

Data Analysis - Stack Overflow Developer Survey

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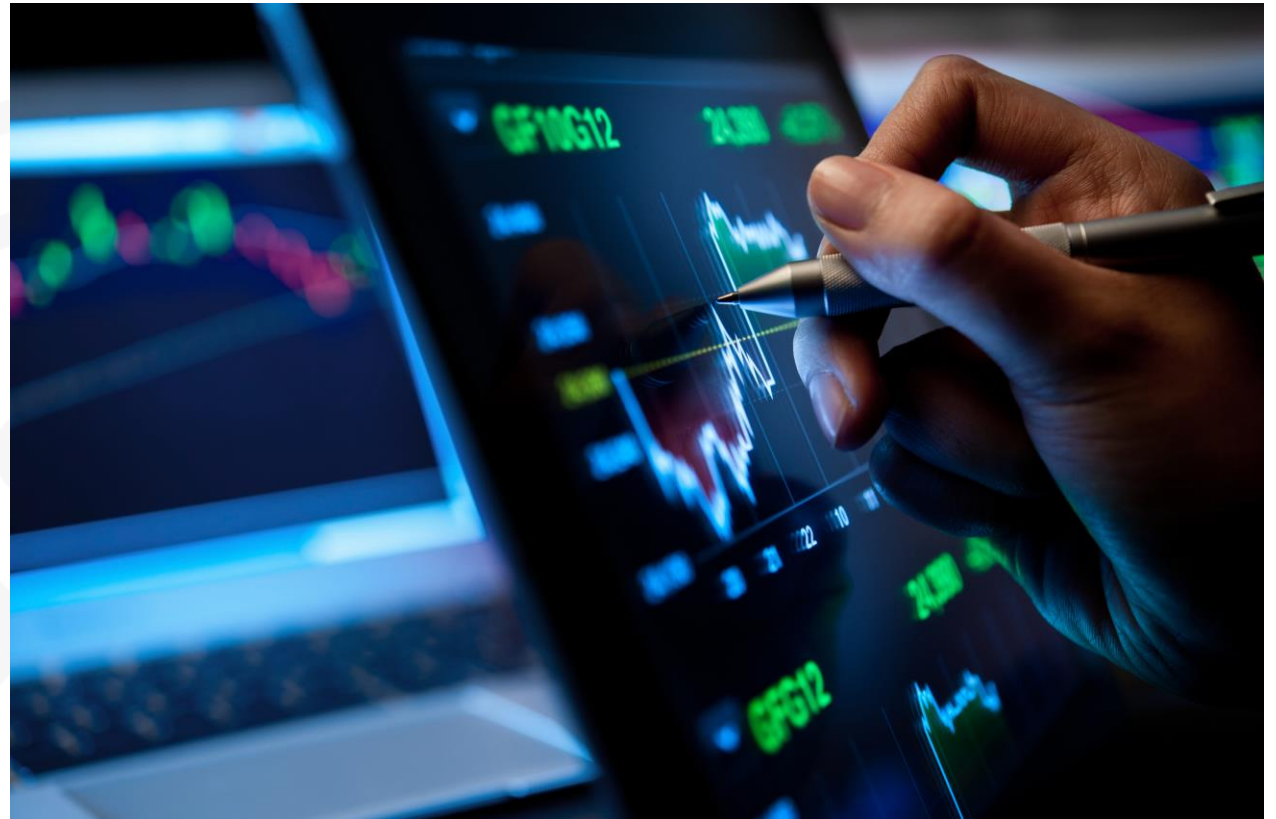


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EXECUTIVE SUMMARY



- 2024 Stack Overflow Developer Survey
- Analysis conducted with Python/Pandas/Numpy, IBM Cognos. Visualizations with Matplotlib/Seaborn
- Analysis shows:
 - Increasing popularity of Python and PostgreSQL
 - Continuing dominance of AWS
 - Shifts ahead in popular web frameworks
 - Developers are young, well educated and globally dispersed



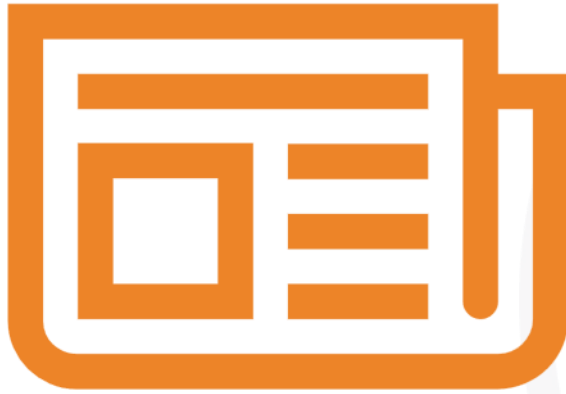
INTRODUCTION



- In May 2024, Stack Overflow completed a global developer survey with over 65,000 respondents
- It asked questions about coding, the tools used and technologies that the respondents want to learn
- This data analysis examines the data to find the current atmosphere and trends in technology



METHODOLOGY

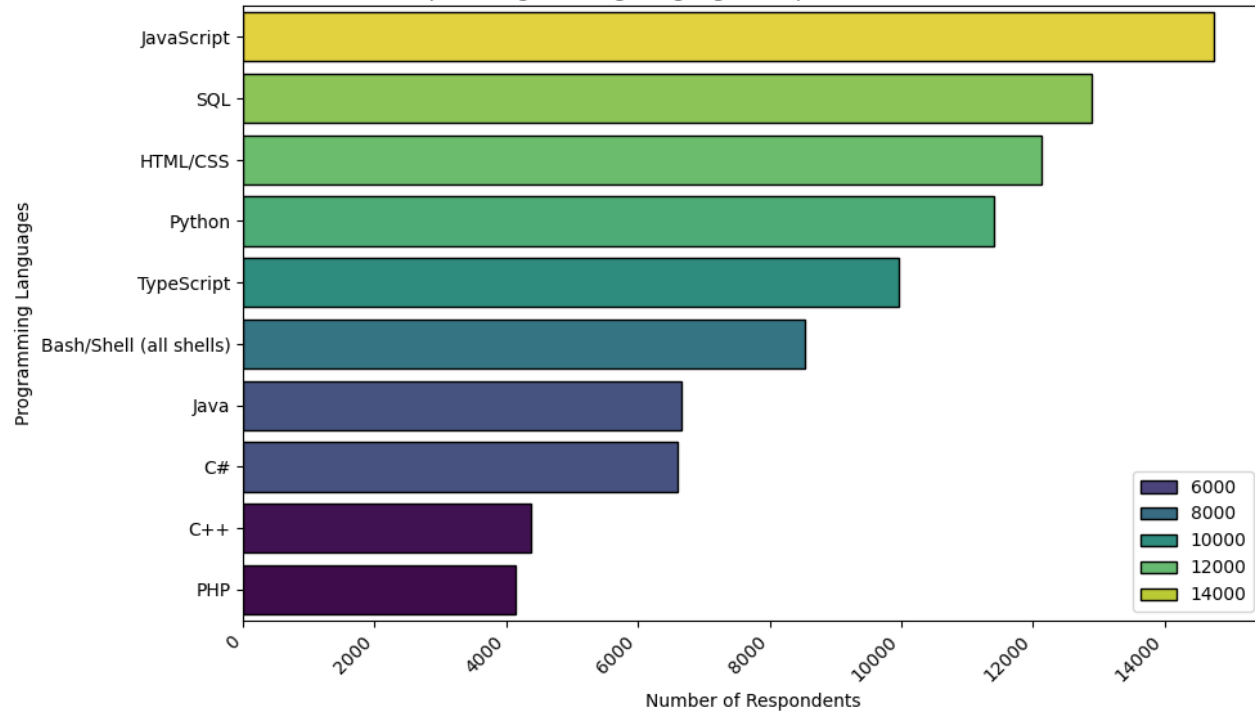


- The survey data was analyzed using Python and libraries like Pandas and Numpy
- Results were visualized in different Python libraries like Matplotlib and Seaborn
- Null values were either eliminated or values were imputed as appropriate
- Duplicates were removed and an EDA was performed
- Some results were normalized and outliers removed where necessary to better show the results

PROGRAMMING LANGUAGE TRENDS

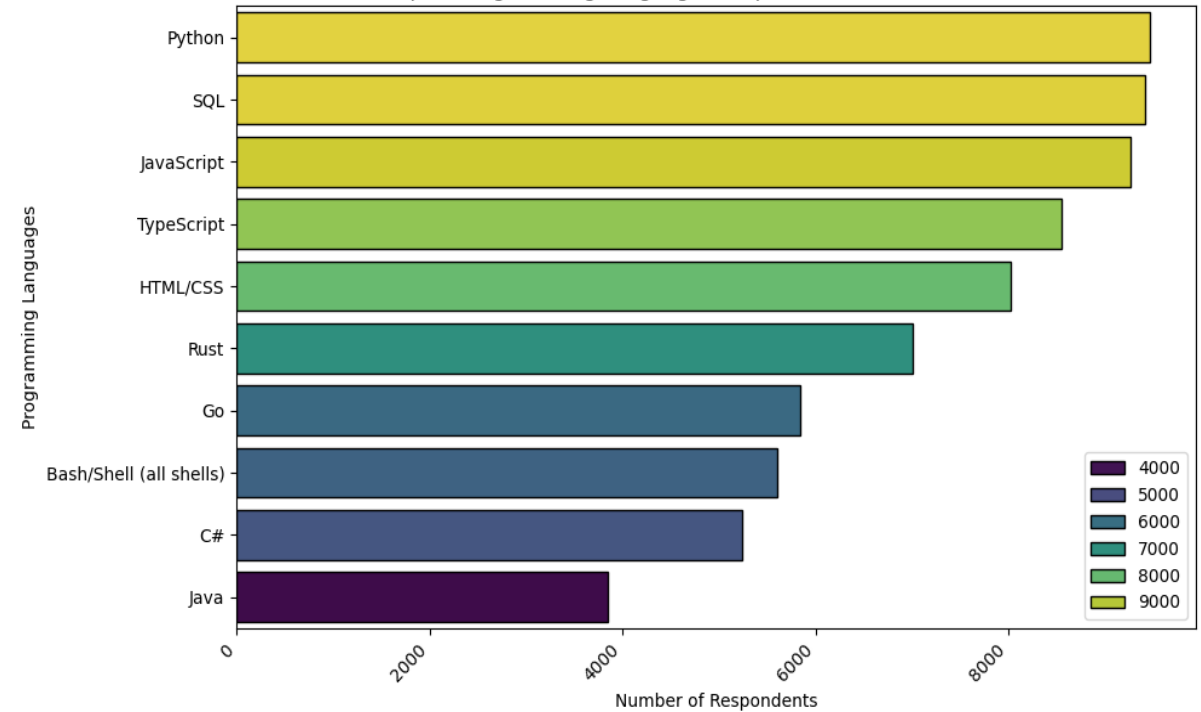
Current Year

Top 10 Programming Languages Respondents Have Worked With



Next Year

Top 10 Programming Languages Respondents Want to Work With



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Lots of interest in moving to Python
- JavaScript & SQL remain popular
- Go and Rust starting to become popular

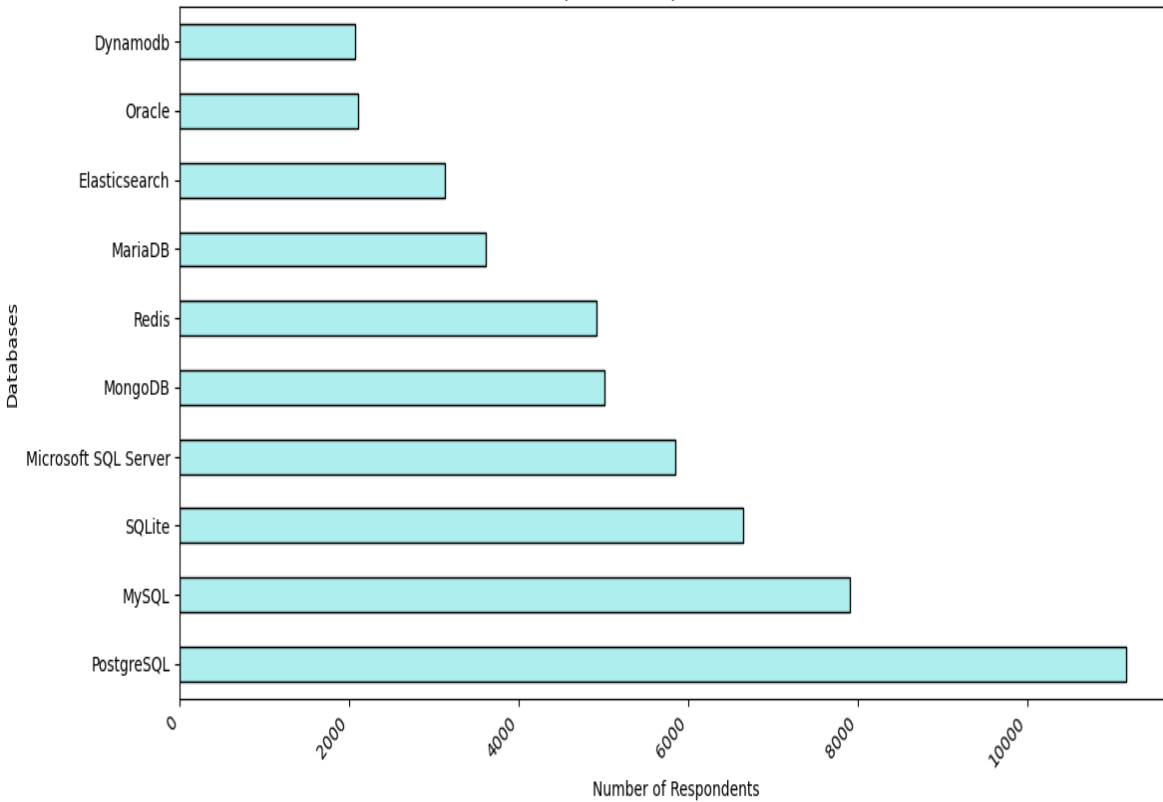
Implications

- Scripting-style languages increasingly popular
- Functional programming becoming more in demand

DATABASE TRENDS

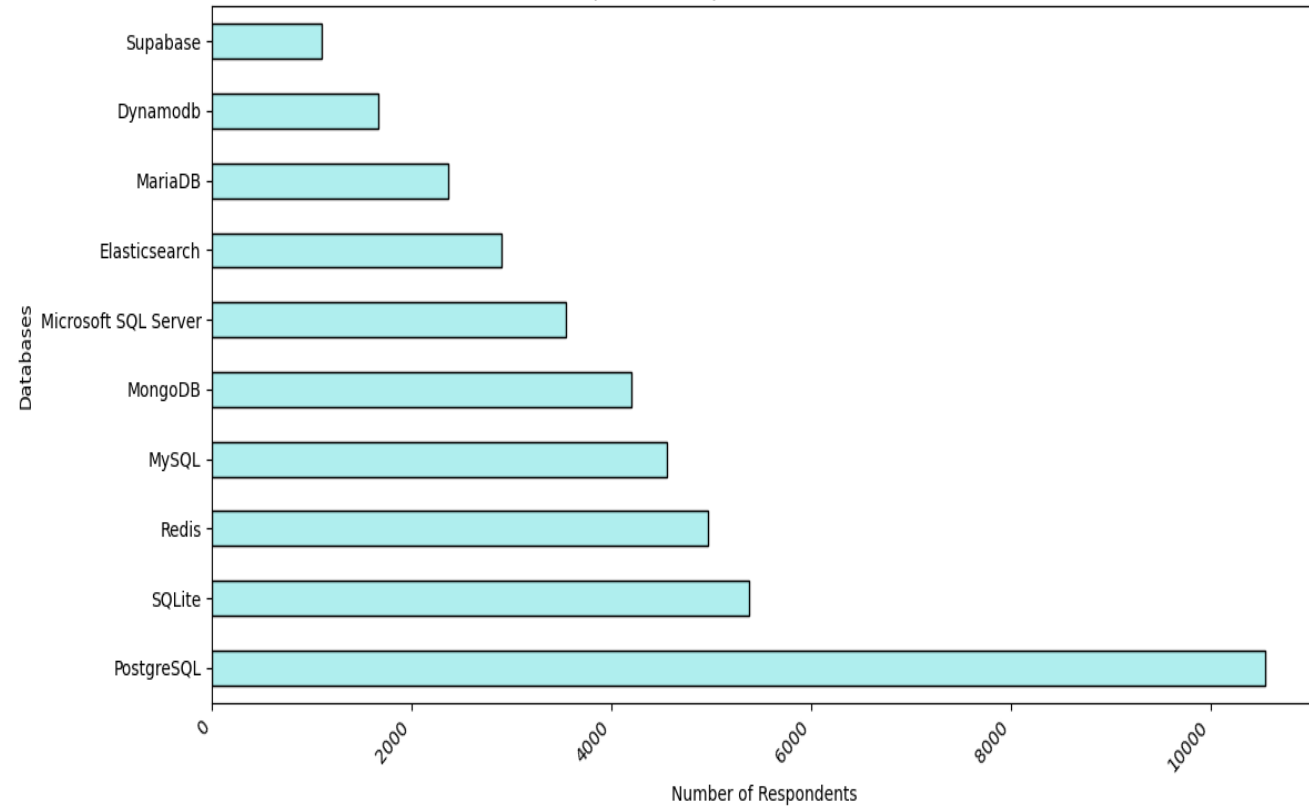
Current Year

Top 10 Most Popular Databases



Next Year

Top 10 Most Popular Databases Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL most popular and more people want to work with it than any other db

Implications

- PostgreSQL and MySQL set to dominate database userbase



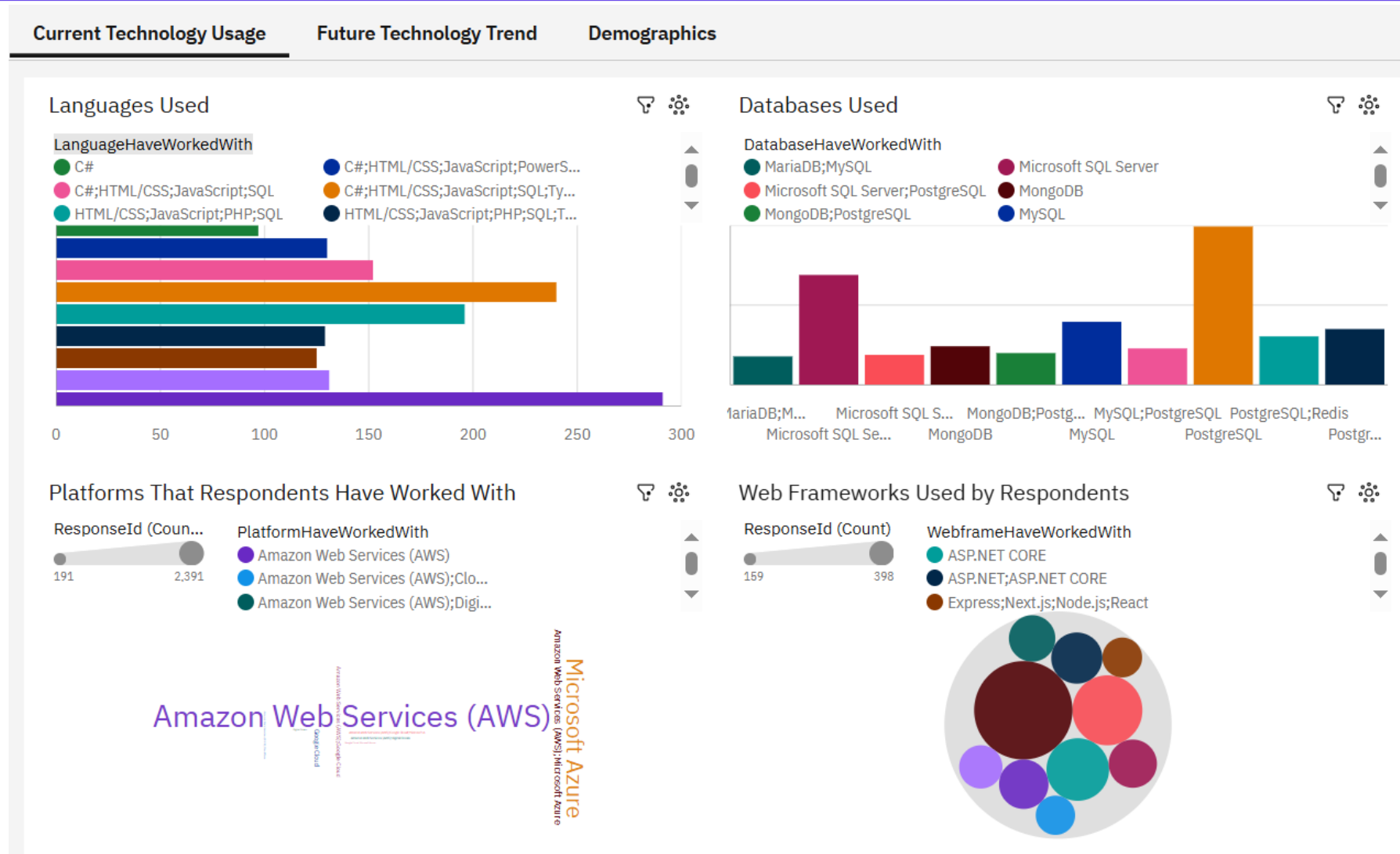
DASHBOARD



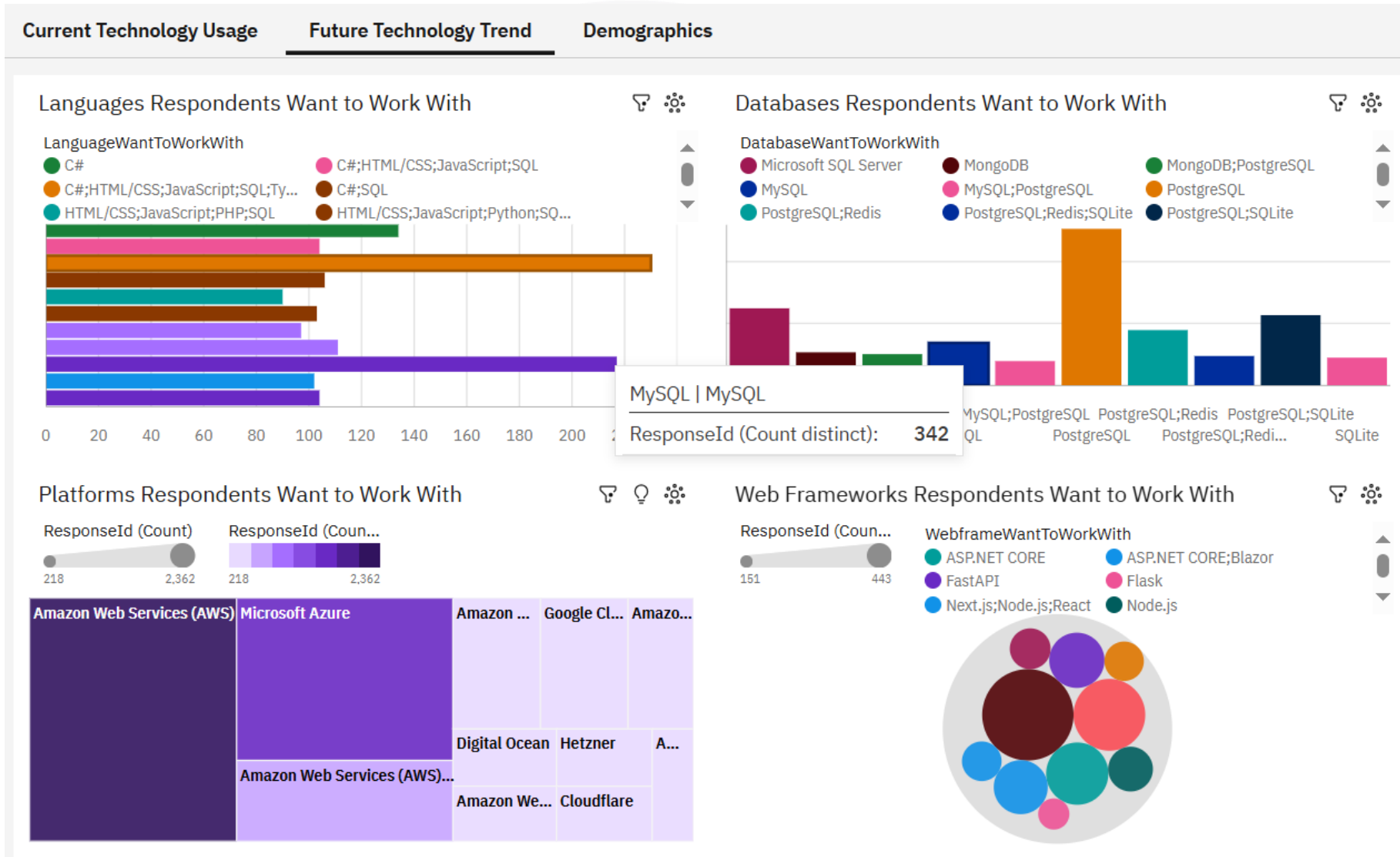
A dashboard created in IBM
Cognos Analytics



DASHBOARD TAB 1



DASHBOARD TAB 2



DASHBOARD TAB 3

Current Technology Usage

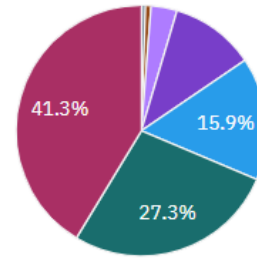
Future Technology Trend

Demographics

Responses by Age Group

Age

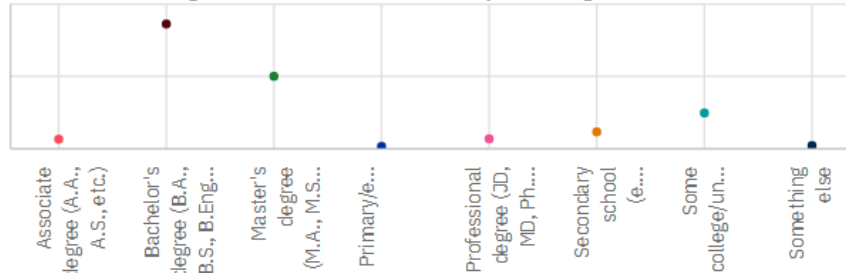
- Prefer not to say
- 55-64 years old
- 35-44 years old
- 65 years or older
- 45-54 years old
- 25-34 years old
- Under 18 years old
- 18-24 years old



Distribution of Education Level

EdLevel

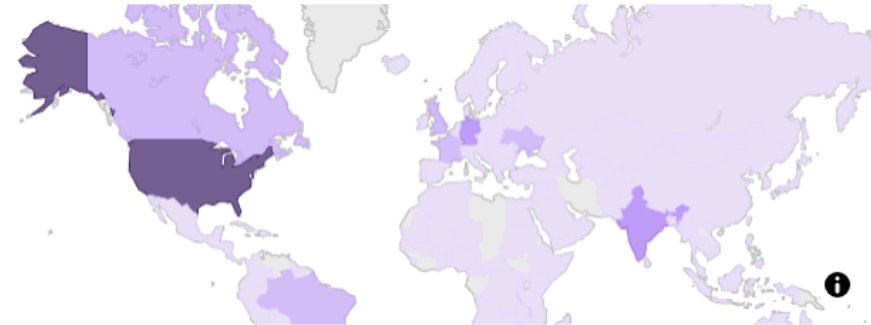
- Associate degree (A.A., A.S., etc.)
- Master's degree (M.A., M.S., M.En...)
- Professional degree (JD, MD, Ph.D...)
- Bachelor's degree (B.A., B.S., B.E...)
- Primary/elementary school
- Secondary school (e.g. American ...)
- Something else



Responses by Country

ResponseId (Count)

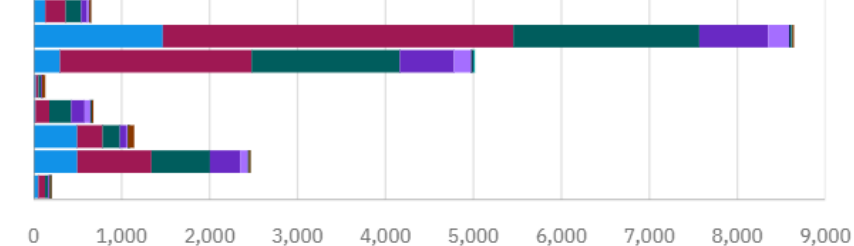
1 3,441



Distribution of Ed. Level with Age Group

Age

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65 years or older
- Prefer not to say
- Under 18 years old



DISCUSSION



- Visualization in an analytics dashboard is easy providing the data is properly formatted
- Survey data on languages, databases, platforms and web frameworks is not meaningful unless exploded out

OVERALL FINDINGS & IMPLICATIONS

Findings

- Most respondents are in USA Germany, India, younger and educated to degree level
- AWS dominates platforms
- Interest in PostgreSQL database is high
- Large swings in web frameworks

Implications

- The move to cloud-based computing continues
- An upheaval in web frameworks is coming
- PostgreSQL set to dominate database market

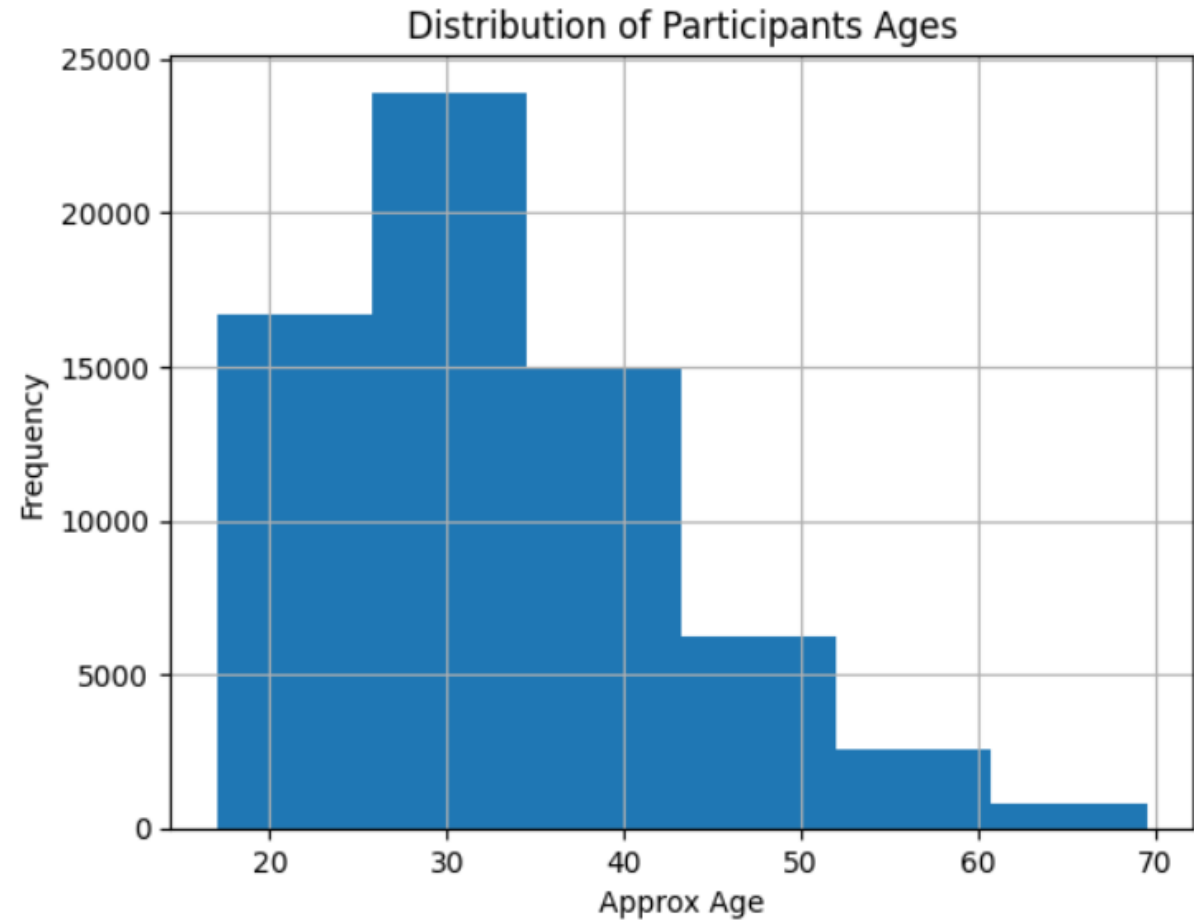
CONCLUSION



- Interest in Python is surging
- Other scripting style languages are becoming more popular
- PostgreSQL is already popular and set to dominate in database technology
- Developers are young, well-educated and globally dispersed

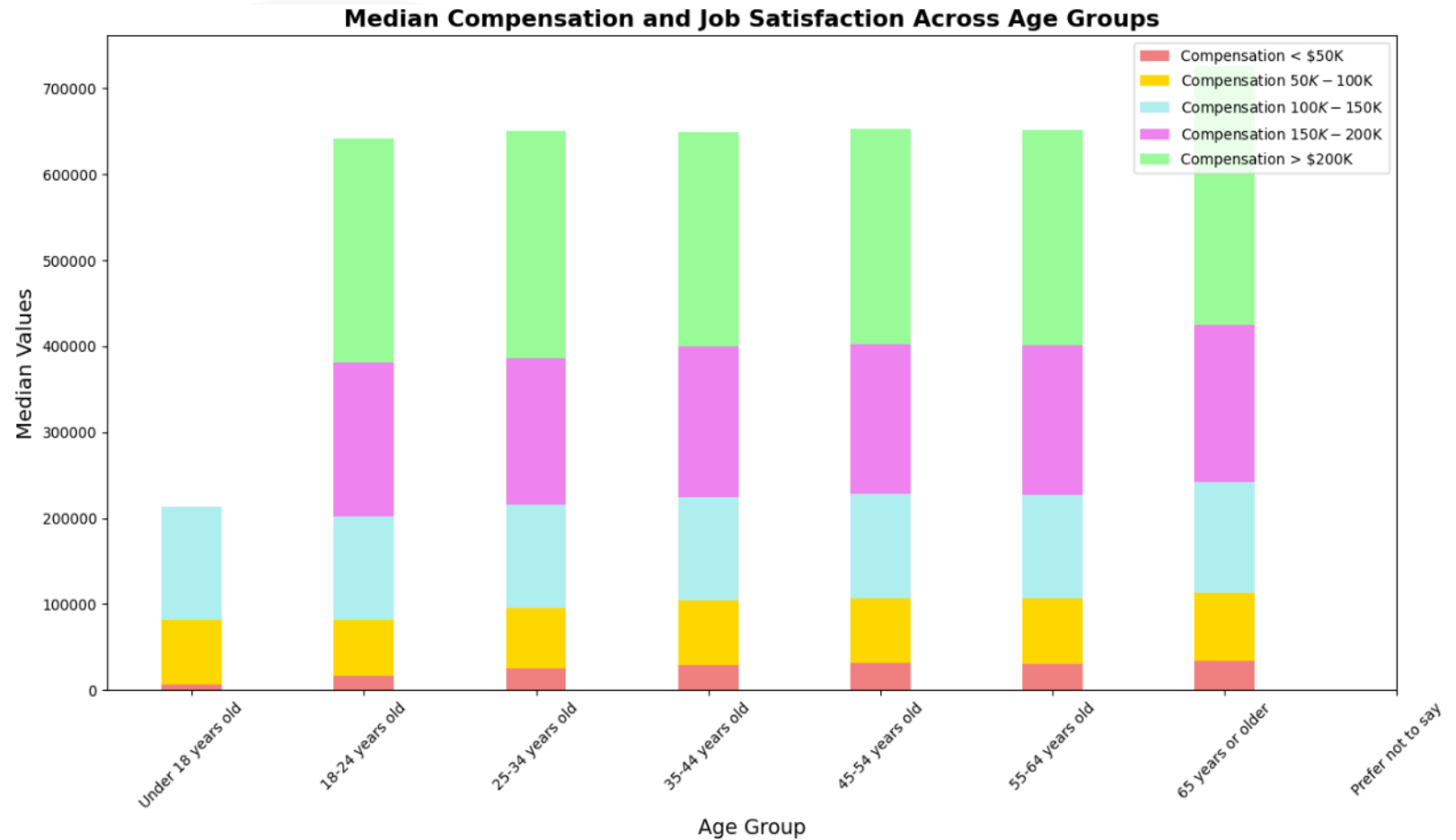
APPENDIX

- Distribution of respondents by age

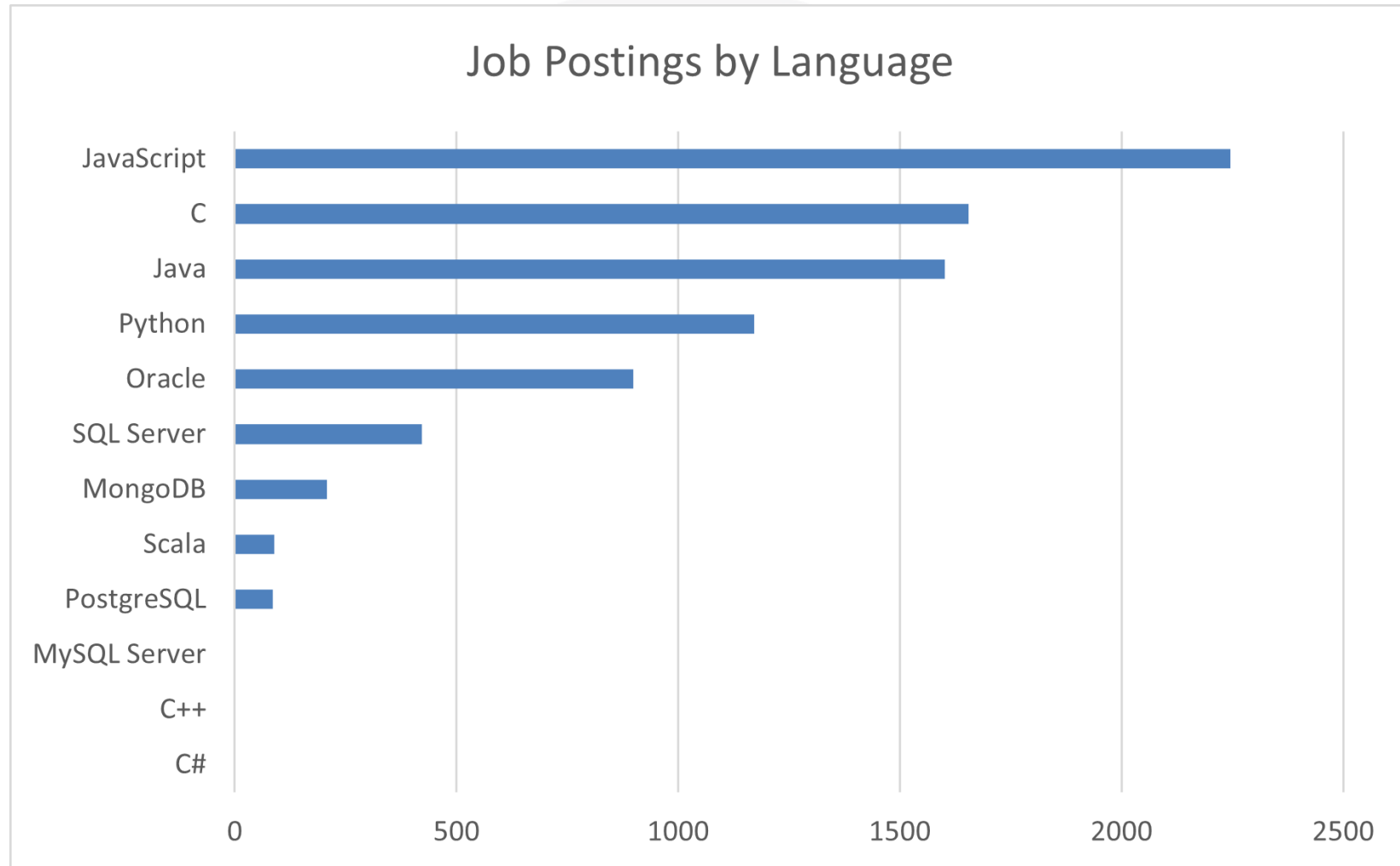


APPENDIX (cont.)

- Median compensation and job satisfaction across different age groups



JOB POSTINGS



POPULAR LANGUAGES

