



# IBM Data Analyst Capstone Project

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# OUTLINE

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

# EXECUTIVE SUMMARY

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This presentation summarize key insights from the analysis based on Stack Overflow Developer 2019 Survey with a focus on the following perspectives:

- Main stream programming languages and technologies in current market
- Most desirable skills for the market in the near future
- Demographics in the industry

These insights could help stakeholders have a better view of the market trends.

# INTRODUCTION

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- The well-known online programming knowledge sharing platform, Stack Overflow, conducted a Stack Overflow Annual Developer Survey in 2019.
- This analysis is conducted in order to keep track on the current and future trends in the developer industry.
- The insights should provide an overview for stakeholders, such as HR professionals, employers and developers, and help with decision makings.

# METHODOLOGY

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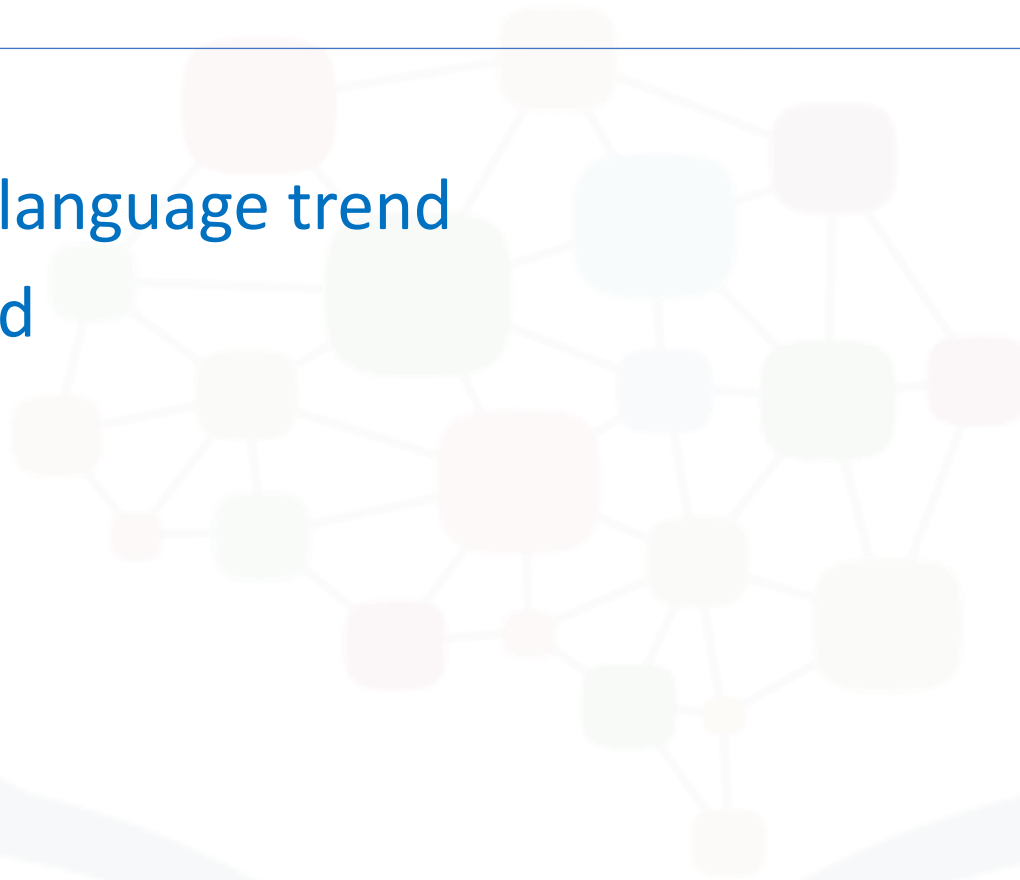


- Data Source
  - Stack Overflow Developer 2019 Survey
  - GitHub Job Postings
  - Programming Languages Annual Salary
- Data Wrangling
  - SQL
  - Python
- Data Visualization
  - Python
  - Cognos Dashboard

# RESULTS

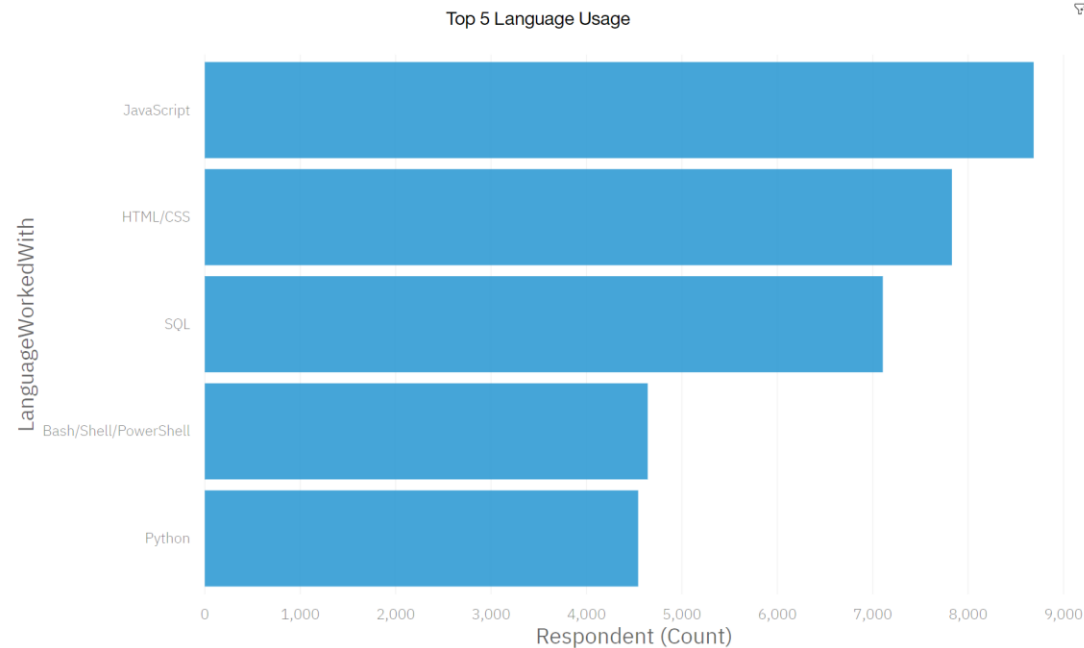
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- Programming language trend
- Database trend
- Dashboard

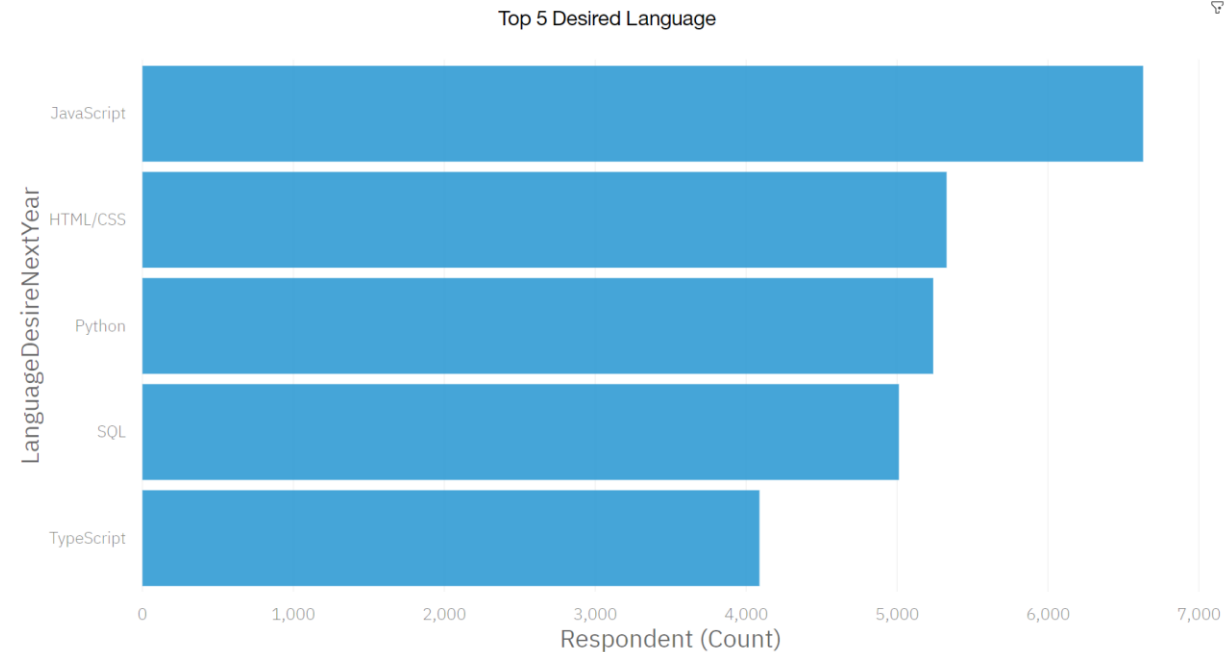


# PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- Java Script and HTML/CSS remains the top spots
- Python is becoming more popular
- Bash/PowerShell is becoming less popular

## Implications

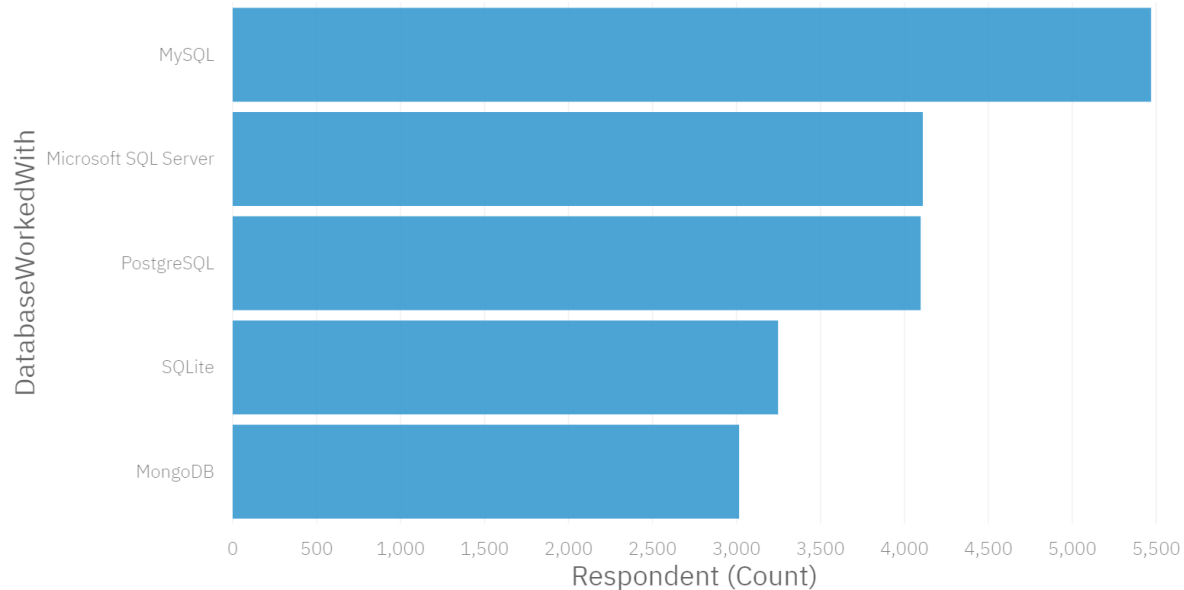
- Web development industry remains a high demand situation
- Python is taking over Bash/PowerShell for general coding purpose



# DATABASE TRENDS

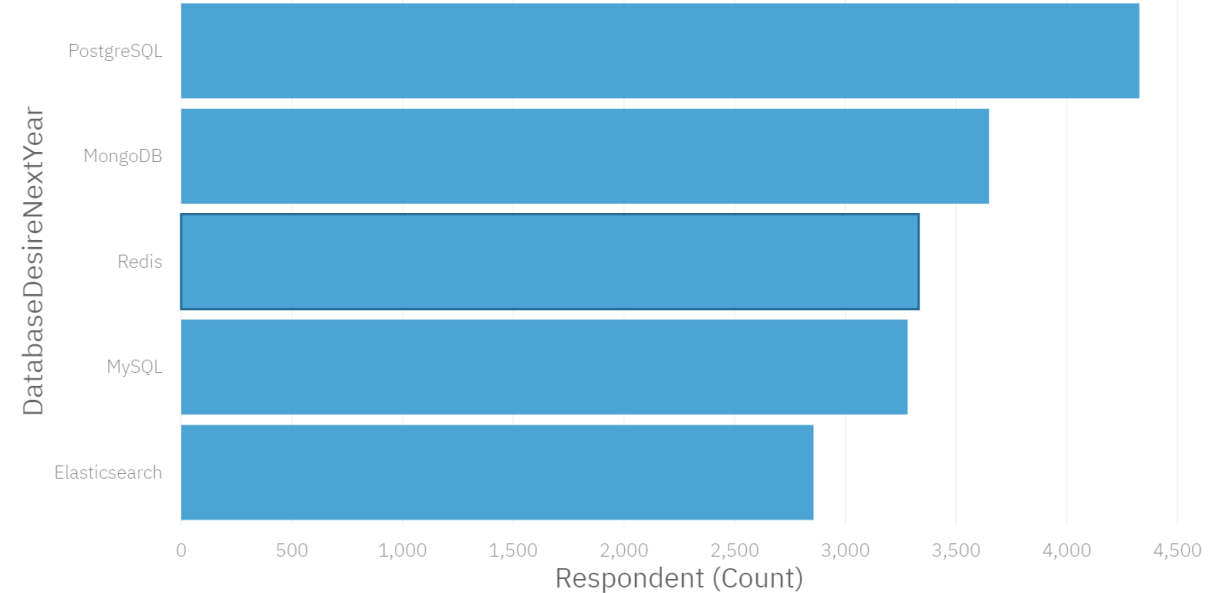
## Current Year

Top 5 Database Usage



## Next Year

Top 5 Desired Database



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- SQL databases takes 4 places out of 5 in current year
- MySQL drops to 4<sup>th</sup> place in desired database next year
- Microsoft SQL Server and SQLite edges out next year

## Implications

- SQL databases dominates the main stream market
- Traditional databases are being replaced by new challengers
- NoSQL databases are getting more popular

# DASHBOARD

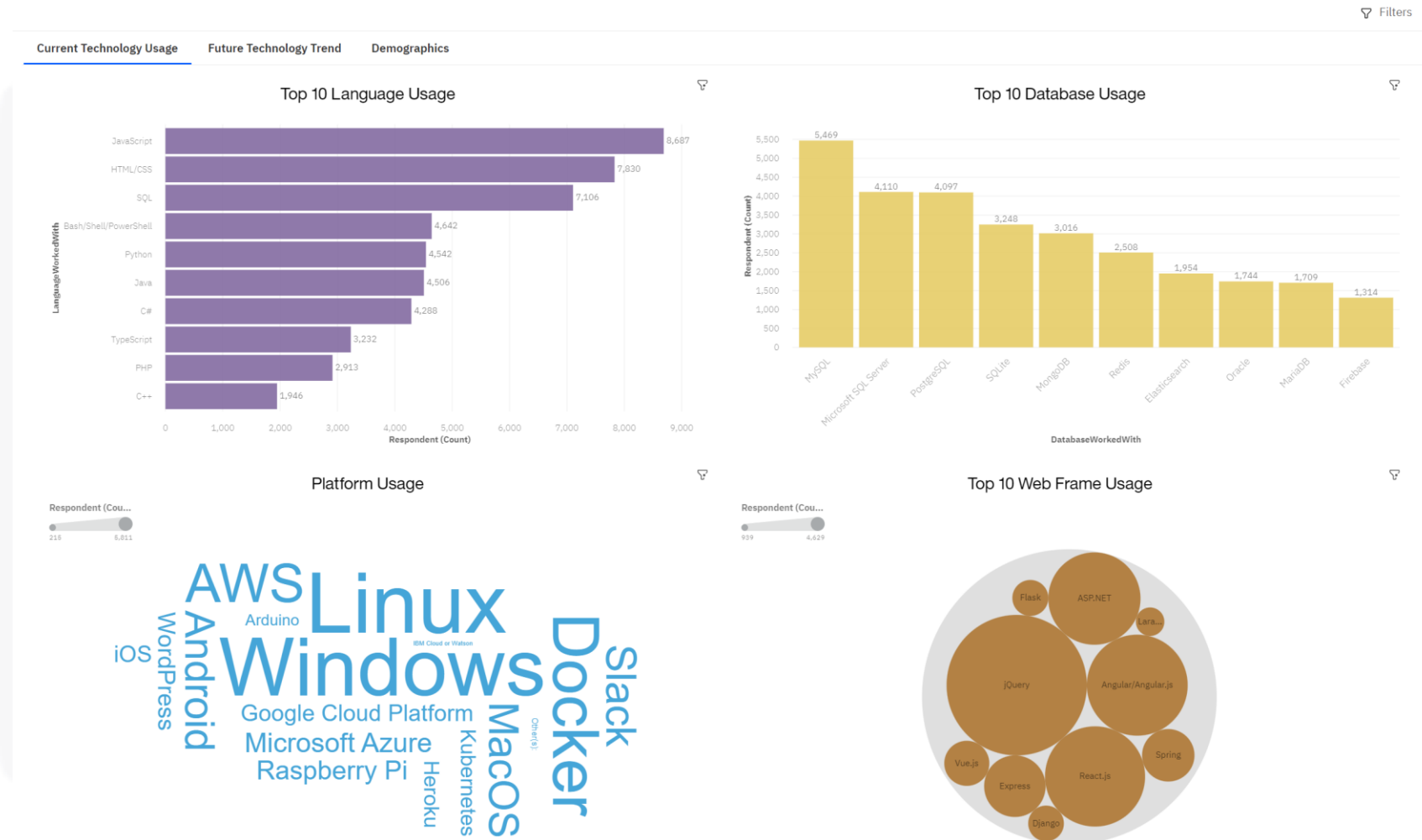
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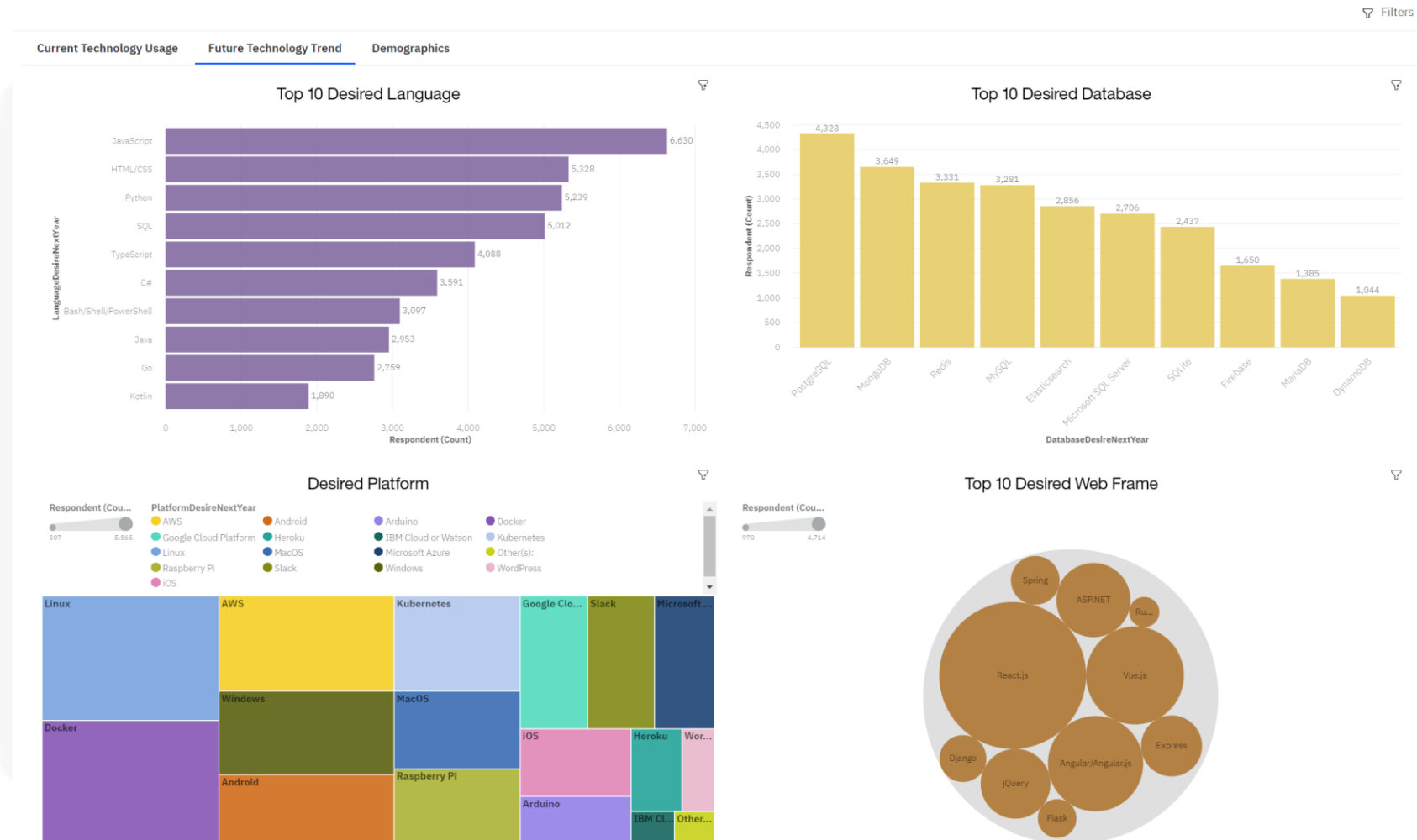
The full interactive Cognos Dashboard summary based on the survey response, including **(1) Current Technology Use**, **(2) Future Technology Trend**, and **(3) Demographics**, can be found in the link as below:

<https://dataplatform.cloud.ibm.com/dashboards/20f9669f-5b71-4e76-97de-5c9c7f219ca3/view/6e32e205248e35f45ffeeee407c8285374647408bbb8707d2d67b4907607297f36014c2c82d1958da420032a2bf165e9f>

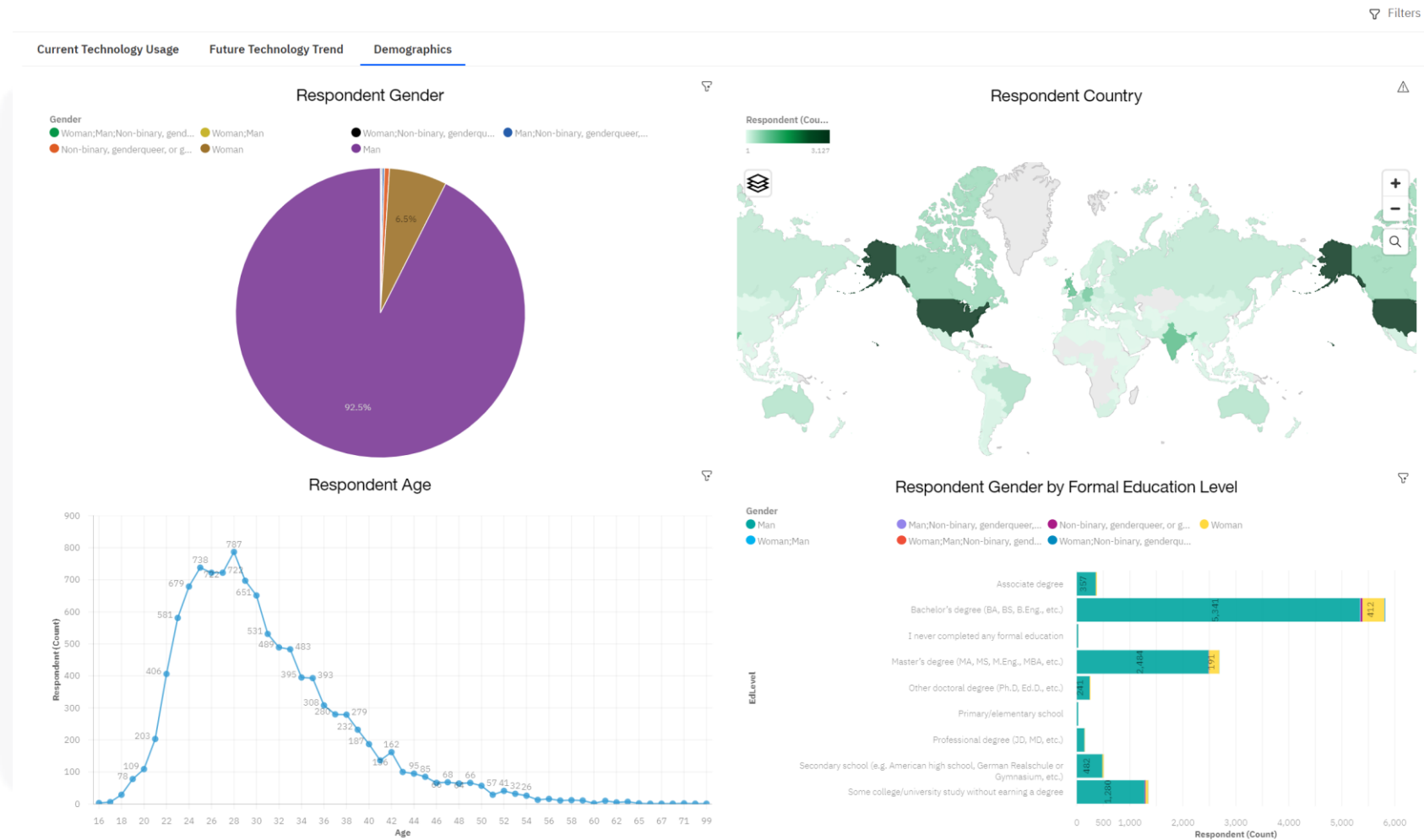
# DASHBOARD TAB 1: CURRENT TECHNOLOGY USE



# DASHBOARD TAB 2: FUTURE TECHNOLOGY TREND



# DASHBOARD TAB 3: DEMOGRAPHICS



# DISCUSSION

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Based on the results, the insights can be drawn for the following questions:

- What types of IT skills are desirable?
- What is the trending developer technologies?
- What is the distribution of annual compensation in the industry?

# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Javascript and HTML/CSS remains high usage and continues to be highly desired
- SQL databases are commonly used while NoSQL databases are gaining interest as well
- The gender gap in the industry is significant

## Implications

- Web development industry remains a high demand situation and continues to grow
- Databases are still growing rapidly and data professionals should be keeping up with new technologies
- Efforts needed from educators and organizations to minimize the gender gap



# CONCLUSION

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An analysis of the current situation in IT industry was conducted using a series of data collected in *Stack Overflow Developer 2019 Survey*.

The findings show the most used and desired technologies and skills by developers in the industry.

Current and future developers could upskill themselves and keep competitiveness in the market, while companies could have a insight on the talent market based on the analysis results.

# APPENDIX

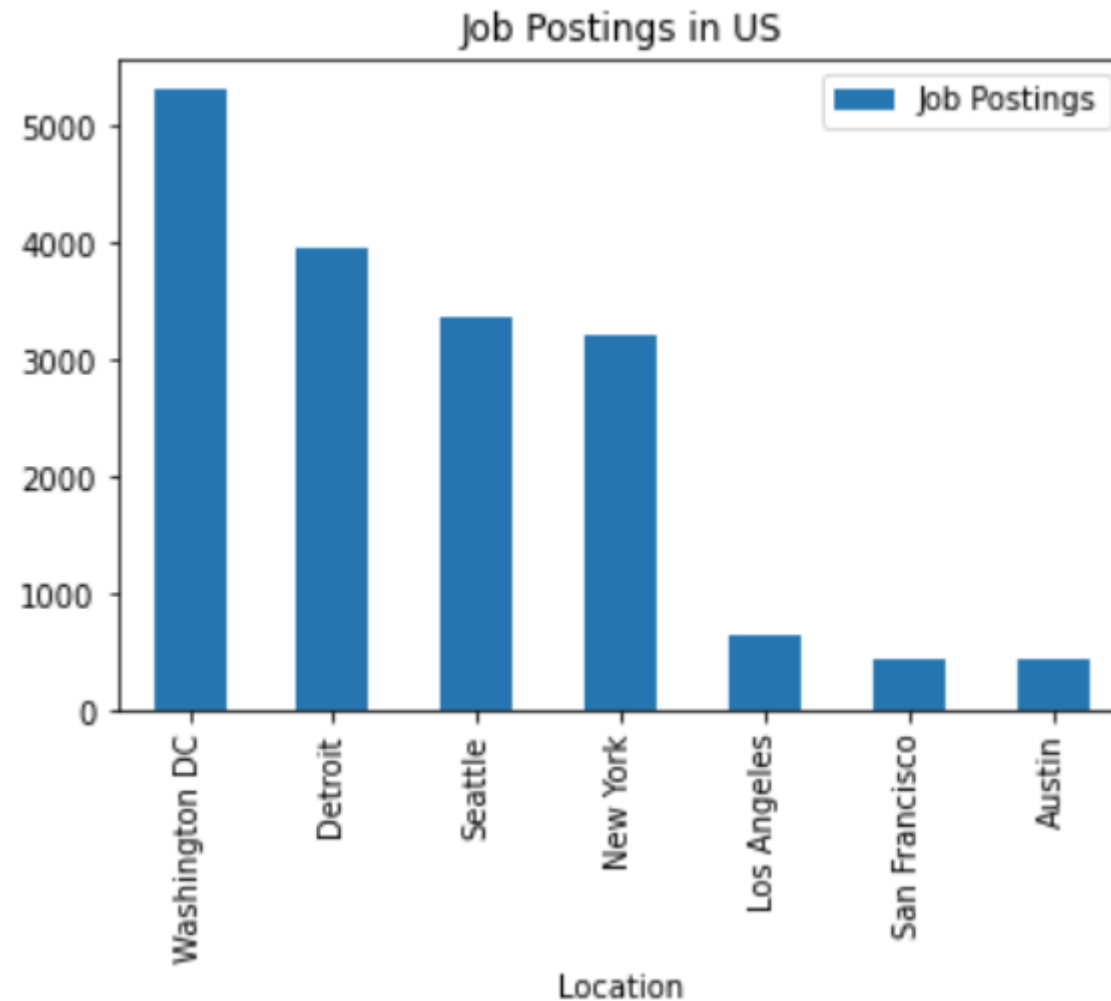
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- APPENDIX A: JOB POSTINGS
- APPENDIX B: POPULAR LANGUAGES

# APPENDIX A: JOB POSTINGS

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# APPENDIX B: POPULAR LANGUAGES

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