Stack Overflow-Developer Survey 2019: Results

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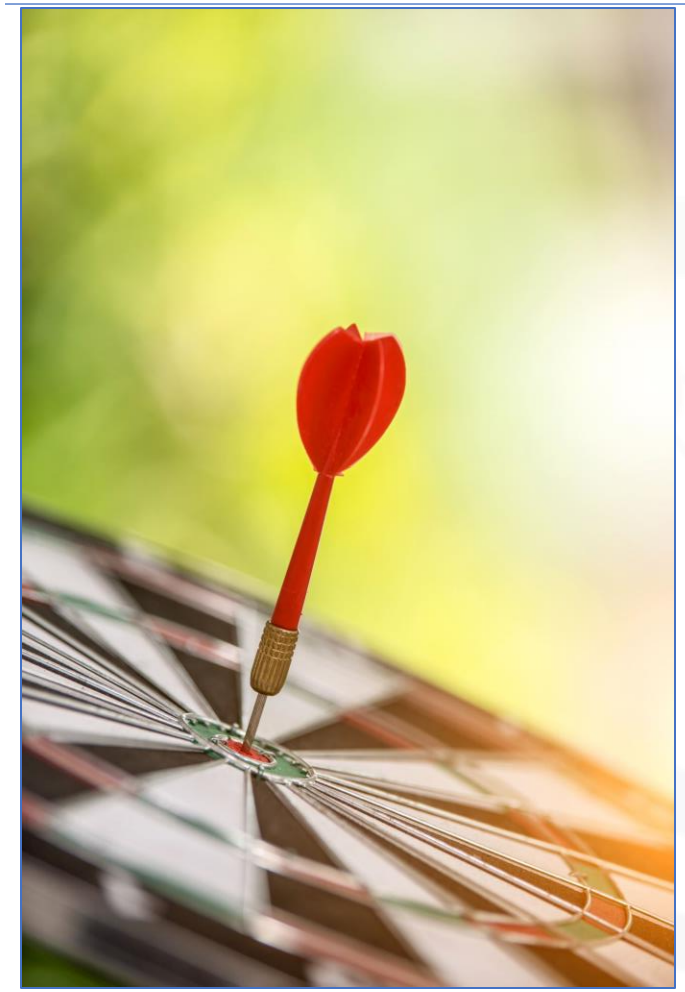
Executive Summary



- Survey collected responses from over 90,000 developers worldwide
- Python and JavaScript are the most commonly used programming languages, while DevOps and Full-stack development are the most sought-after roles.
- Popular languages & technologies:
  - JavaScript, HTML/CSS, SQL, and Python
  - Web development, mobile development, and data analysis
  - Docker, Kubernetes, and React
- Increasing importance of open-source contributions and the influence of online communities in shaping developers' careers
- Diversity and inclusion remain ongoing challenges in the industry, with gender and racial disparities still prevalent

Introduction

- The Stack Overflow survey is an annual survey conducted by Stack Overflow
- Provides a detailed analysis of the preferences, trends, and challenges faced by developers across different industries and regions
- One can gain a better understanding of the current state of the software development industry
- Survey data covers a wide range of topics
  - Programming languages ,frameworks
  - Job satisfaction, salary, education, etc.
- The 2019 Stack Overflow survey data helps to understand the trends and dynamics of the developer community

Methodology

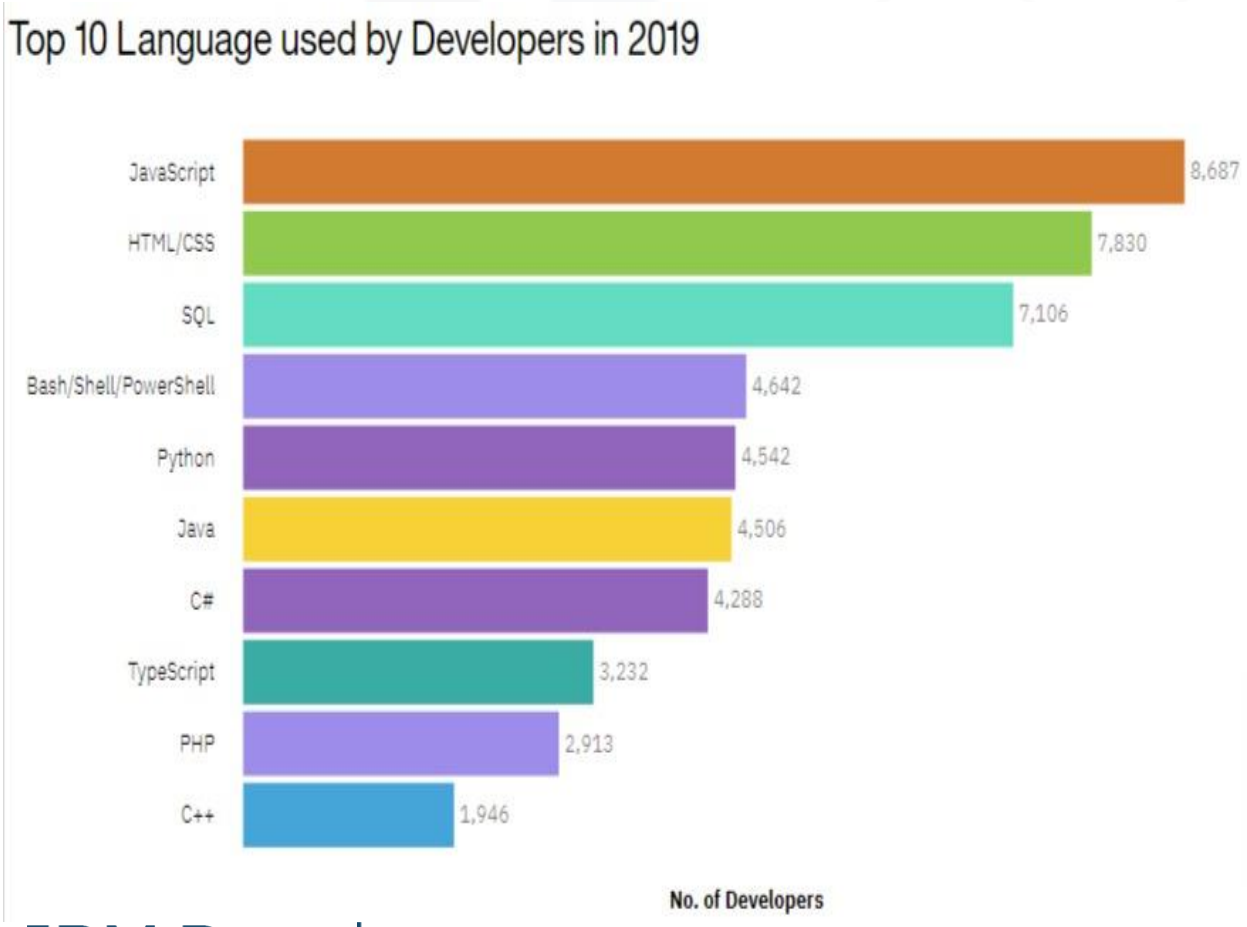
- **Survey:** Questions were structured to gather quantitative and qualitative data to provide comprehensive insights.
- **Data Collection:** *2019 Stack Overflow Developer Survey*
- **Data Wrangling:** Remove duplicates, Data imputation, data normalization
- **EDA:** see data distribution, find outliers, median, correlation using *pandas*
- **Data Visualization**: Create different plots, charts in *Cognos, seaborn, matplotlib*
- **Dashboard:** *Using CDE, on following datasets*
  - *m5_survey_data_demographics.csv*
  - *m5_survey_data_technologies_normalised.csv*

Results

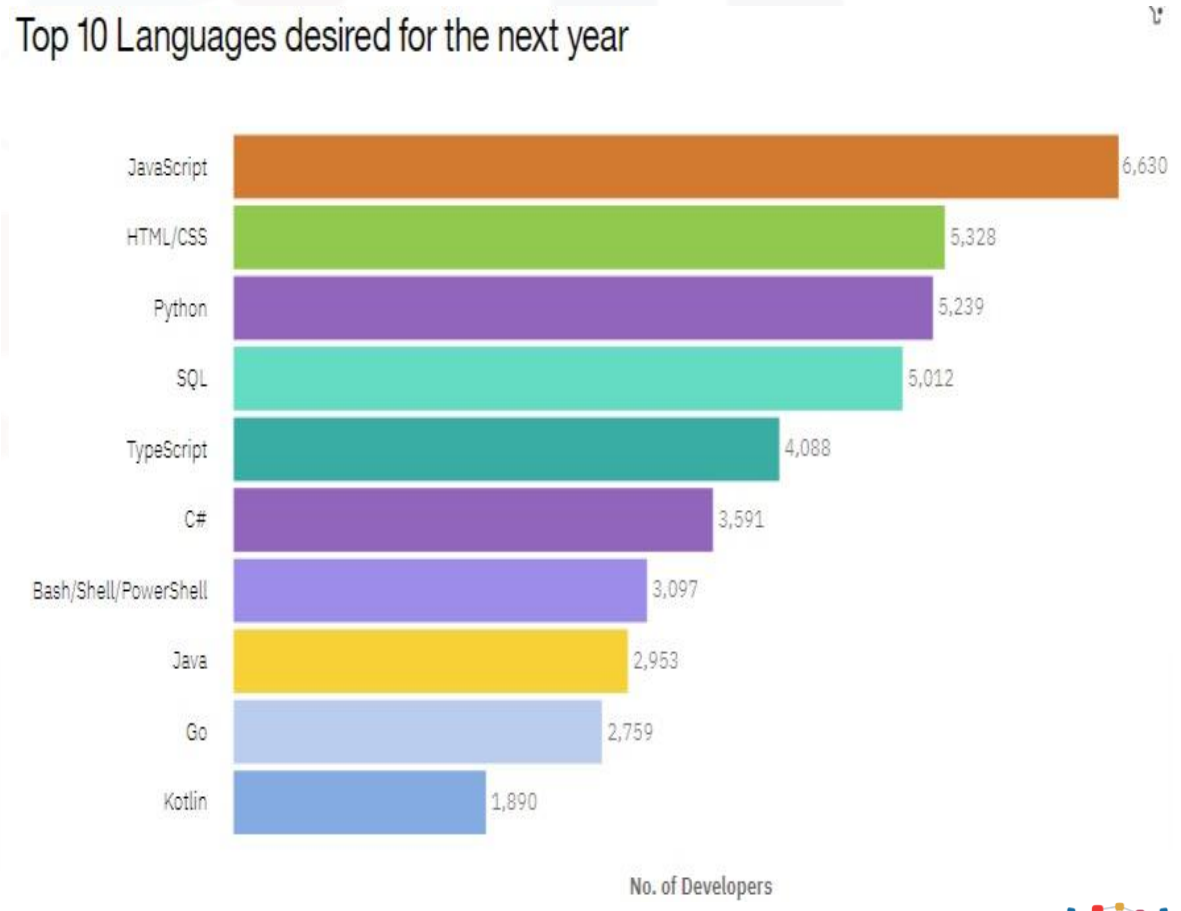
- Python is the most loved programming language
- JavaScript is the most used programming language
- Cloud computing is the most in-demand skill
- Machine learning is the most exciting technology
- The most popular IDE is Visual Studio
- The most popular programming language for web development is JavaScript
- The most popular programming language for mobile development is Java
- The most popular programming language for data science is Python

Programming Language Trends

Current Year



Next Year



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Programming Language Trends - Findings & Implications

Findings

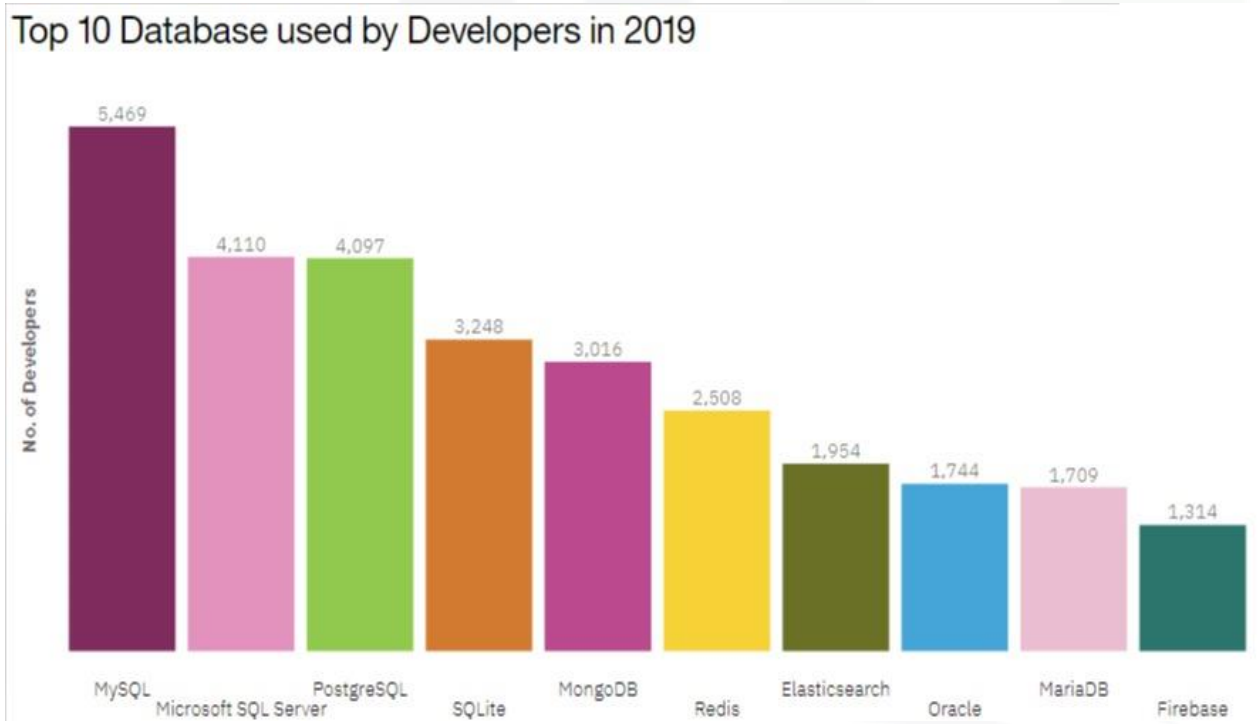
- *JavaScript* & *HTML/CSS:-* most popular languages
- *Python*, *TypeScript*, *Go* gained interest
- *Bash/Shell*, *Java*, *PHP* lost interest

Implications

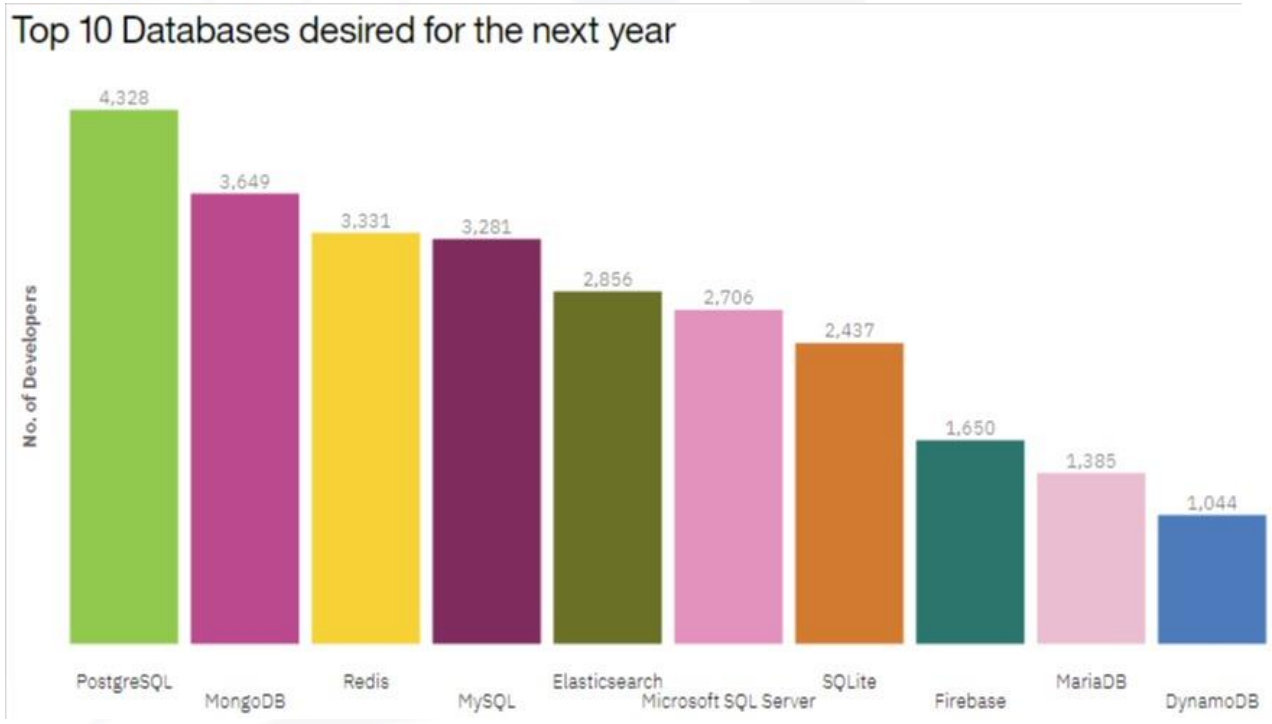
- Migration from *JavaScript* to *TypeScript*
- *Python* rising popularity show growth in data science, AI, ML
- *Python*, *Go*, *JavaScript* in high demand in near future

DATABASE TRENDS

Current Year



Next Year



Database Trends - Findings & Implications

Findings

- MySQL most used in 2019
- *PostgreSQL*, *MongoDB* gained i nterest
- *MS SQL Server*, *SQLite*, *Oracle* losing demand

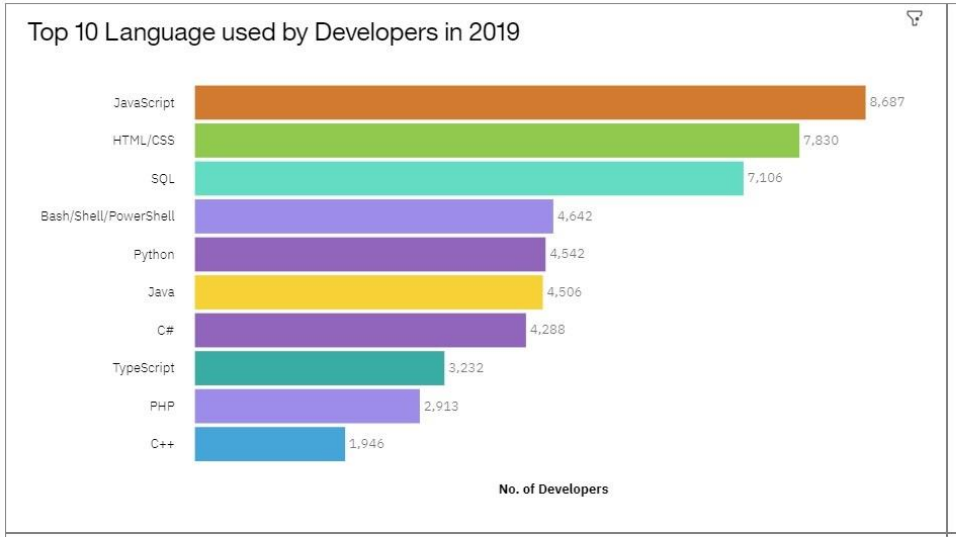
Implications

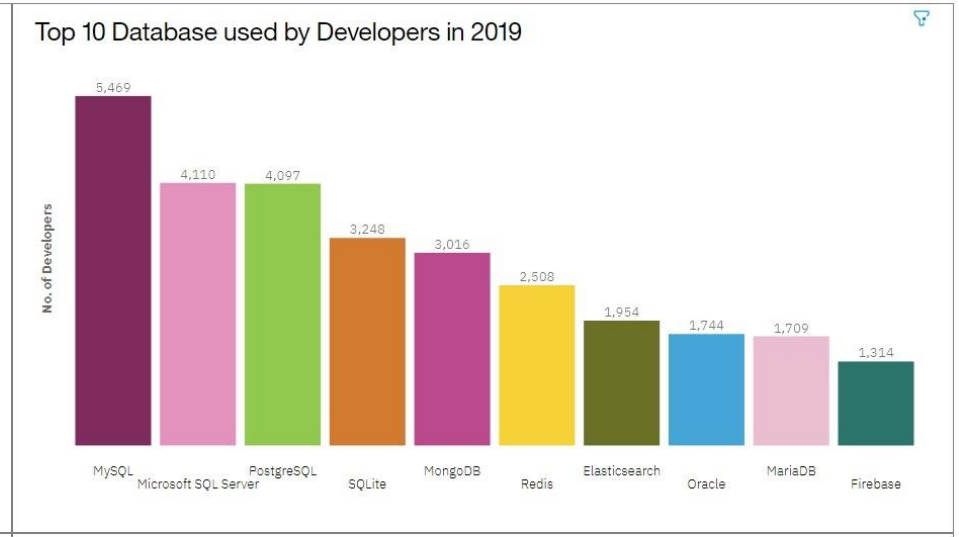
- Increasing preference in *open-source databases*
- *NoSQL* gaining popularity

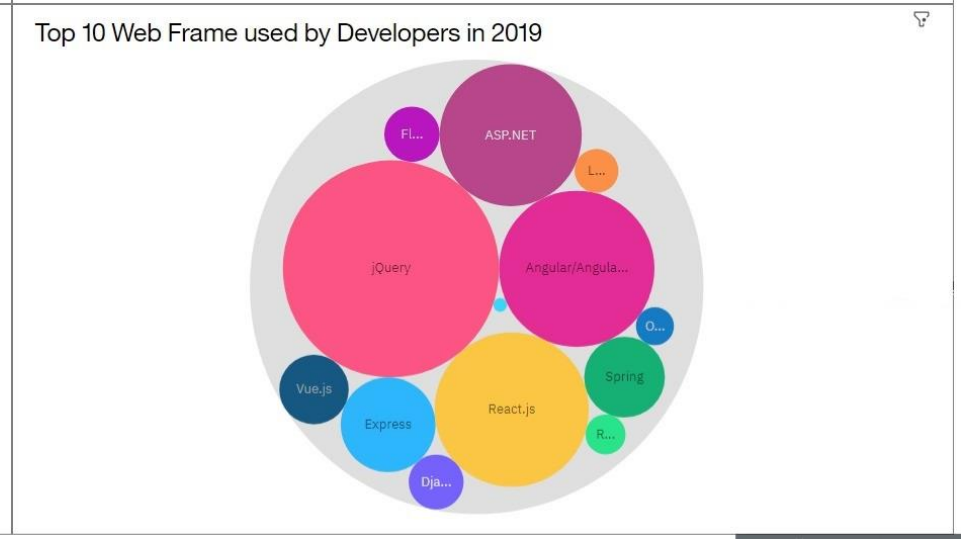
Dashboard

Full, Interactive *Cognos Dashboard*

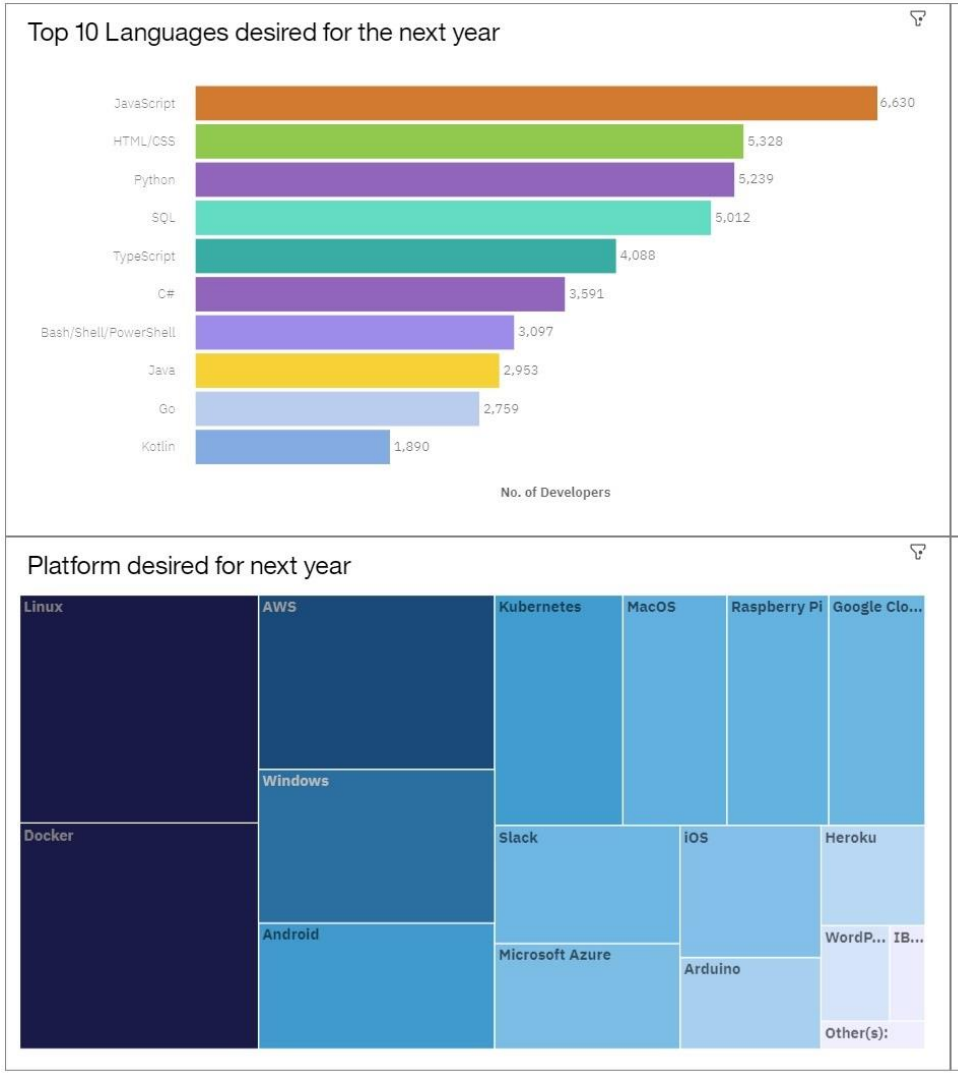
Dashboard 1: Current Technology Use



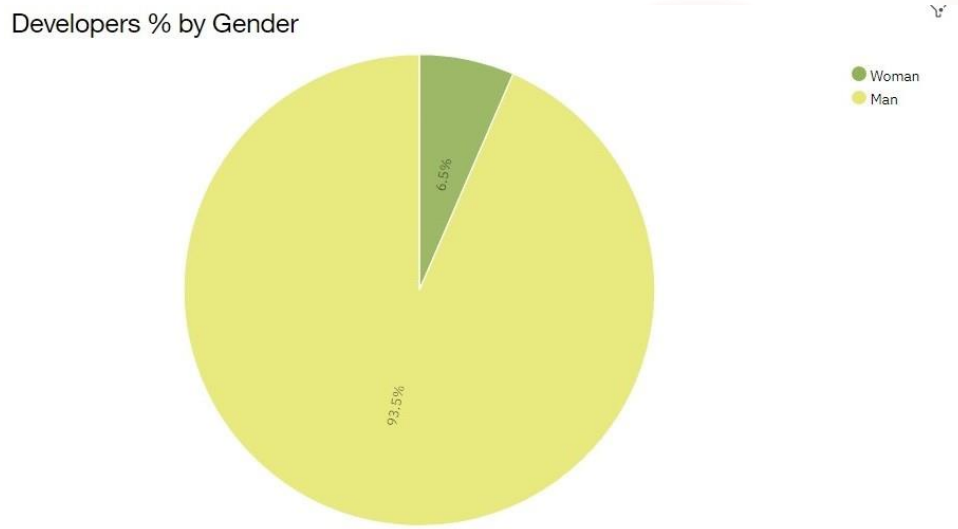


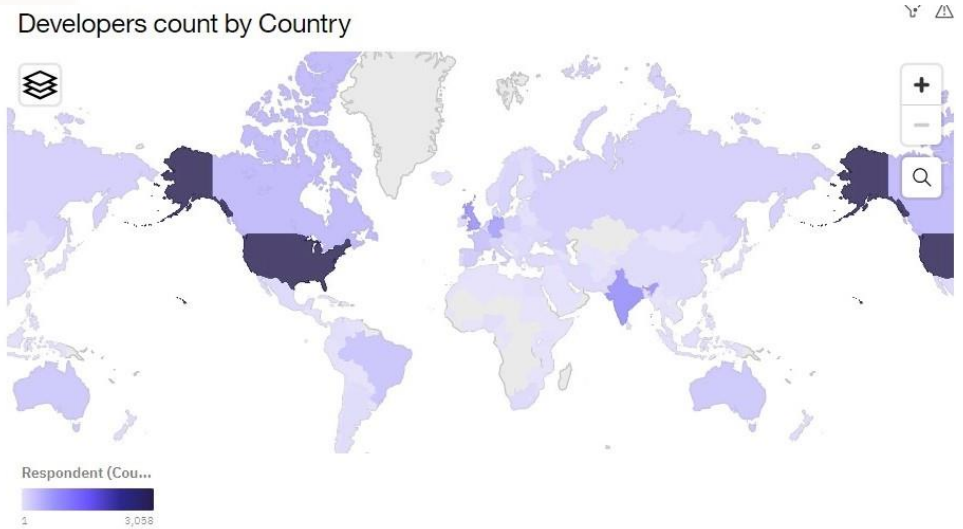


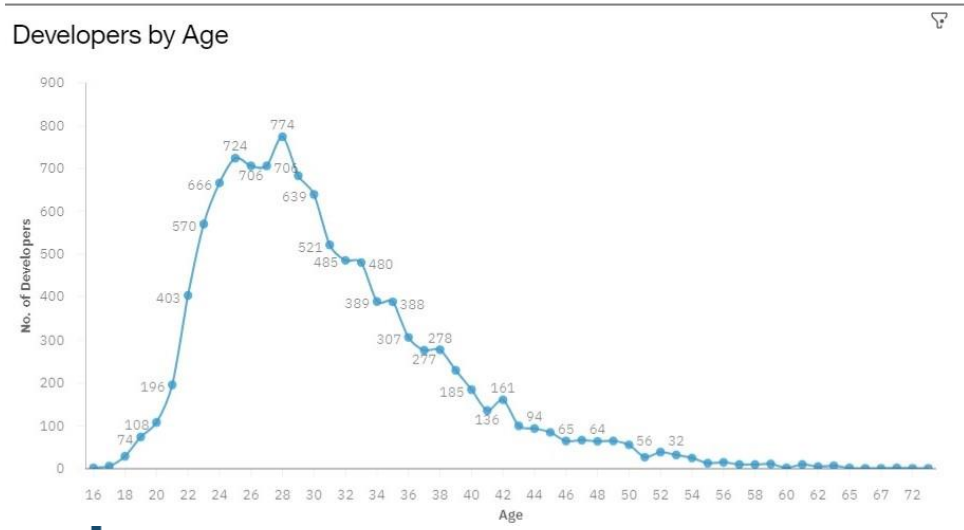
Dashboard 2: Future Technology Trend

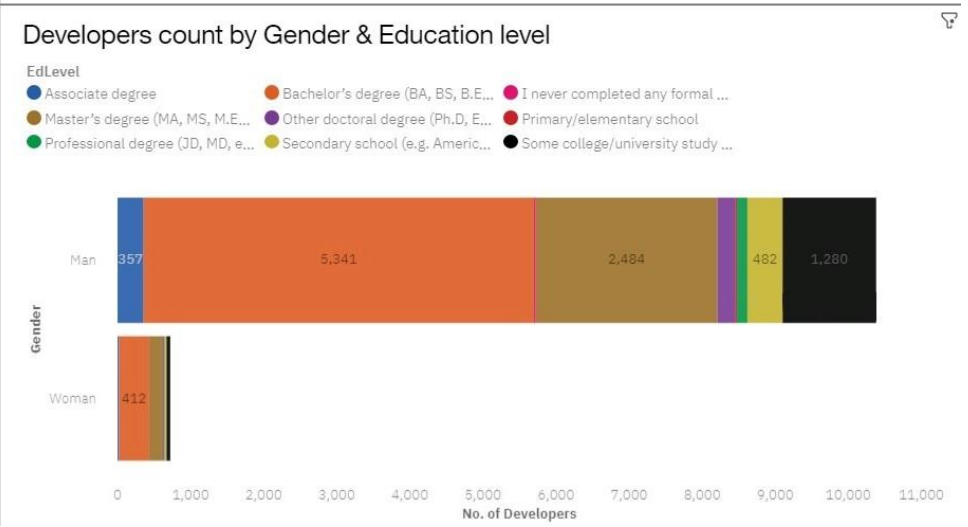


Dashboard 3: Demographics









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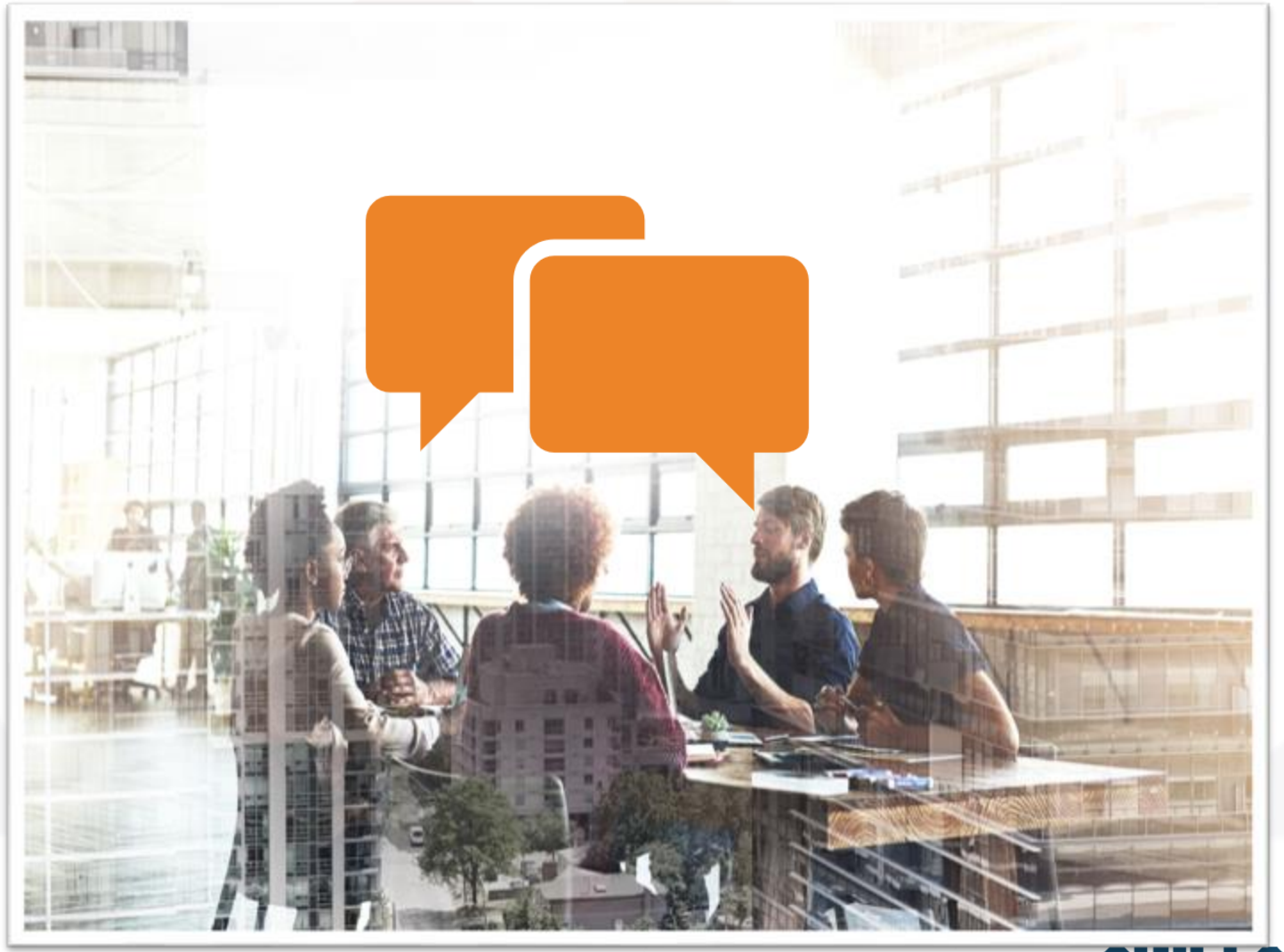
Discussion



Overall Findings & Implications

Findings

- Programming Languages: Python & TypeScript gaining popularity
- Databases: NoSQL gaining interest
- Platforms: Windows losing interest, Linux & Docker gaining interest
- WebFrames: React.js is gaining interest
- Most developers are Bachelor's degree holders

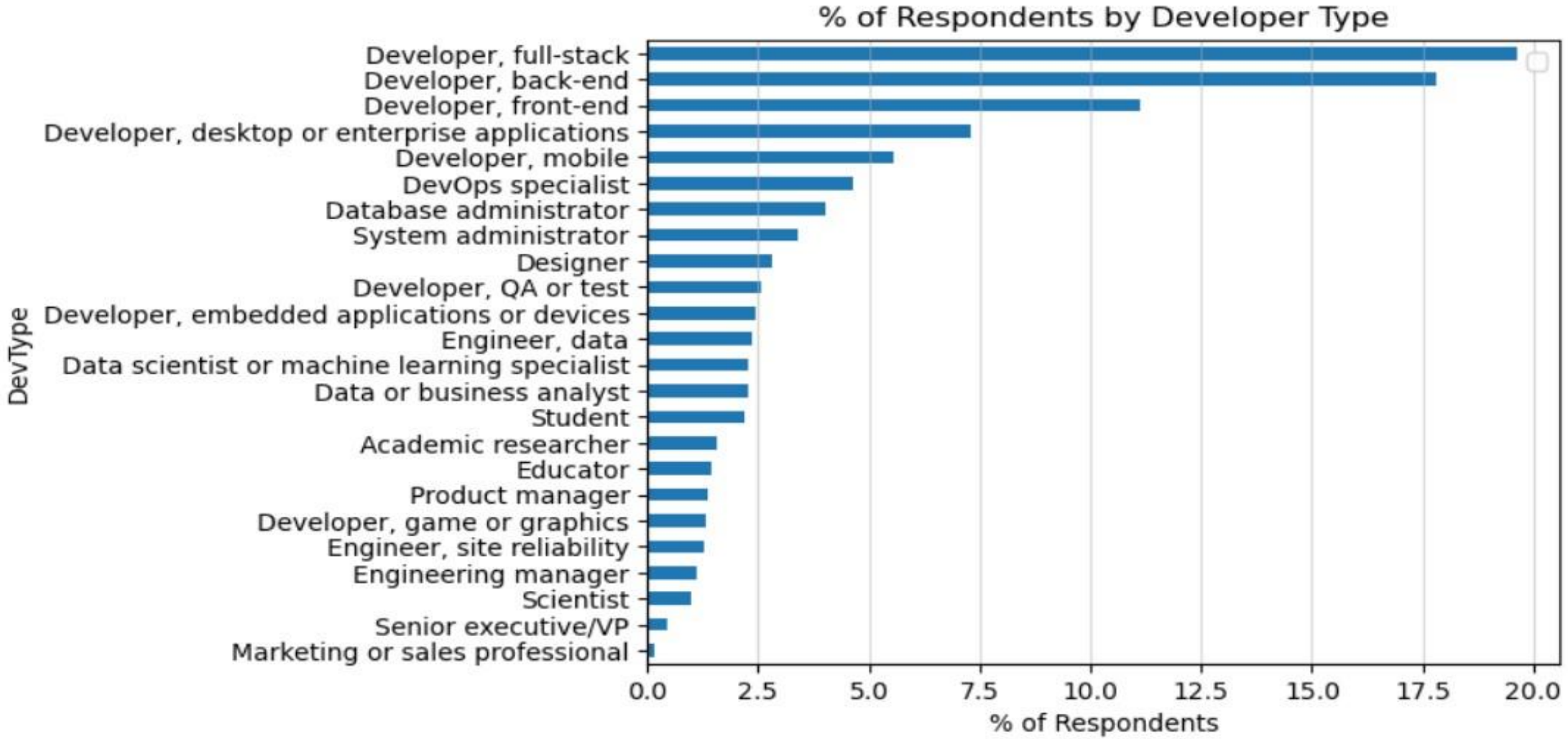
Implications

- NoSQL & Python will gain popularity as big data, AI, ML growing
- Young & without postgrads- major force
- Strong demand for developers in developed countries

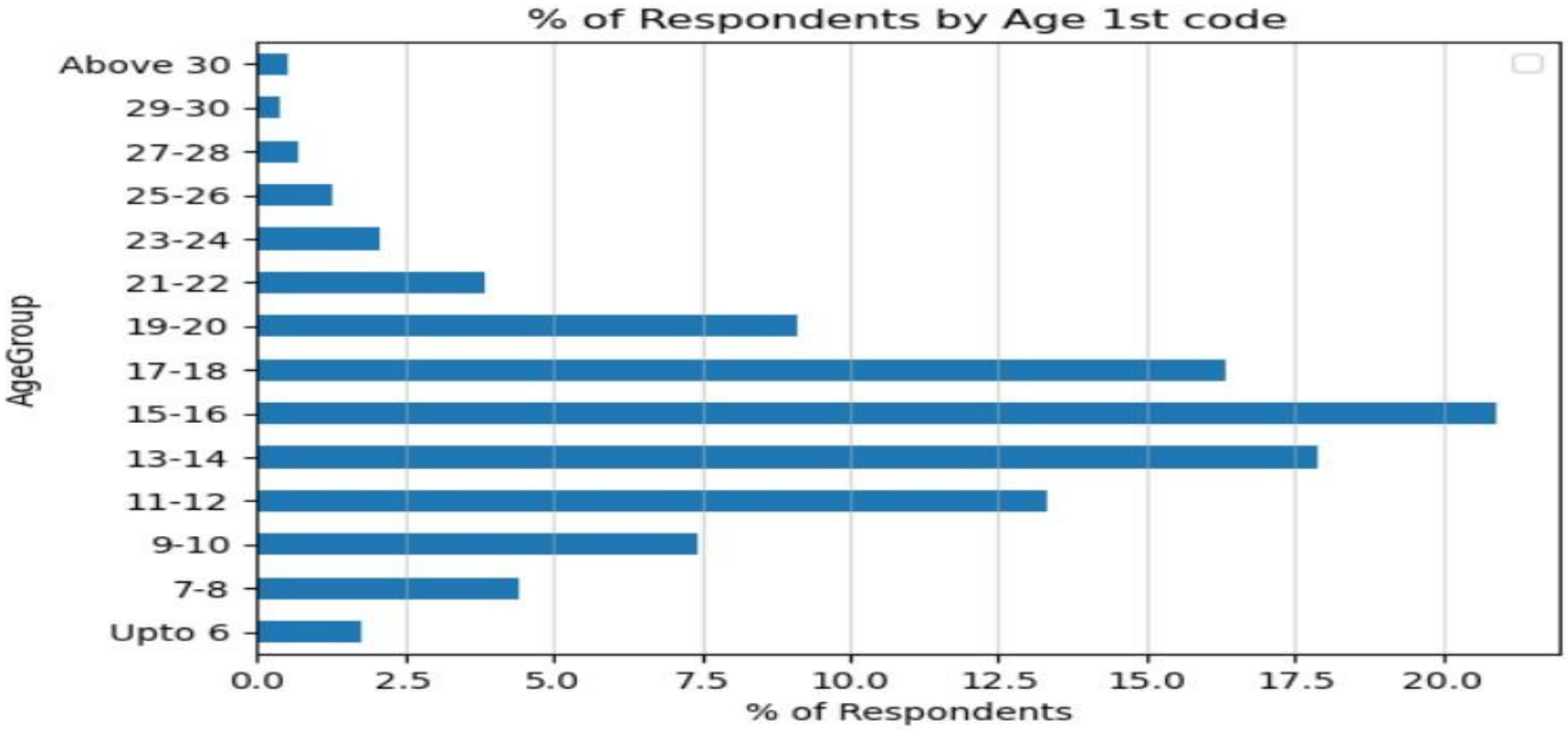
Conclusion

- Developers actively using and contributing to open-source technologies and platforms.
- Staying up-to-date with new technologies and expanding skills is crucial for professional success.
- Gender imbalance in the programming community, with a majority of respondents identifying as male.
- Developing countries may face challenges in getting jobs in the tech industry.

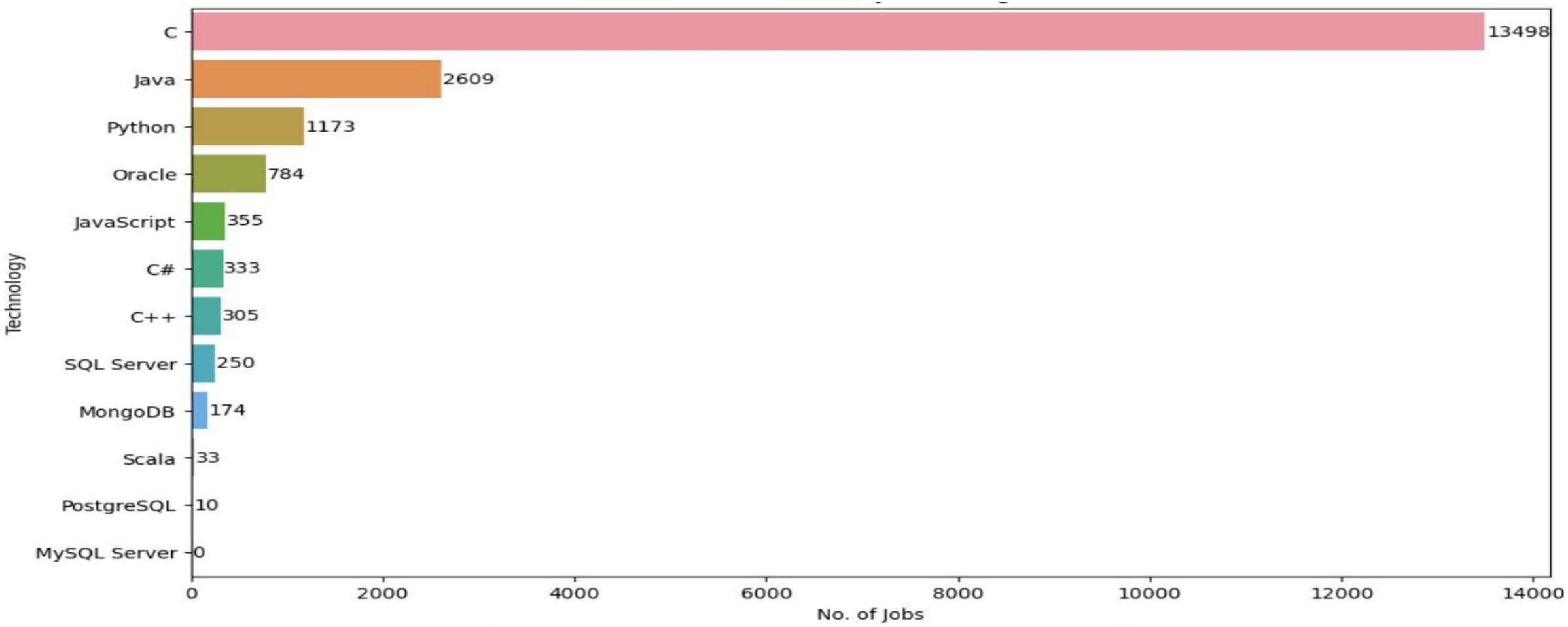
Appendix A: Respondents by Dev Type



Appendix B: Respondents by Age 1st Code

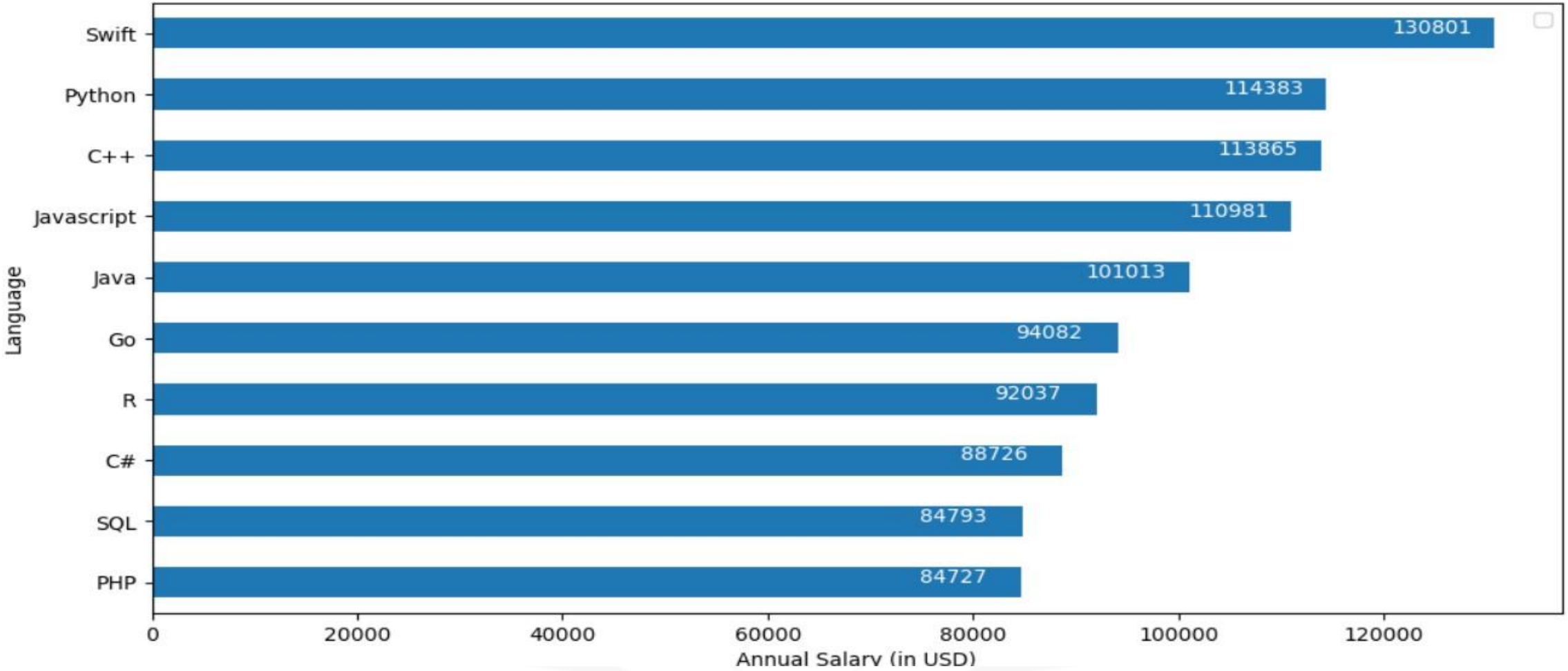


Naukri.com Job Postings



Note:-- Date Range: (1July,19-30Aug,19) Source: naukri.com Dataset link: *Kaggle*

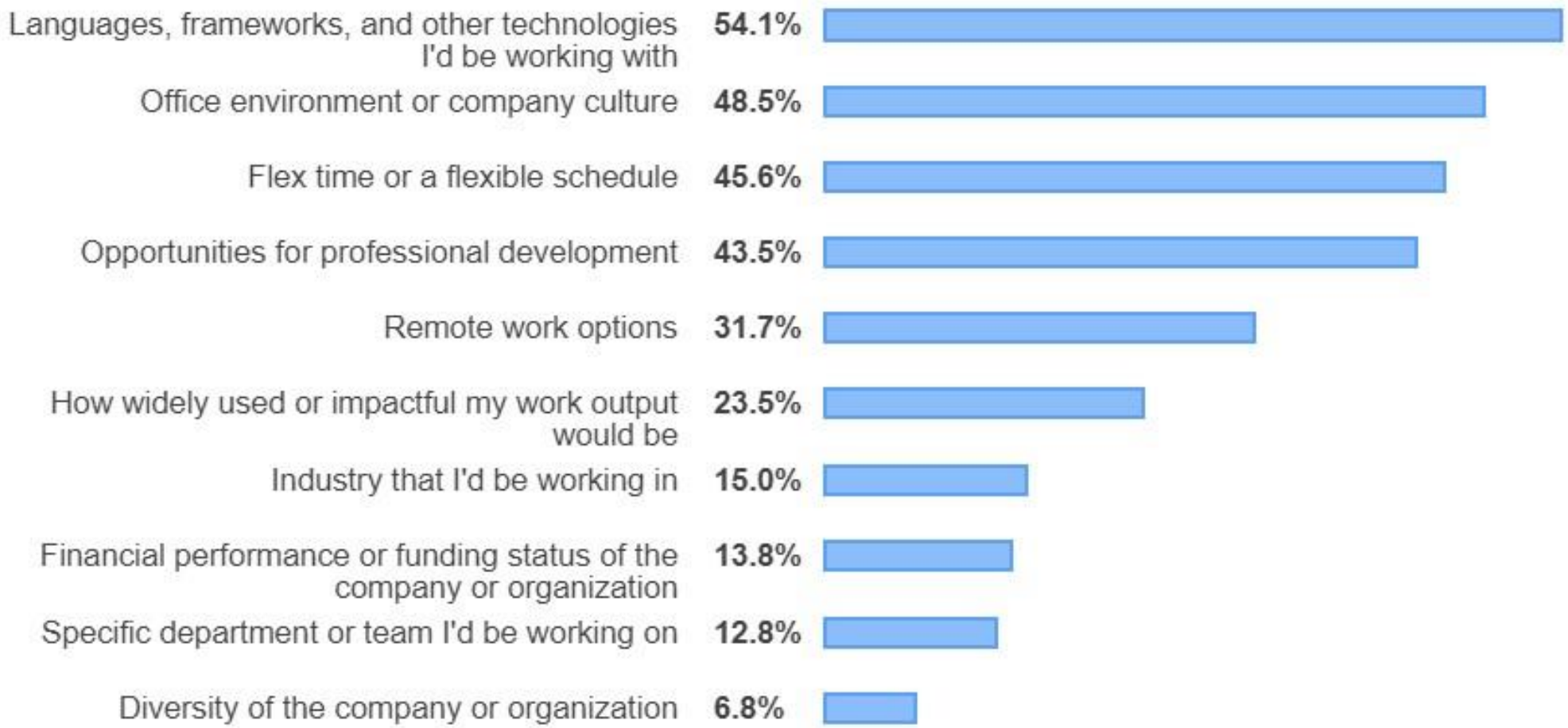
Popular Languages by Annual Salary



Note:-- Data Collector: IBM

Dataset link: *SkillsNetwork*

Most Important Job factors



Note:-- Graph link: *StackOverflow*