Exploring the Developer Experience: Key Trends and Insights

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EXECUTIVE SUMMARY

This analysis of the Stack Overflow Developer Survey highlights:

- **Demographics**: Majority are aged 25-34 with bachelor's degrees.
- **Technology**: Python, JavaScript, and PostgreSQL dominate current and future preferences.
- **Work Habits**: Developers work ~40 hours weekly, with ~4 hours on code reviews.
- **Trends**: Python leads in demand and salary potential, reflecting its growing relevance.

These findings showcase the skills and technologies shaping the tech industry.

INTRODUCTION

This report analyzes data from the Stack Overflow Developer Survey to uncover insights about global developer demographics, technology preferences, work habits, and industry trends. By exploring this data, we aim to identify key skills, tools, and patterns that define the current state and future of the tech industry.

METHODOLOGY

- **Data Source**: Subset of Stack Overflow Developer Survey dataset.
- **Data Tools**: SQLite for data storage and querying; IBM Cognos Analytics for dashboard creation.
- **Data Preparation**: Cleaned and queried data using SQL to extract relevant subsets.
- **Analysis**: Explored demographics, technology preferences, and work habits using Python (Pandas, Matplotlib).
- **Visualization**: Generated insights and dashboards with IBM Cognos Analytics to highlight key trends.

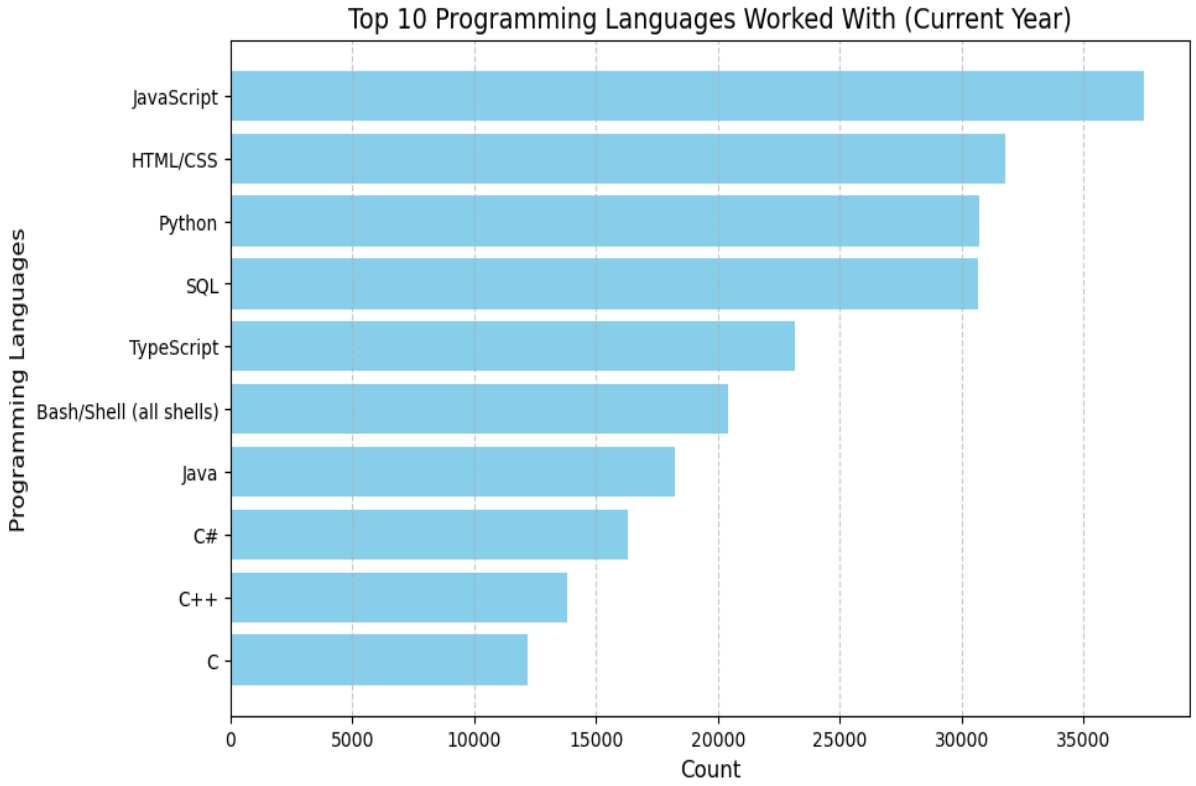
RESULTS

- **Demographics**:
  - Majority of respondents are aged 25-34 with a bachelor's degree as the most common educational qualification.
- **Technology Preferences**:
  - **Programming Languages:** Python and JavaScript dominate current usage and future demand.
  - **Databases**: PostgreSQL is the most widely used and desired database.
  - **Frameworks**: React and Angular are highly preferred for development.
- **Work Habits**:
  - Developers work an average of 40 hours per week, with ~4 hours spent on code reviews.
- **Trends and Insights**:
  - Python leads in both popularity and salary potential, reflecting its critical role in fields like AI, data science, and web development.

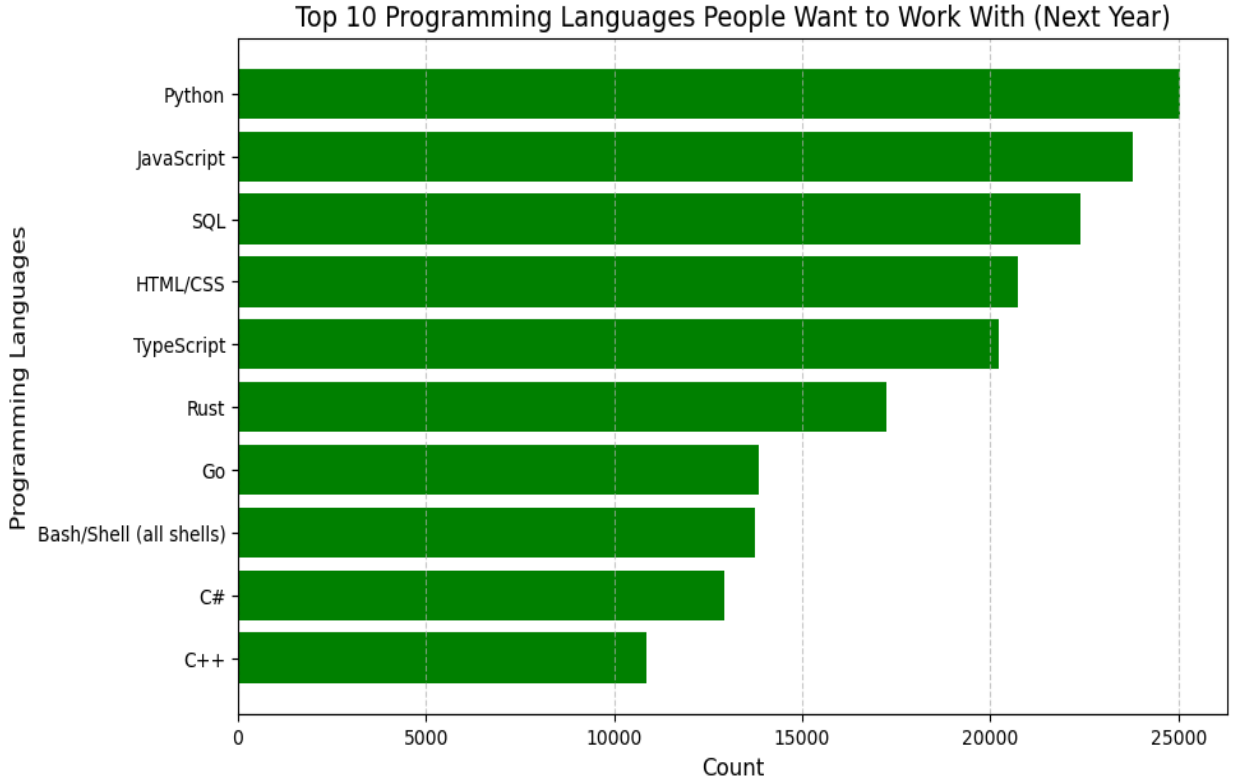
These findings provide valuable insights into the skills and technologies shaping the global tech landscape.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

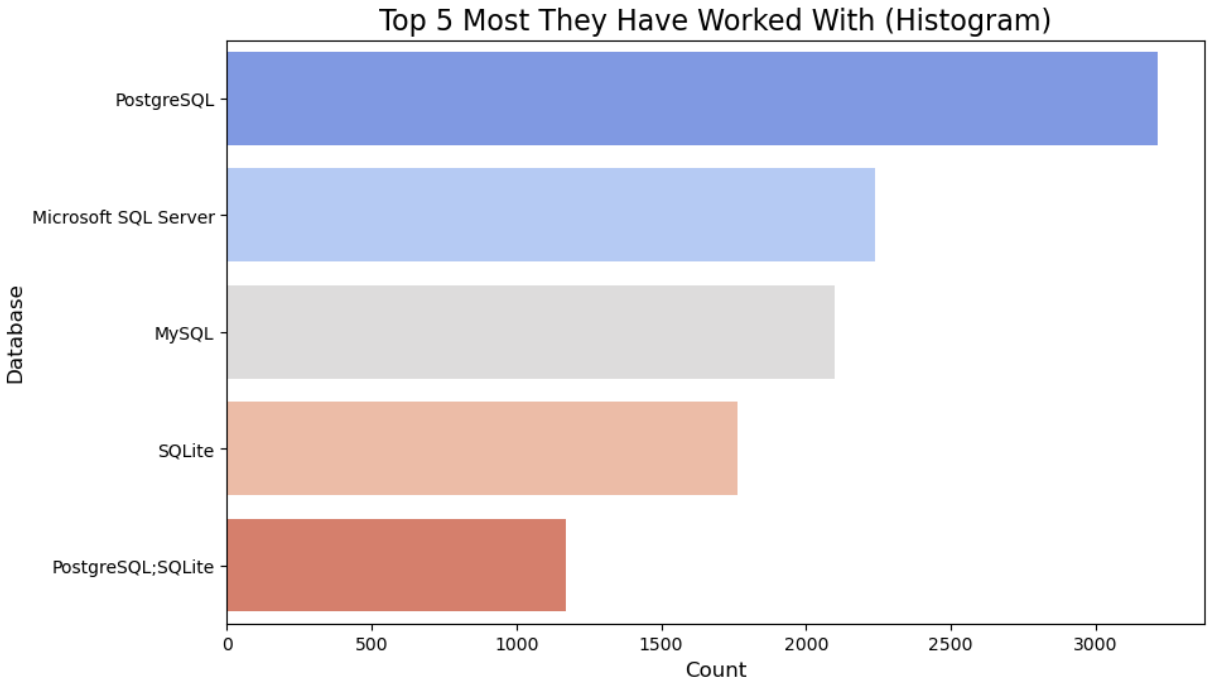
- **Current:** JavaScript, HTML/CSS, and Python are the most widely used programming languages
- **Future:** Python is the most desired, followed by JavaScript and SQL, with Rust and Go gaining interest

Implications

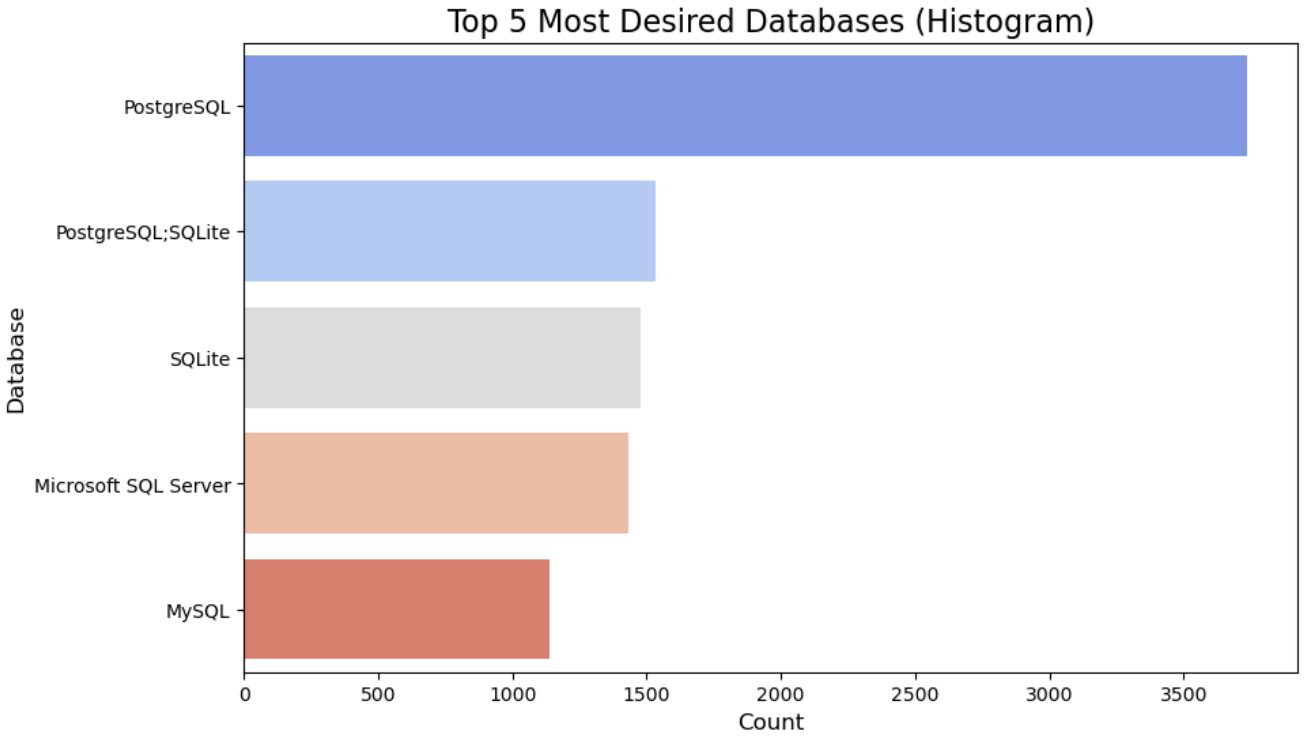
- **Developers:** Focus on Python and JavaScript for high-demand roles, explore Rust and Go for emerging opportunities.
- **Organizations:** Hire for Python and JavaScript skills; train teams on newer languages to stay competitive.
- **Education:** Prioritize Python, JavaScript, and introduce Rust and Go in advanced courses.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **Current:** PostgreSQL leads in usage, followed by Microsoft SQL Server and MySQL. SQLite is popular for lightweight applications.
- **Future:** PostgreSQL remains the most desired, with continued demand for SQL-based databases

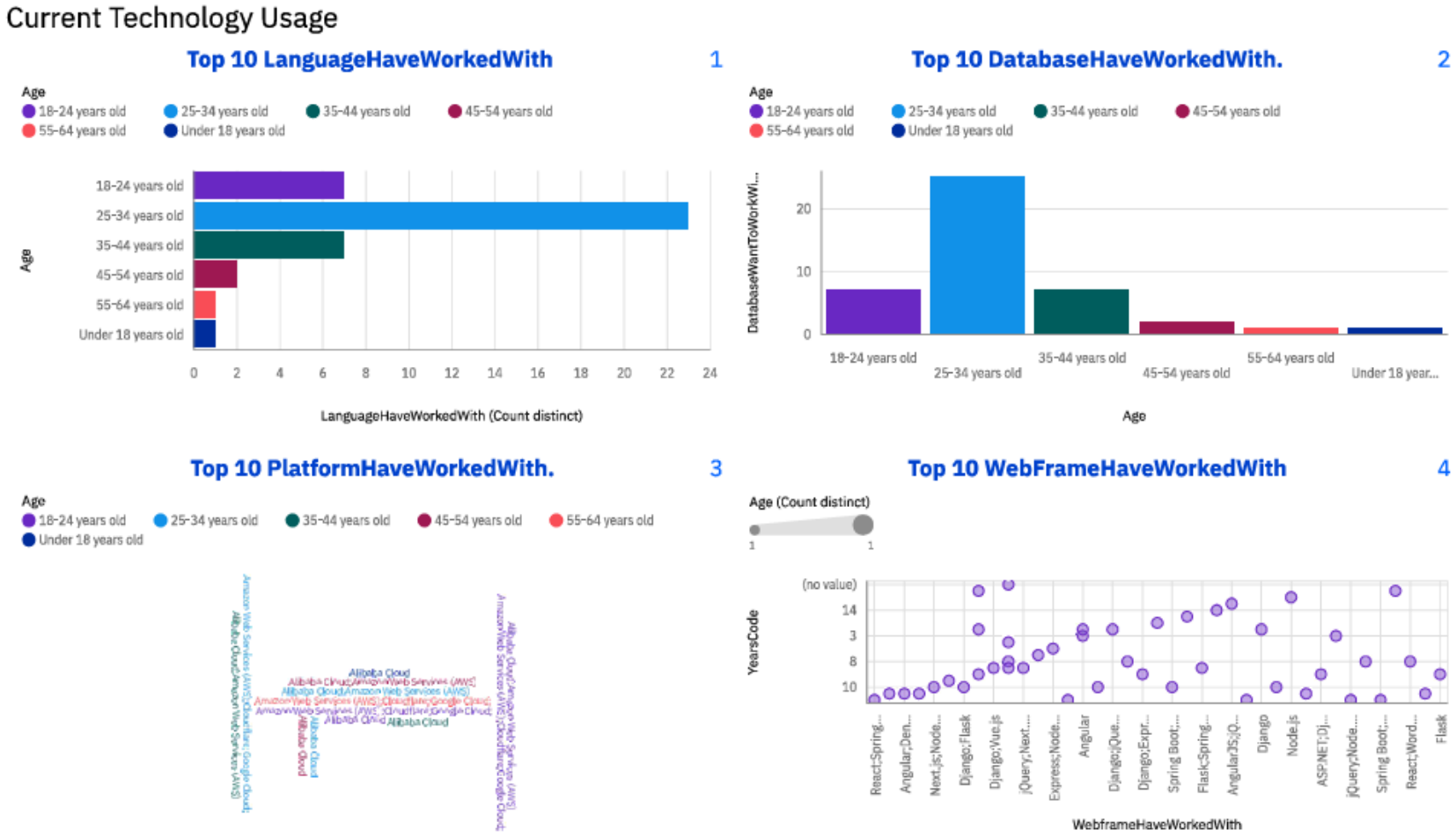
Implications

- **Developers:** Focus on PostgreSQL to stay competitive, maintain SQL versatility.
- **Organizations:** Invest in PostgreSQL for scalability, use multiple databases for diverse needs.
- **Education:** Prioritize PostgreSQL and SQL-based systems in training programs

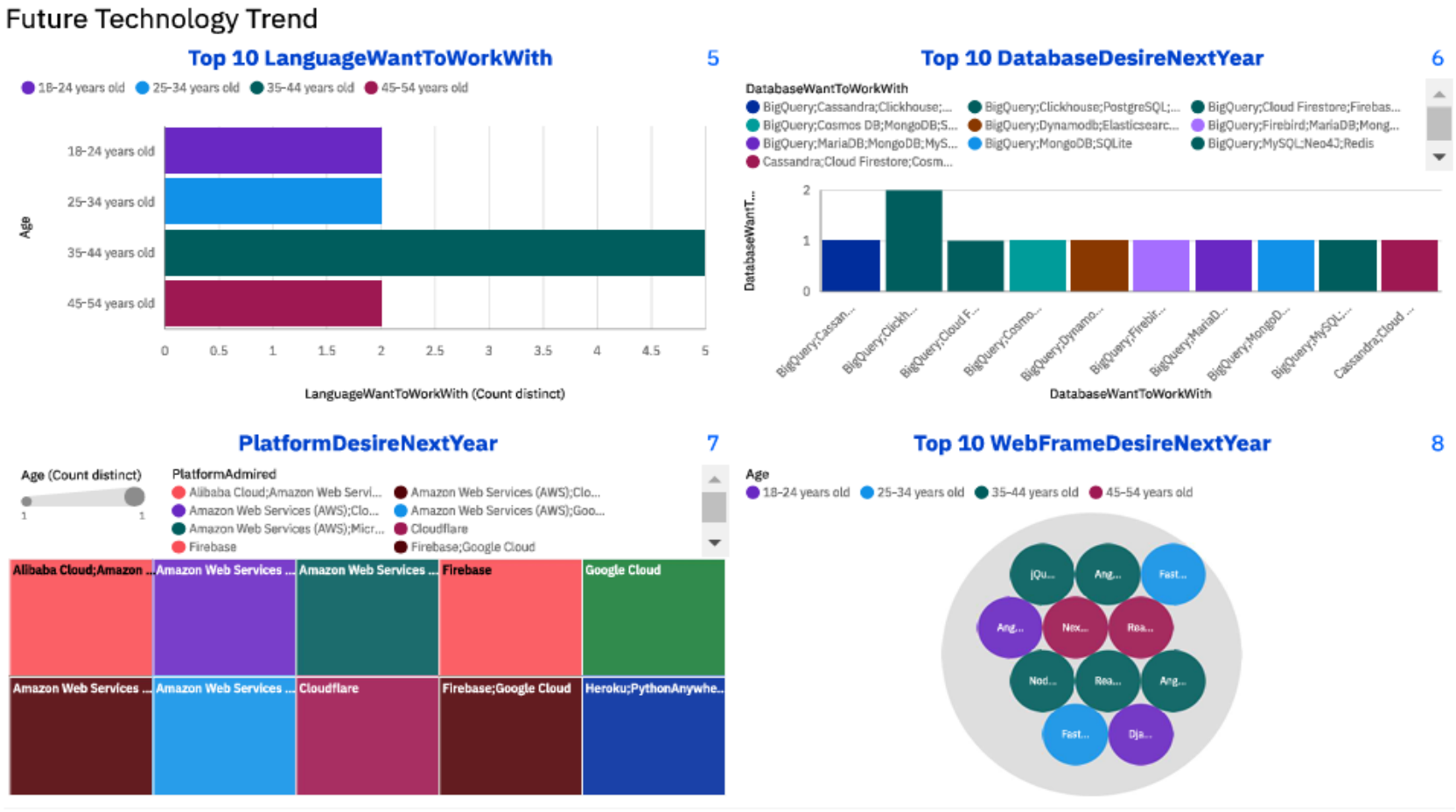
GitHub of the Cognos Dashboard

https://github.com/BakaryGibba/Stack-Overflower-Developer-Survey-Analysis-with-IBM-Cognos.git

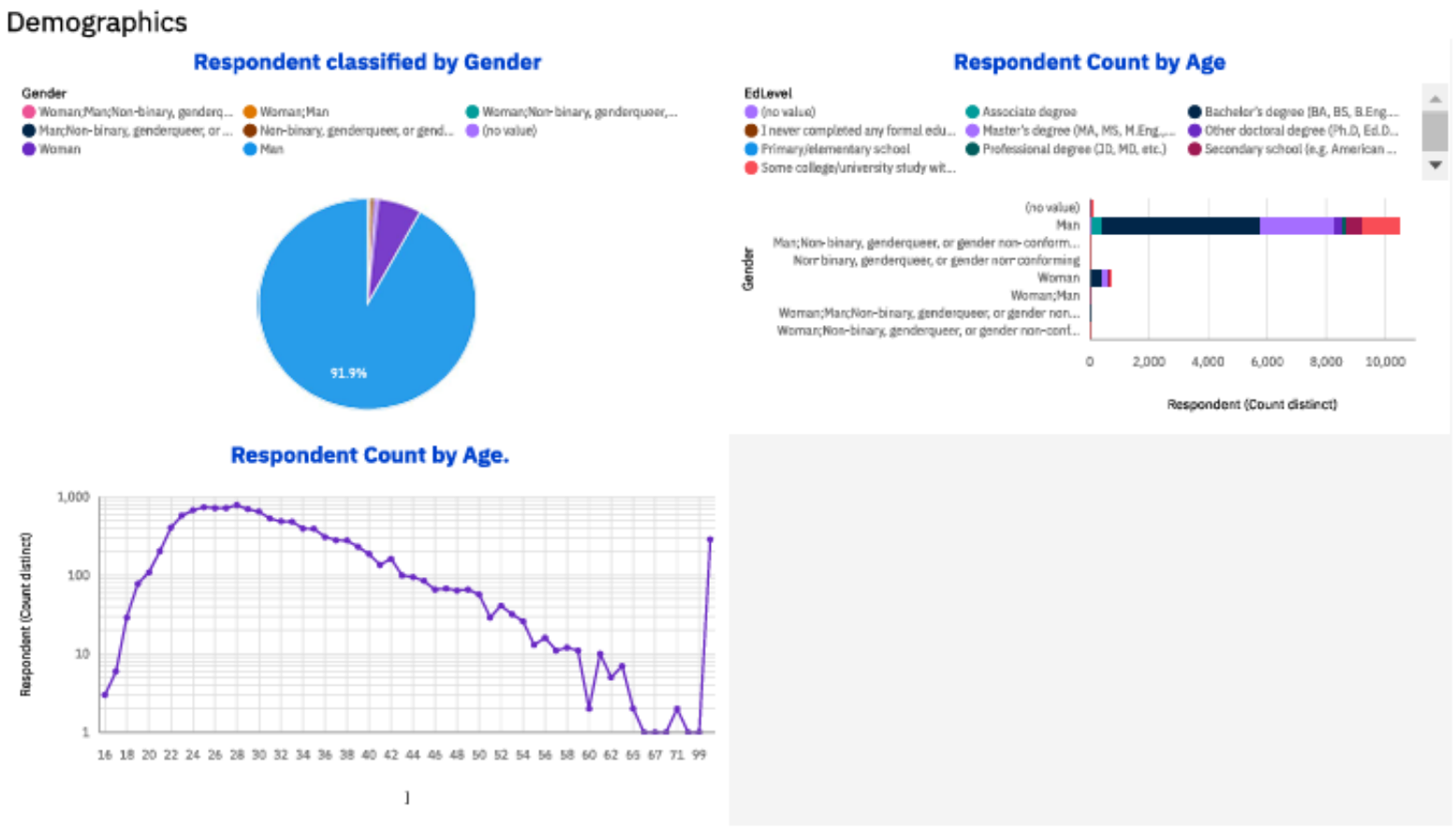
Current Technology Usage Dashboard



Future Technology Trend Dashboard



The Demographics Dashboard



DISCUSSION

The analysis of the Stack Overflow Developer Survey highlights trends in developer preferences, work habits, and tools. JavaScript continues to dominate as the most used language, while Python emerges as the most desired for future work, reflecting its versatility in AI, data science, and web development. PostgreSQL leads both current and future database preferences, showcasing its scalability and reliability. Developers typically work around 40 hours weekly, dedicating a portion of their time to code reviews, indicating structured work habits.

OVERALL FINDINGS & IMPLICATIONS

Findings

- **Programming Languages:** JavaScript leads in Usage; Python is the most desired language
- **Databases:** PostgreSQL dominates in usage and future demand
- **Work Habits:** Developers work ~40 hours weekly, balancing coding and reviews

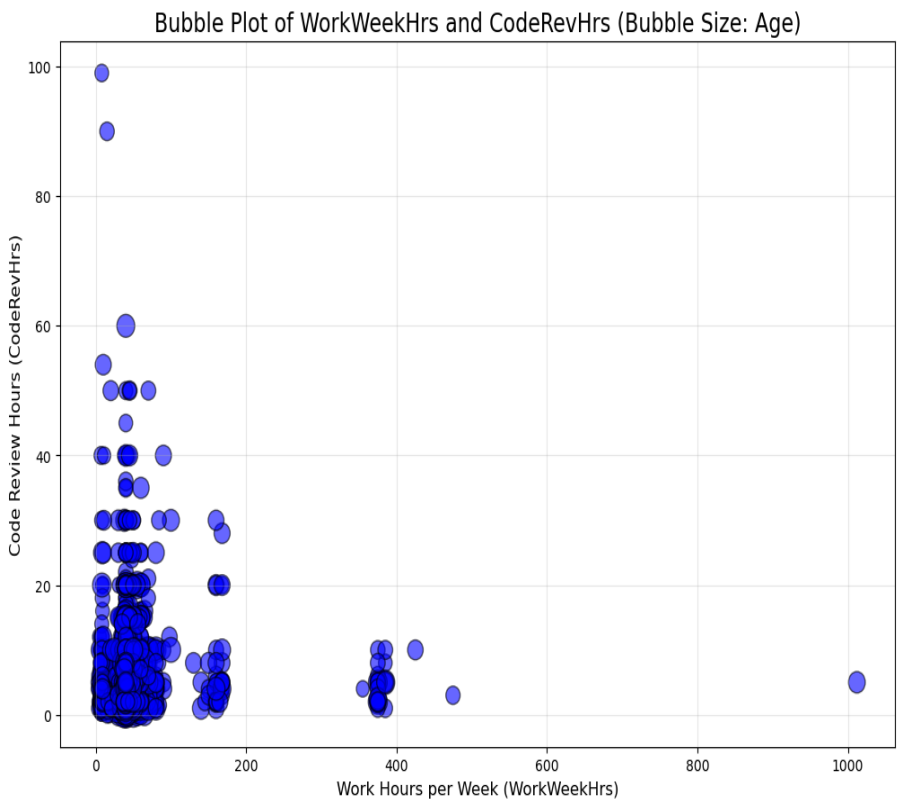
Implications

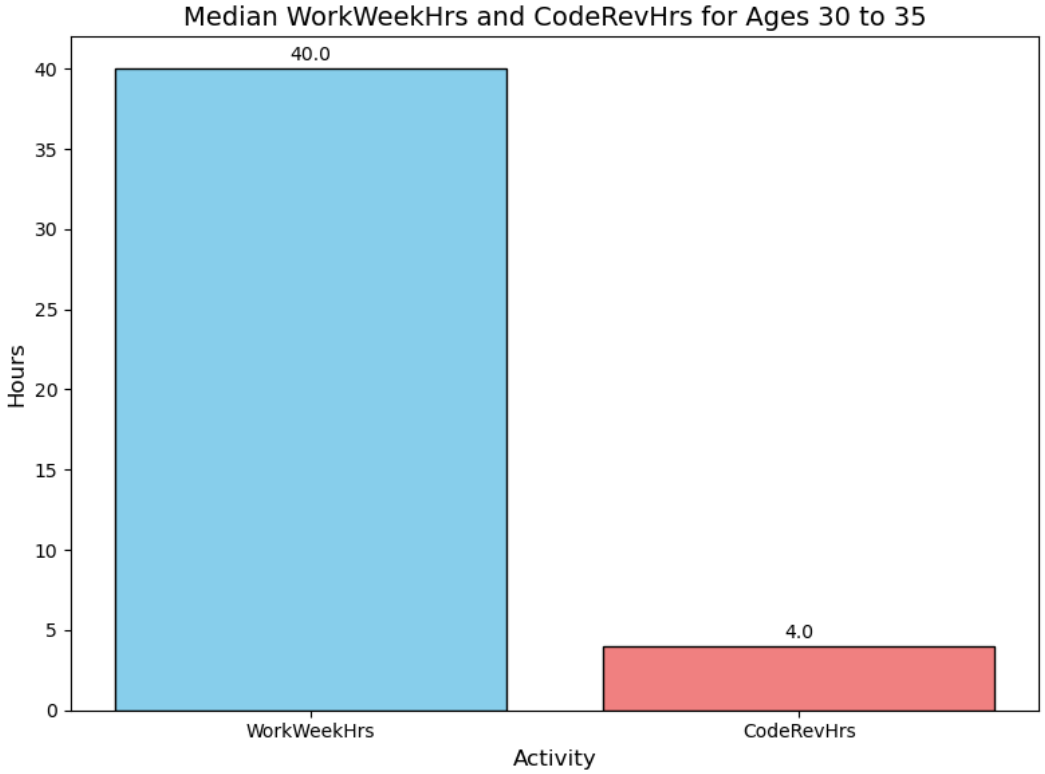
- **For Developers**: Python and JavaScript are critical for current and future roles, while learning Rust and Go offers a competitive edge.
- **For Organizations**: Invest in PostgreSQL and recruit for Python and JavaScript expertise
- **For Education:** Tailor training programs to focus on high-demand tools like Python and PostgreSQL, introducing emerging technologies like Rust and GO

CONCLUSION

This analysis underscores the importance of versatile skills like Python, JavaScript, and PostgreSQL in the tech industry. Developers must adapt to emerging trends, such as the rise of Rust and Go, to remain competitive. Organizations and educators play a pivotal role in fostering these skills to meet the demands of a rapidly evolving technological landscape.

APPENDIX


Bubble Plot of WorkWeekHrs and CodeRevHrs (Bubble Size: Age)
Code Review Hours (CodeRevHrs)
Work Hours per Week (WorkWeekHrs)
0
20
40
60
80
100
0
200
400
600
800
1000


Median WorkWeekHrs and CodeRevHrs for Ages 30 to 35
Hours
40.0
4.0
0
5
10
15
20
25
30
35
40
WorkWeekHrs
CodeRevHrs
Activity

POPULAR LANGUAGES