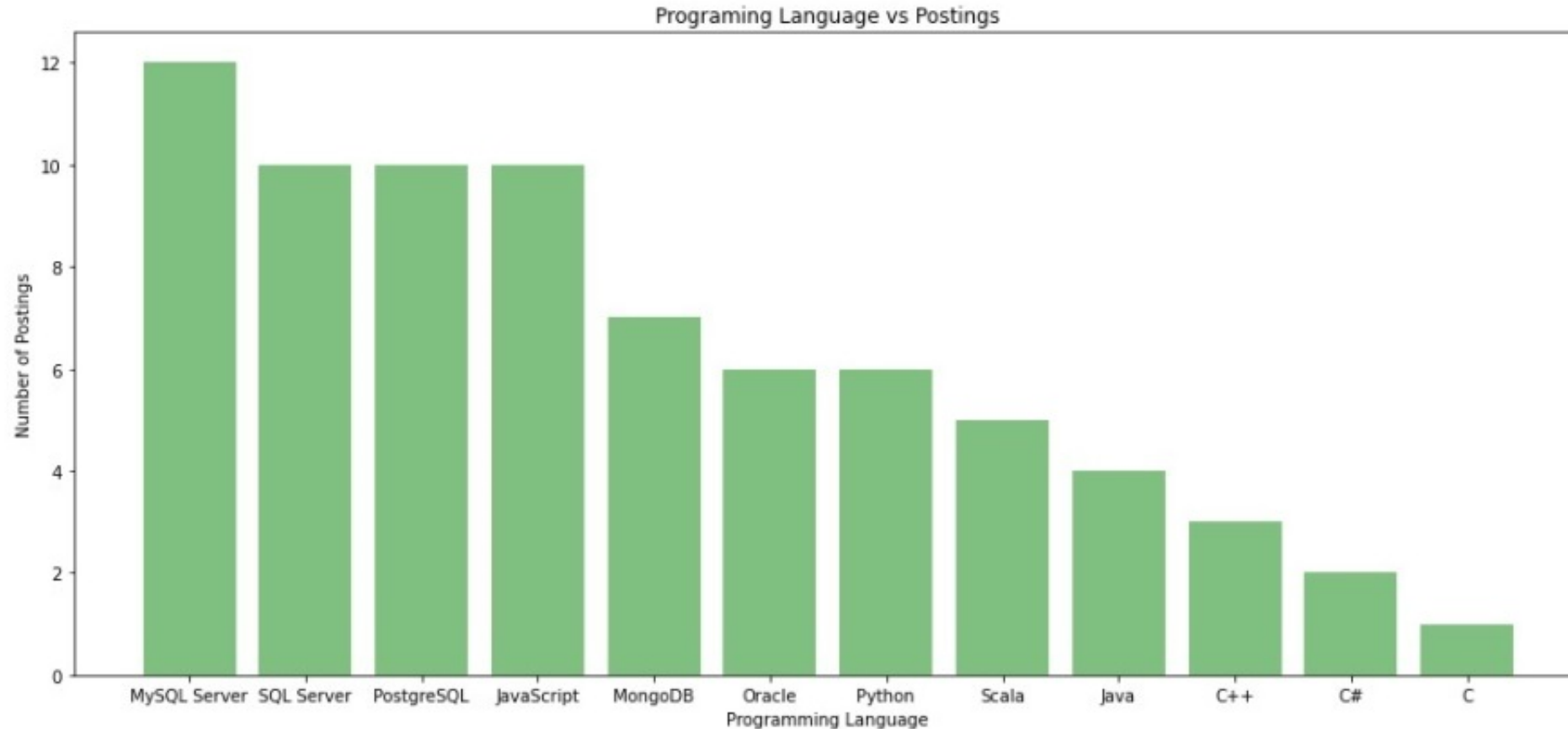
## Implications

- PostgreSQL and MongoDB are the most consistent in demand databases.
- Open source databases are preferred.
- Demand is volatile.

# GITHUB JOB POSTINGS



# POPULAR LANGUAGES



# DASHBOARD

---



<https://datapatform.cloud.ibm.com/dashboards/f0081943-1354-4668-ae48-29245ab2d0f5/view/5460d50564962be150d0b1e407cf2a527e652c54babb8b0b87d17b490a602497a83b1196c8284c58da14066bfbe9405ec1>

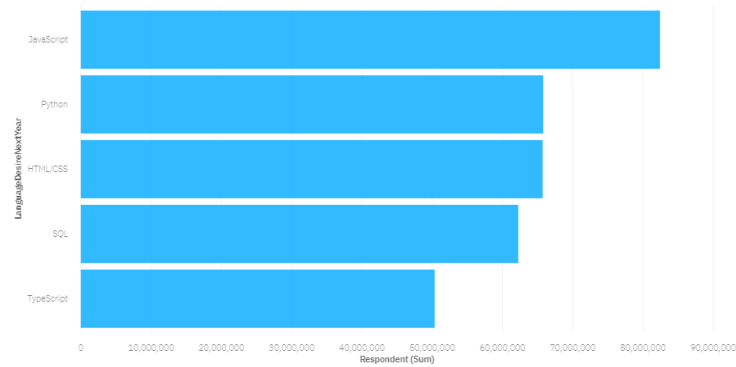
# DASHBOARD TAB 1



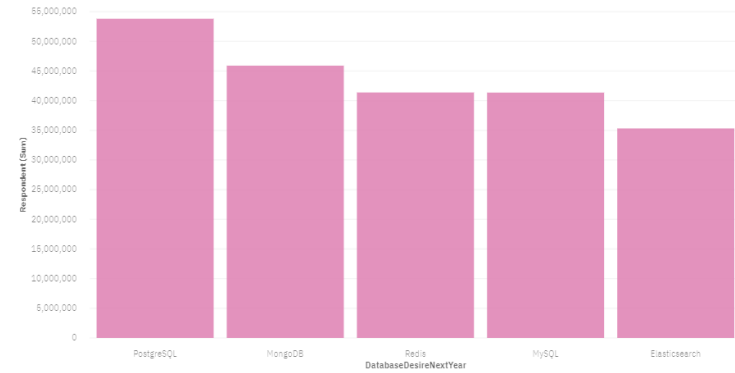
# DASHBOARD TAB 2

Current Technology Usage Future Technology Usage Demographics

Top 5 Programming Languages Desired for Next Year



Top 5 Databases Desired for Next Year



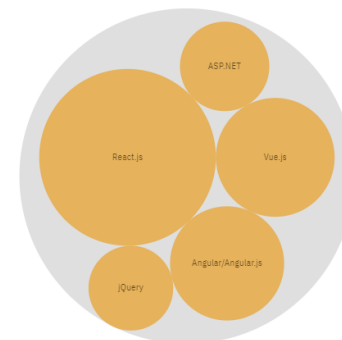
Top 5 Platforms Desired for Next Year

Respondent (Sum)  
35,899,026 73,486,493

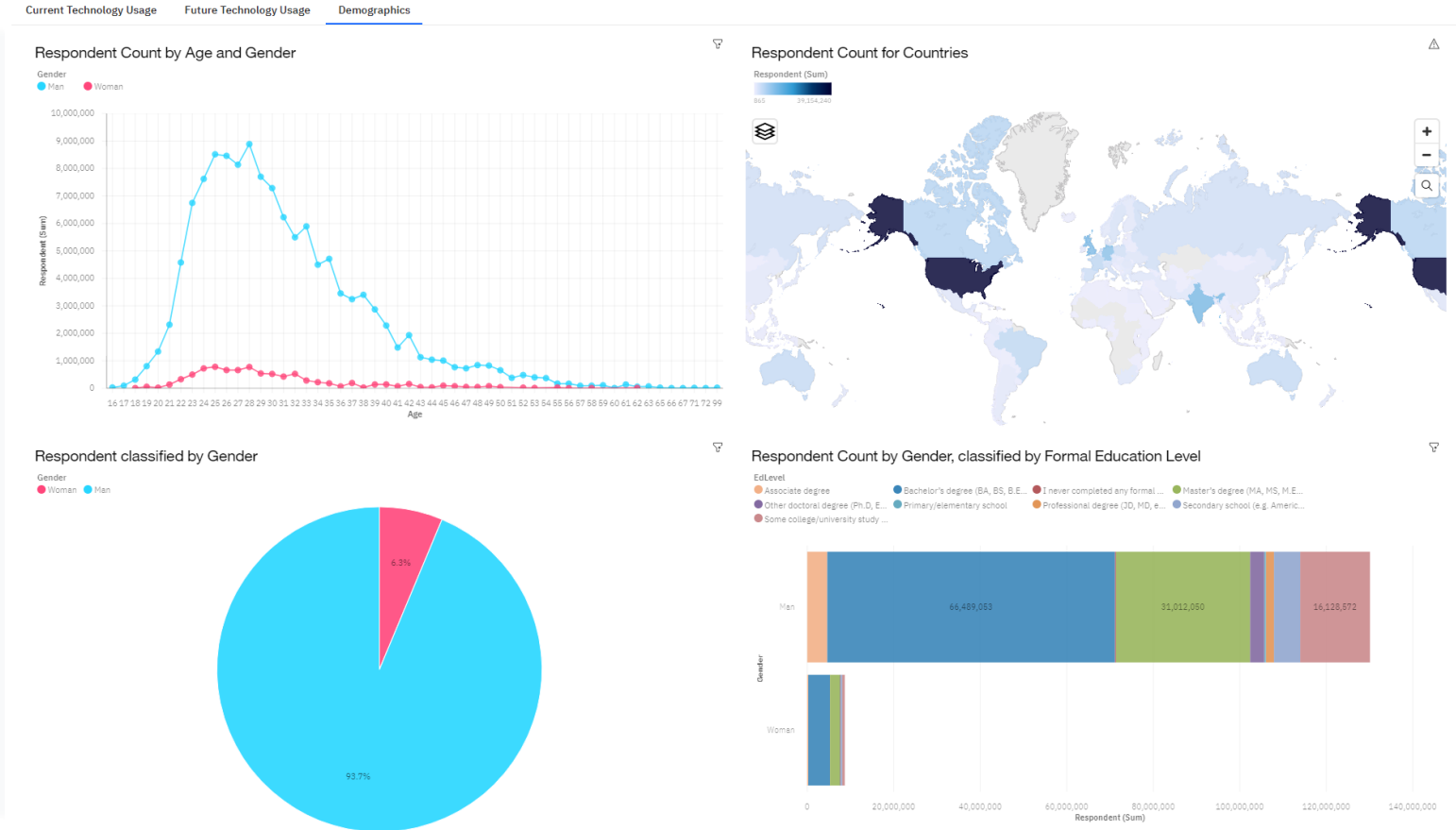
Top 5 Web Frames Desired for Next Year

Respondent (Sum)  
27,960,271 58,302,969

Linux  
AWS  
Android  
Docker  
Windows



# DASHBOARD TAB 3





# DISCUSSION

---



- New technology constantly emerges leading to changes in demand.
- The IT industry needs to diversify in order to eliminate gender gap.

# OVERALL FINDINGS & IMPLICATIONS

---

## Findings

- Trends and demands fluctuate based on new technologies.
- JavaScript and Python are the most popular programming languages.
- PostgreSQL is the most popular database.
- Gender gap in the IT field.

## Implications

- IT professionals and companies have to learn and adapt to new demands.
- Having skills that are high in demand leads to more job opportunities.
- Gender gap will affect job hiring trend.

# CONCLUSION

---



- New technology leads to different trends and demands.
- JavaScript and Python are the most popular programming languages.
- PostgreSQL is the most popular database.
- The IT industry needs to diversify.