

Stack Overflow Survey: Developer Trends Analysis

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OUTLINE



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EXECUTIVE SUMMARY



- This analysis is aimed to provide insight on current and future tech preferences along with demographics of the developers.
- The top current and future tech preferences are:
 - Programming Languages: JavaScript, HTML/CSS, Python and SQL
 - Databases: PostgreSQL, MySQL and SQLite
 - Platforms: AWS, Microsoft Azure and Google Cloud
 - Web frameworks: Spring Boot, React and ASP.NET CORE
- The demographics leans towards most developers being aged 25-34 years old (41.3%).
- Most Developer have either a Bachelor's or a Master's degree.
- Most of the survey respondents are from United States of America (USA).

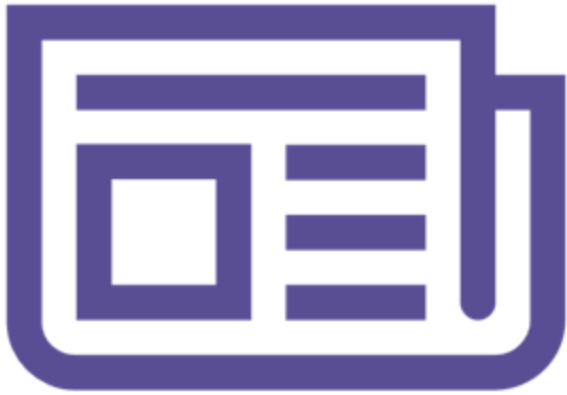


INTRODUCTION



- The purpose of the analysis is to understand the trends in compensation, job satisfaction, tech and tools preferences.
- Using Stack Overflow Survey Dataset, analysed Developer trends that provides insights on
 - Current and Future trends on Programming Languages, Databases, Platforms and Web Frameworks.
 - Also focused on the Demographics trends.
- It helps job aspirants and educators to understand the current and future tech market trends.
- It also analyses the demographics of the survey respondents.

METHODOLOGY

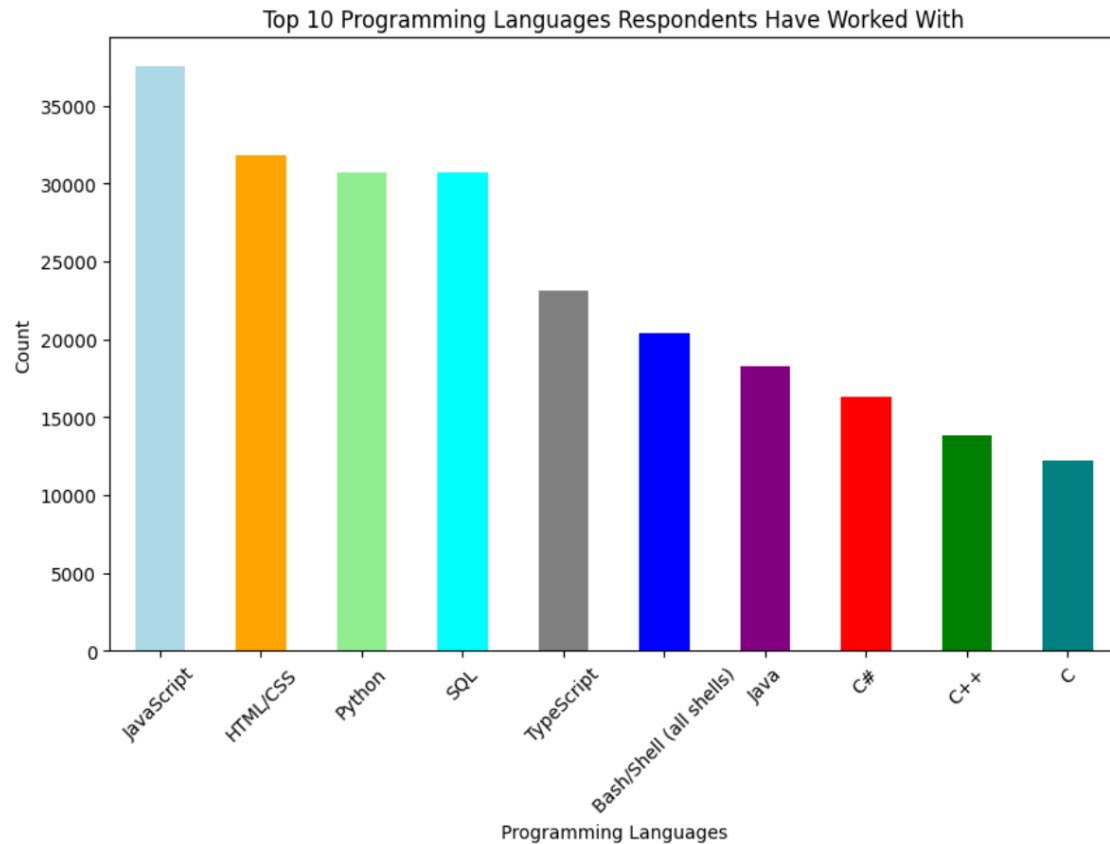


- The dataset is sourced from the Stack Overflow Survey, provided by Coursera through IBM Skill Network Labs.
- The data was uploaded and explored through Python and SQL using pandas and sqlite3.
- The dataset was cleaned by focusing on missing values, normalisation and removing duplicates.
- The dataset was then analysed through Exploratory Data Analysis by handling outliers, data distribution and correlation.
- The trends and relationships were then visualised using
 - Bar charts, Histogram, Scatter Plots, etc. in the Jupyter Notebook.
 - Dashboards using IBM Cognos Analytics and Google Looker Studio.

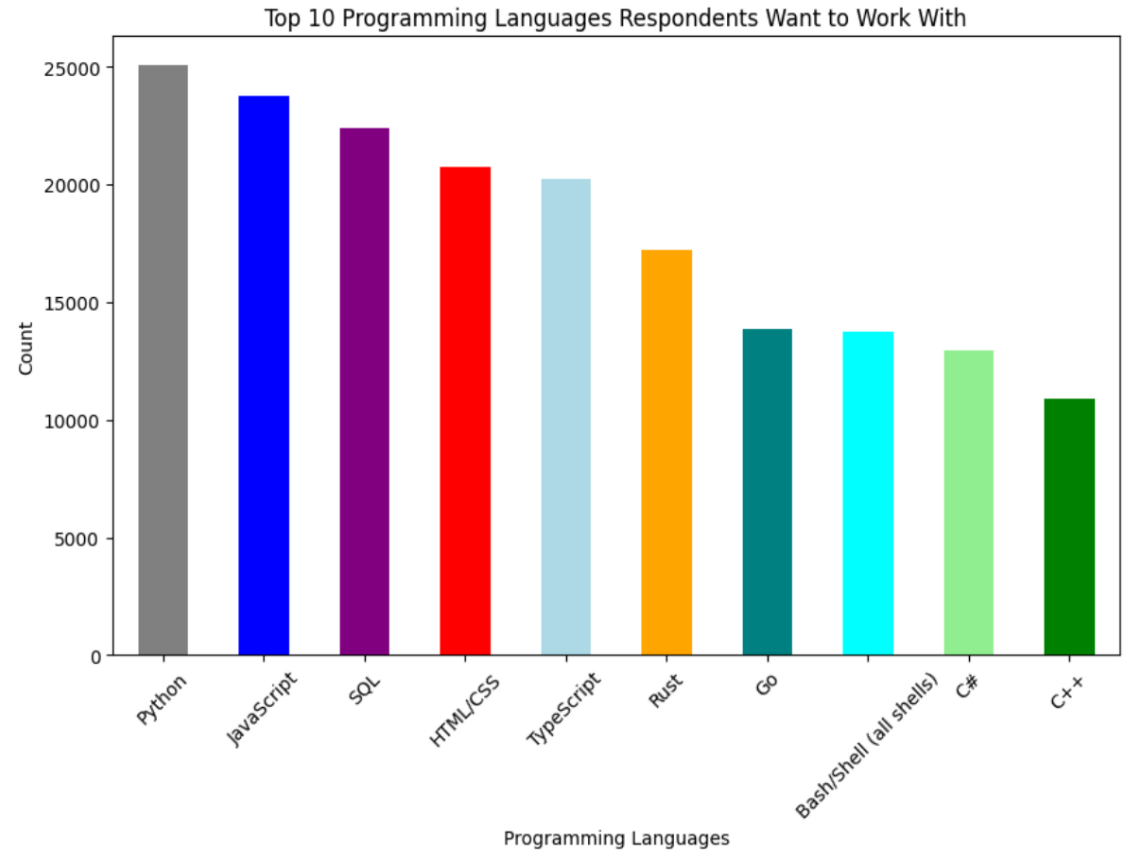


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript, Python, HTML/CSS, SQL and TypeScript dominate both current and future preferences as the go to languages.
- Rust and Go are emerging as popular languages among developers.
- Bash/Shell(all shells), C# and C++ also appear in both chart as their popularity continues.

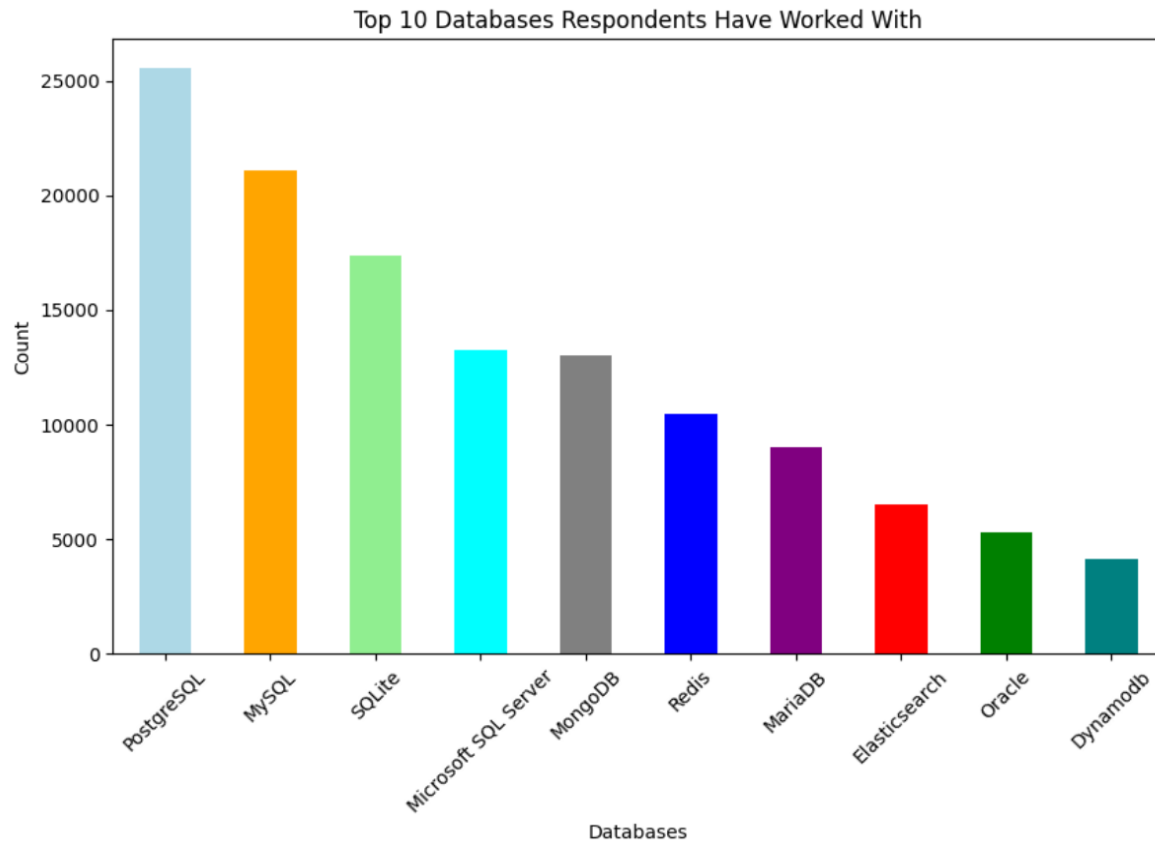
Implications

- Language trends provides insight into market shifts and emphasises the importance to keep up with trends.
- Job Aspirants and Educators should focus on upskilling to JavaScript, Python, Rust and Go to correspond to the developers interests.
- Tech Companies should engage in the growing interests in the emerging languages like Rust and Go.

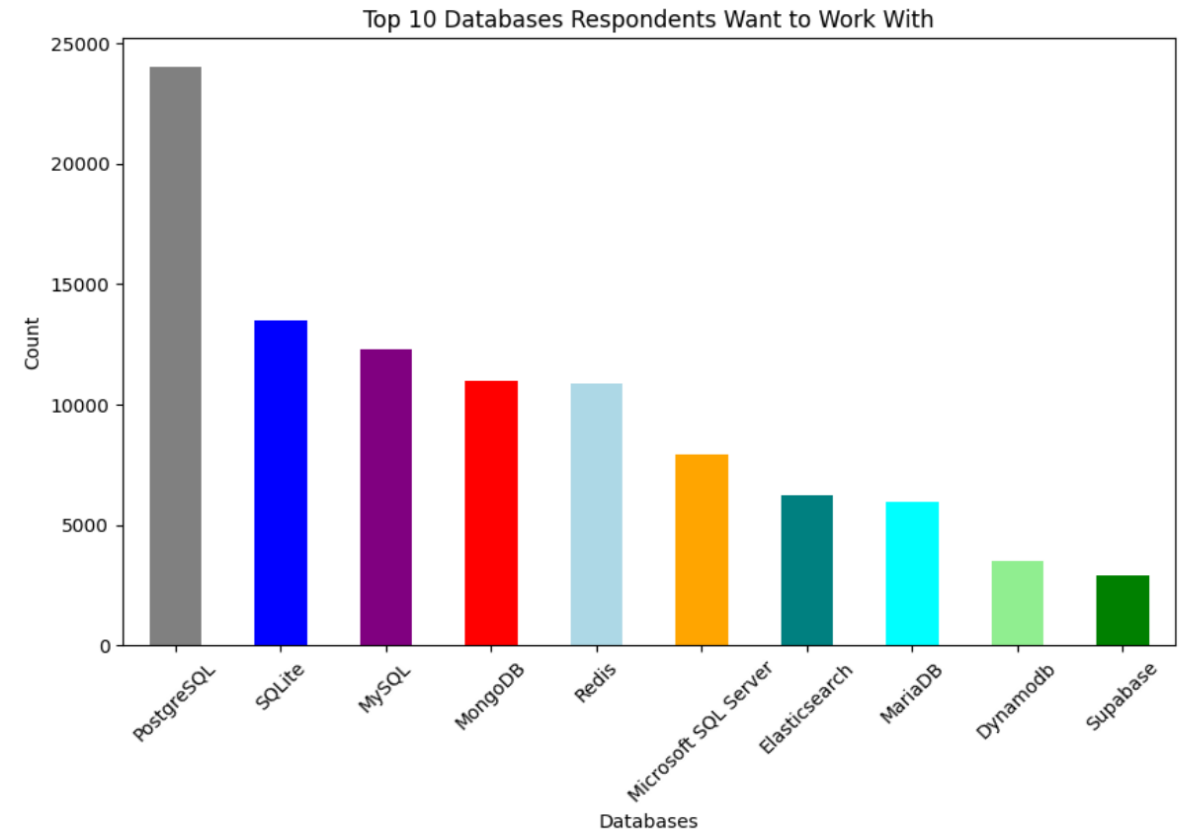


DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL leads both current and future preferences as the go to database.
- MySQL and SQLite also remain contenders for popular databases among developers.
- Supabase appears in future interest preference.
- MongoDB, Redis and Microsoft SQL Server also appears in both charts

Implications

- Database trends provides insight into market shifts.
- PostgreSQL is in high demand making it a good choice for training and upskilling.
- MySQL and SQLite is also a good choice for upskilling due to their continued appearance.
- Tech Companies should adapt for the growing interests in the emerging databases like Supabase.



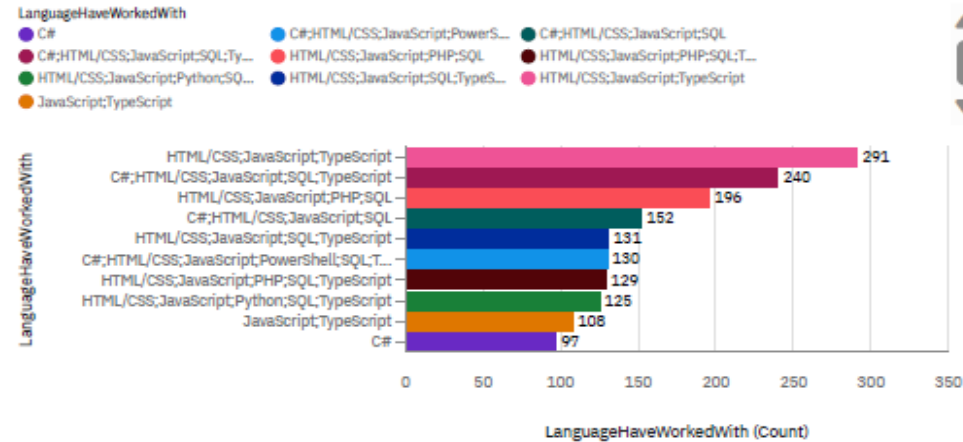
DASHBOARD



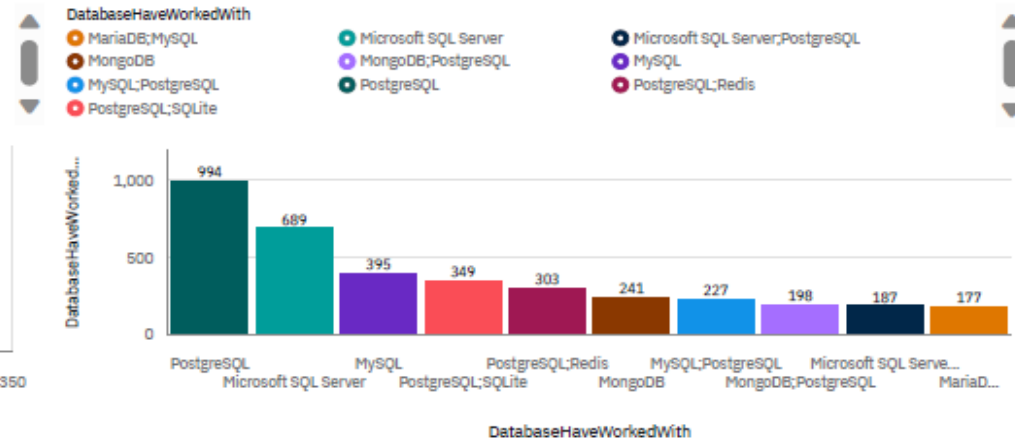
[Ctrl + Click here to access the Dashboard](#)

CURRENT TECHNOLOGY USAGE TREND

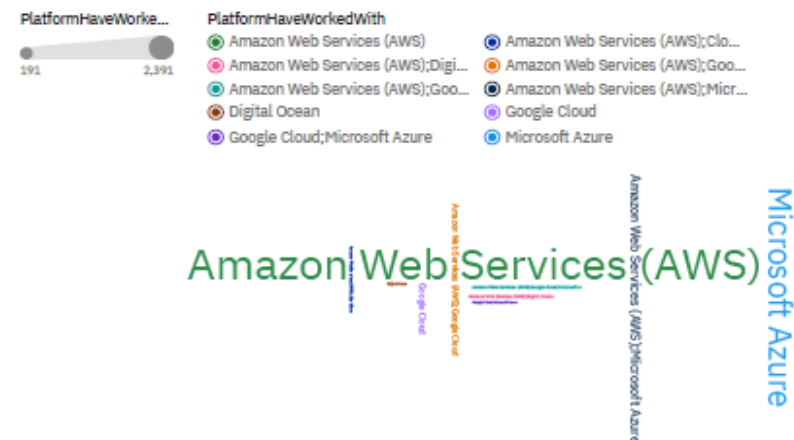
Top 10 Programming Languages Respondents Have Worked With



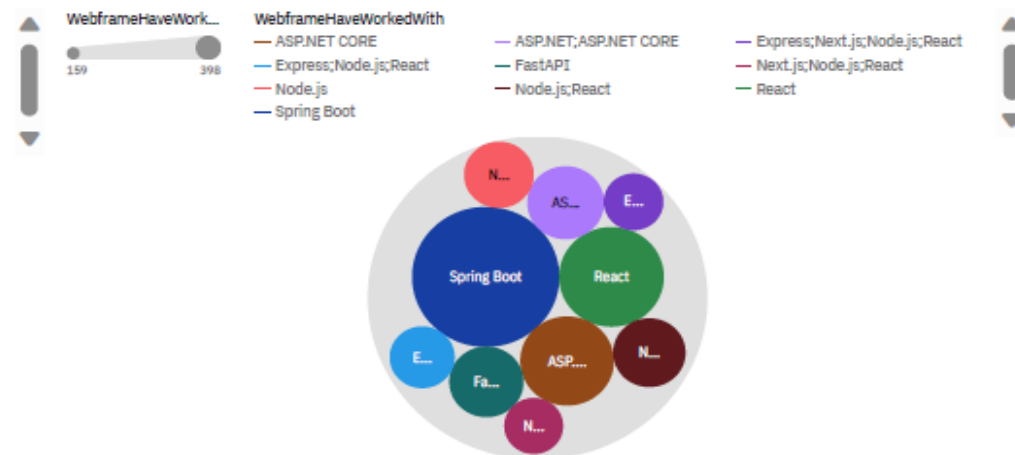
Top 10 Databases Respondents Have Used



Top 10 Platforms Respondents Have Worked With

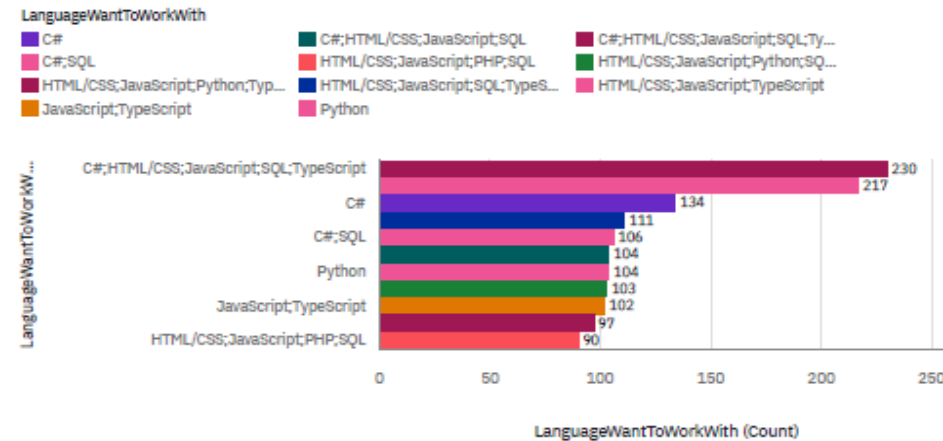


Top 10 Web Frameworks Respondents Have Used

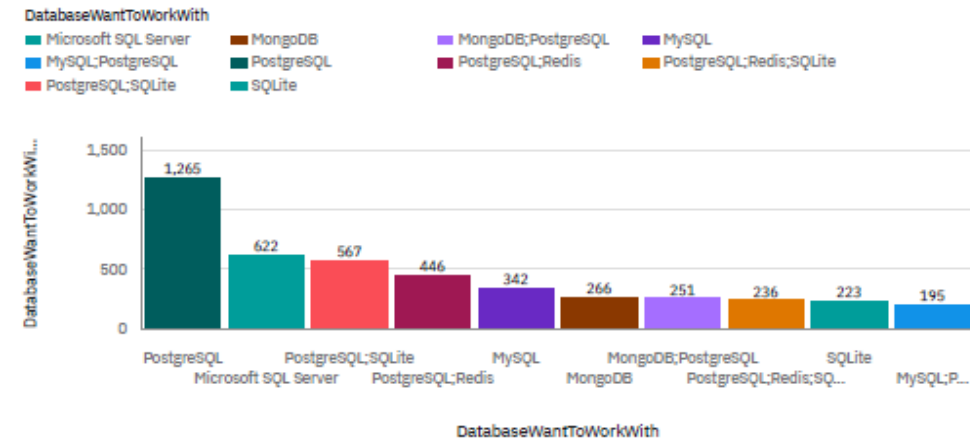


FUTURE TECHNOLOGY TREND

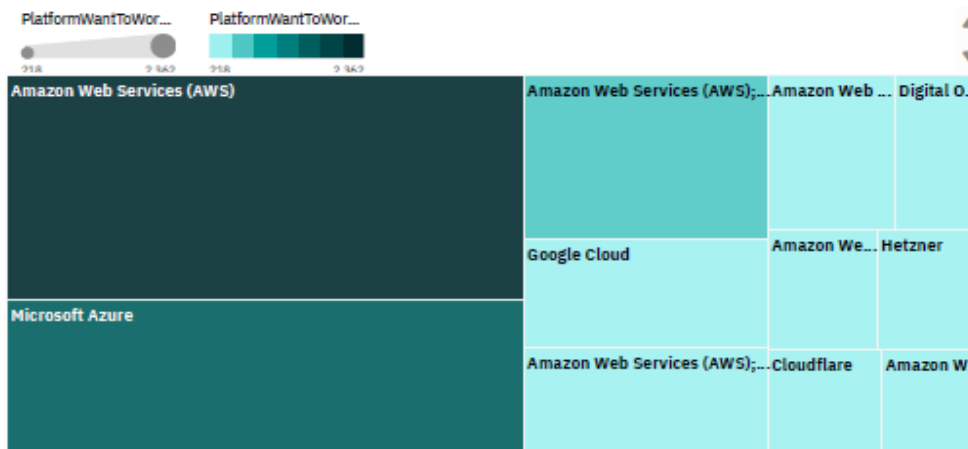
Top 10 Programming Languages Respondents Want to Learn



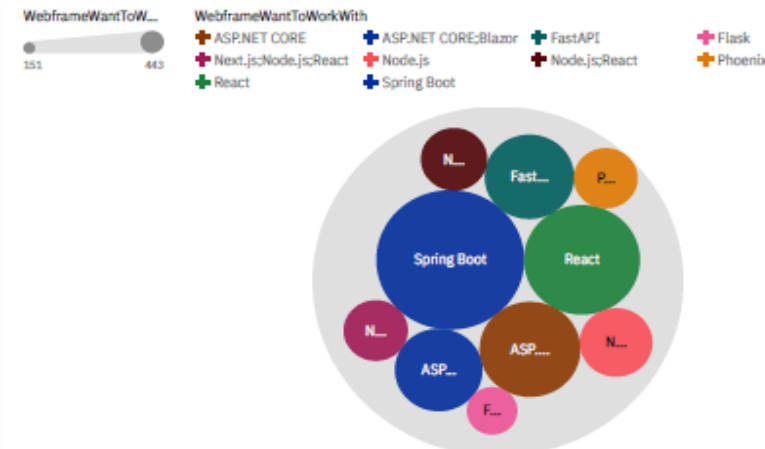
Top 10 Databases Respondents Want to Learn



Top 10 Platforms Respondents Want to Work With

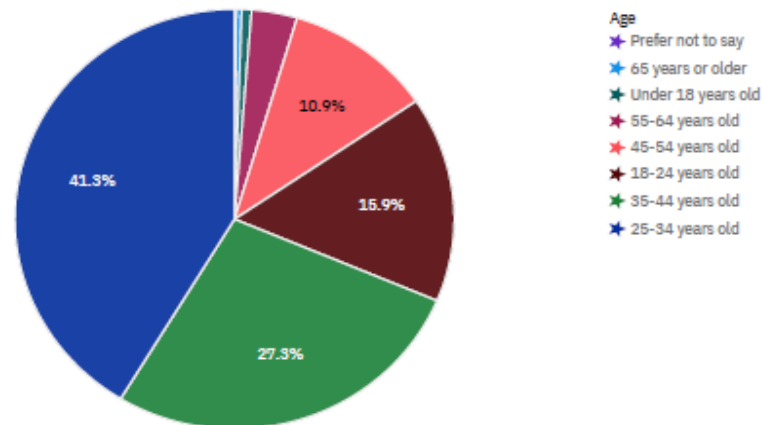


Top 10 Web Frameworks Respondents Want to Learn

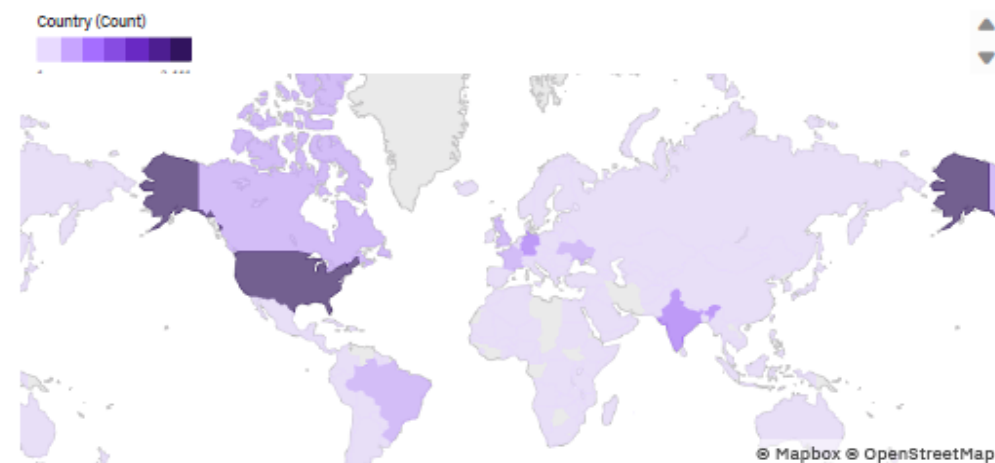


DEMOGRAPHICS

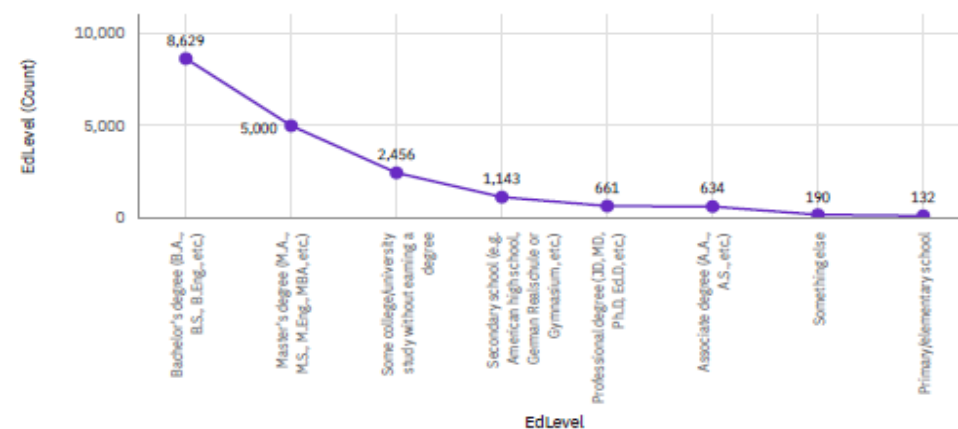
Distribution of the Respondents by Age Group



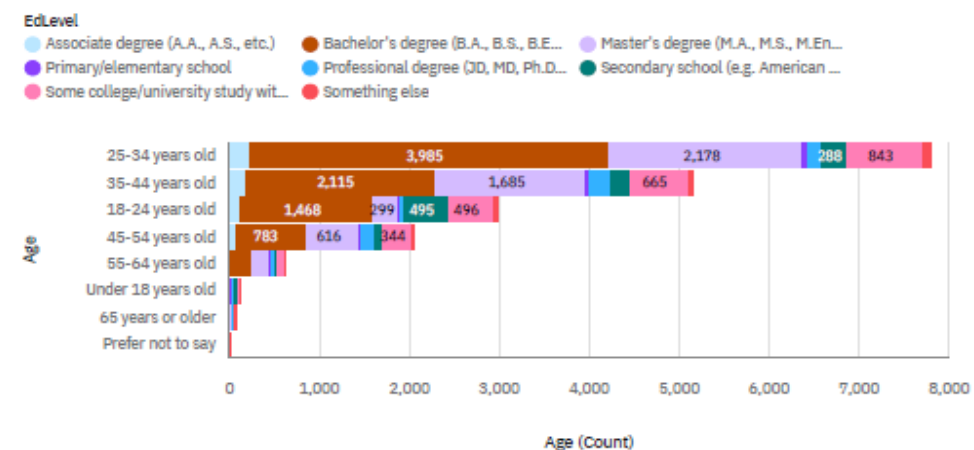
Distribution of the Respondents by Country



Distribution of the Respondents by Formal Education Level



Distribution of Respondents by Age and Education Level



DISCUSSION



- Python is becoming more popular among the developers surpassing JavaScript.
- PostgreSQL continues to dominate the databases and seems to become even more favourable in the future trends.
- The trends among Platform and Web frameworks seems to remain the same.
- The demographics of the developers is mostly aged 25-34 years old (41.3%).
- Most respondents have either a Bachelor's or a Master's degree.
- Most of the survey respondents are from United States of America (USA).

OVERALL FINDINGS & IMPLICATIONS

Findings

- Technology leaders
 - Languages: JavaScript, HTML/CSS and Python are leading.
 - Databases: PostgreSQL is leading in both current and future trends.
 - Platforms: AWS and Azure are leading.
 - Frameworks: Spring Boot and React are leading.
- Among the developers, most of them are aged 25-34 years old(41.3%) and most of them have a Bachelor's or Master's degree.

Implications

- Emphasise on Python, JavaScript, PostgreSQL, Spring Boot, React and cloud platforms like AWS and Azure.
- Offer upskilling and trainings for new emerging technologies and move away from traditional programs.
- Newer technologies may offer better long term career growth and give an edge with strong foundations.
- Cloud based technology is the future.

CONCLUSION



- The analysis helped us understand the key trends in the market interest for technology usage.
- We can conclude that there's a small shift towards more cloud based, user friendly technologies.
- Python, JavaScript, PostgreSQL, Spring Boot and AWS are leading in both current usage and future trends.
- The demographics leans towards most developers being aged 25-34 years old (41.3%) and most of them have a Bachelor's or Master's degree.
- It helps the developers and educators by leading them to upskill and offer trainings for new emerging technologies and move away from traditional programs.



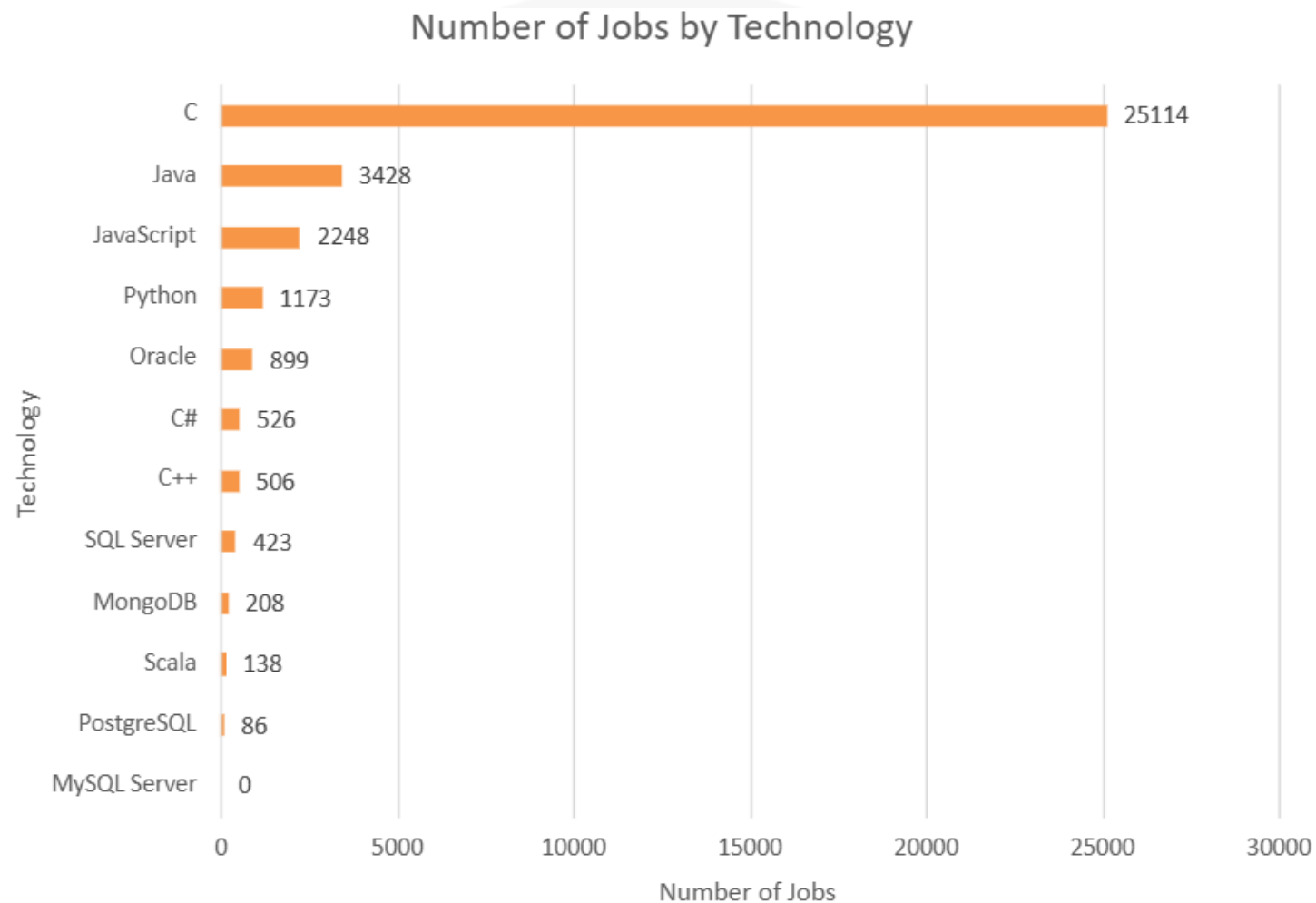
APPENDIX



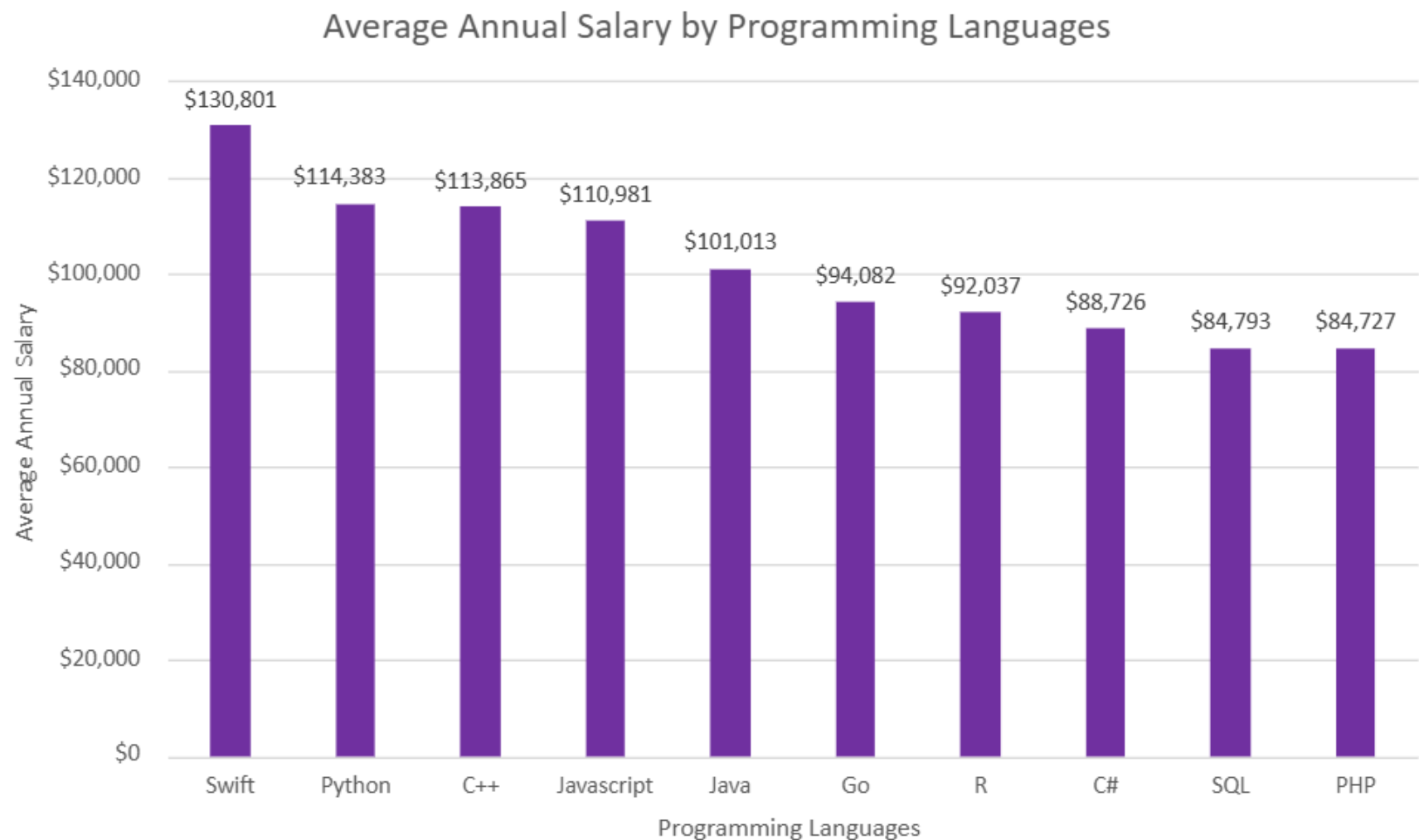
- Job Posting
- Popular Languages
- Programming Languages Comparison
- Job Satisfaction Distribution
- Distribution of Top 5 Programming Language Admired by Respondents



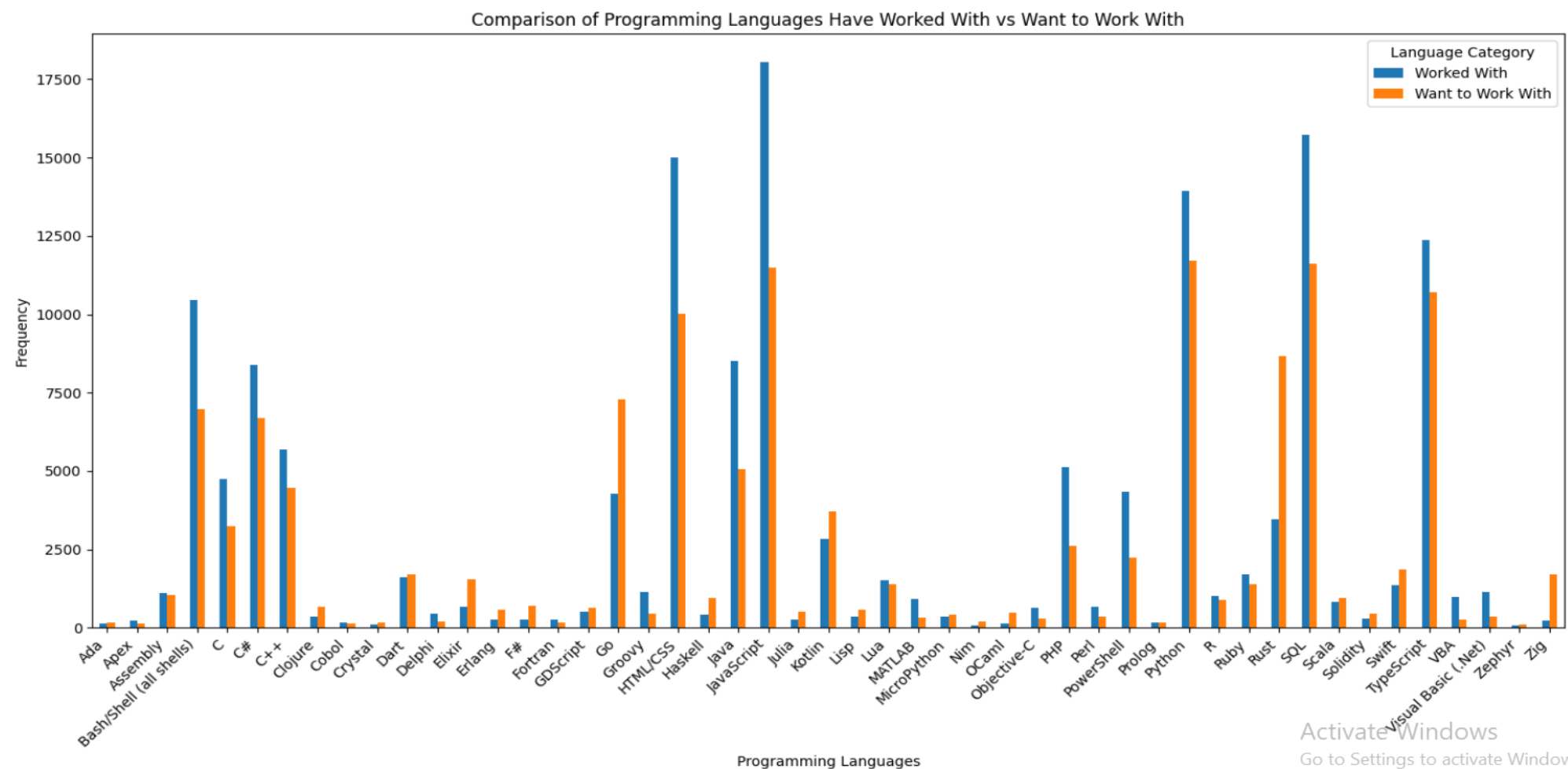
JOB POSTINGS



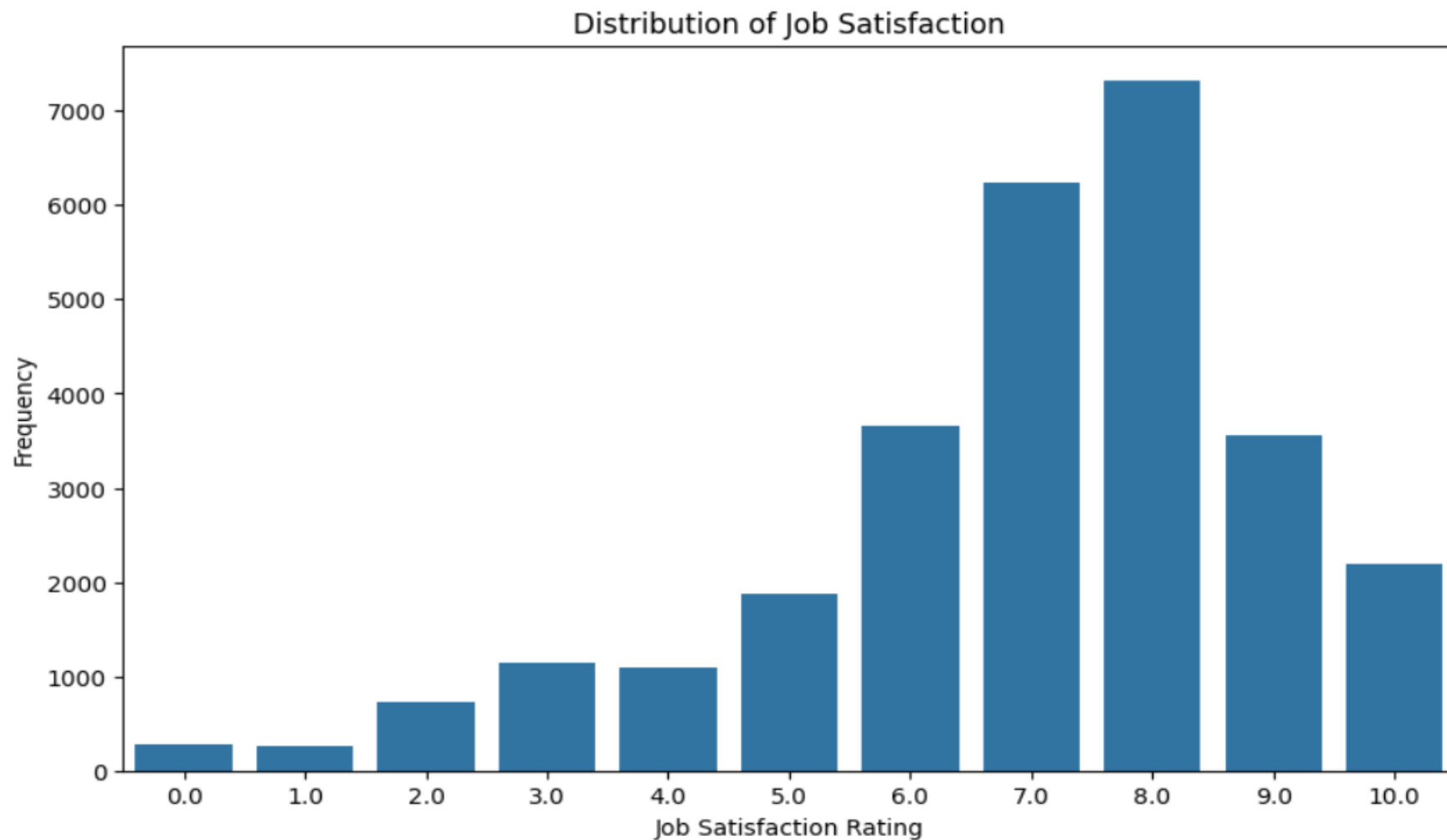
POPULAR LANGUAGES



PROGRAMMING LANGUAGES COMPARISON



JOB SATISFACTION DISTRIBUTION



TOP 5 ADMIRER LANGUAGES

Pie Chart of Top 5 Most Admired Programming Languages

