

STACK OVERFLOW SURVEY REPORT

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AGENDA

- Executive Summary
- Introduction
- Methodology
- Results
- Dashboard
- Overall Findings & Implications
- Conclusion
- Appendix





EXECUTIVE SUMMARY

- **Objective:** Help IT leaders and recruiters identify the most in-demand skills to remain competitive
- JavaScript, Python, SQL, and HTML/CSS dominate both current use and future demand
- PostgreSQL leads databases in both usage and desirability
- Visual Studio Code is the de facto IDE standard
- **Implication:** Companies should focus training, hiring, and tooling around these technologies to stay aligned with industry trends



INTRODUCTION



Questions:

Which programming languages are most in demand?

Which database technologies are currently most sought after?

Which Integrated Development Environments (IDEs) are the most popular?



PROBLEM :

Technology skills evolve quickly, making it difficult for companies to align talent with demand

IT consulting firms must remain competitive by keeping pace with emerging technology skills



TARGET AUDIENCE:

Business leaders, HR/recruiters, IT/developer professionals, and aspiring developers



GOALS:

Provide data-driven insights and predictive analysis into which programming languages, databases, and tools are most in-demand

Help organizations focus hiring, training, and investments in the right areas

METHODOLOGY

Data Source: 2024 Stack Overflow Developer Survey

Dataset Used: Subset CSV file of the original data

1. Data Collection
2. Data Wrangling
3. Data Visualization
4. Data Analysis

Data Wrangling Key Steps:

- Removing duplicate rows
- Dropping irrelevant columns
- Imputing missing value based on judgements
- Data normalizing



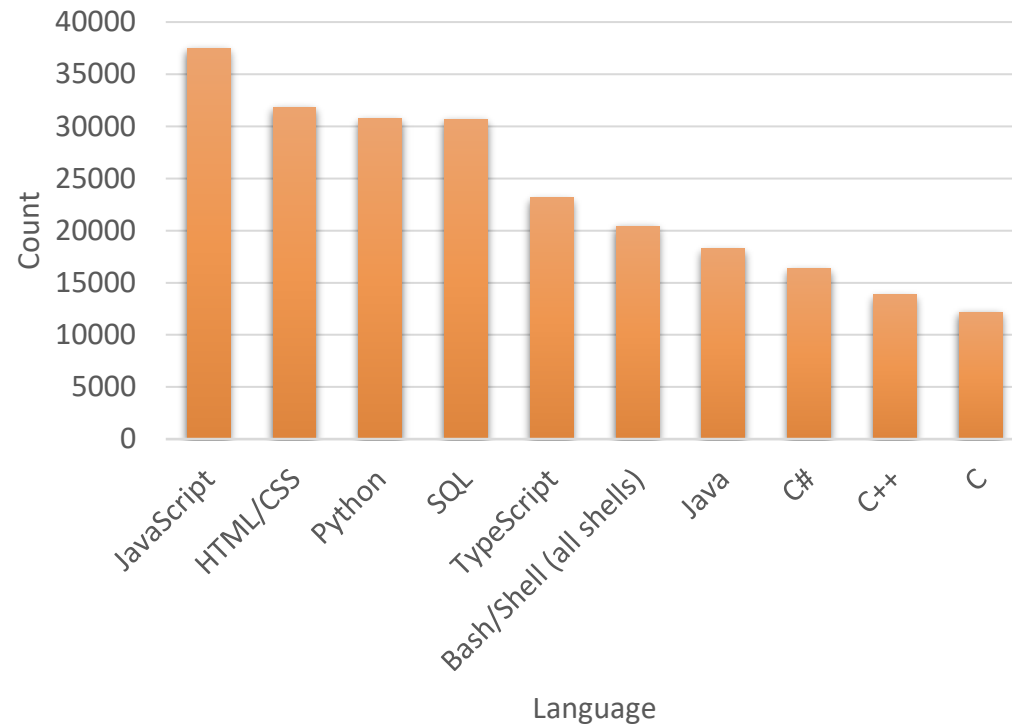
SURVEY CONTEXT

- The technologies used are tools respondents specified working with during the past year
- The technologies desired are tools that respondents wanted to worked with in the future

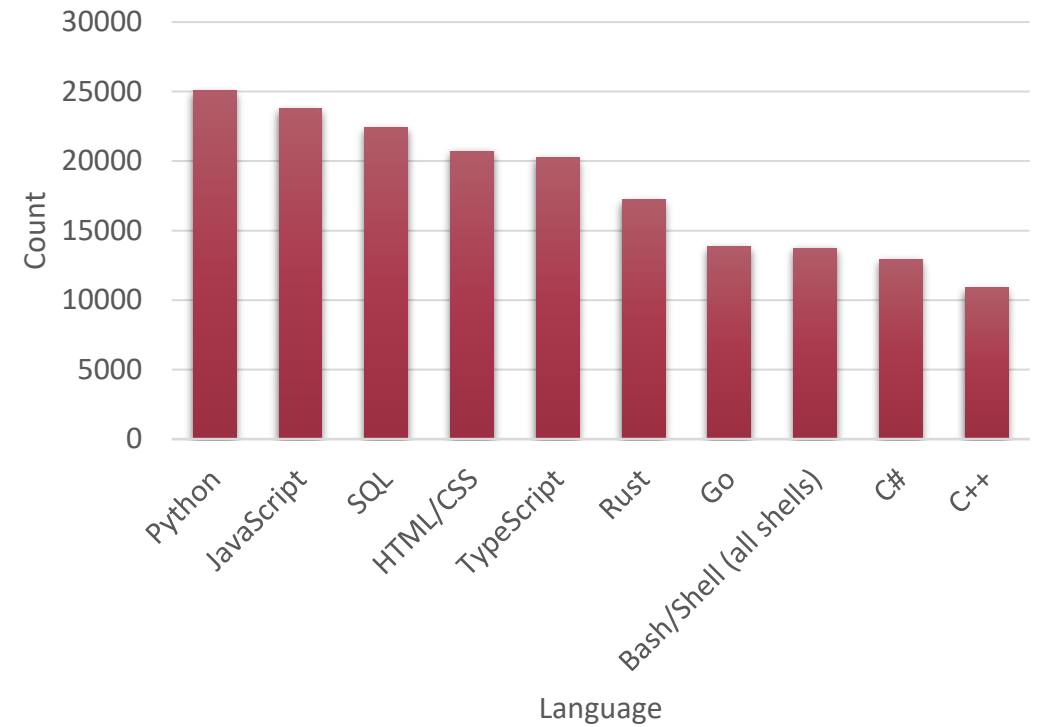


PROGRAMMING LANGUAGE TRENDS

Top 10 Languages Used



Top 10 Languages Desired



LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

JavaScript is the most used programming language

Python is the most desired language among developers

JavaScript, Python, SQL, HTML/CSS, and Typescript solidified positions in top 5

Out the top 10, 9 languages were present in both respective cases

Implications

Companies should prioritize these four languages for training and hiring strategies

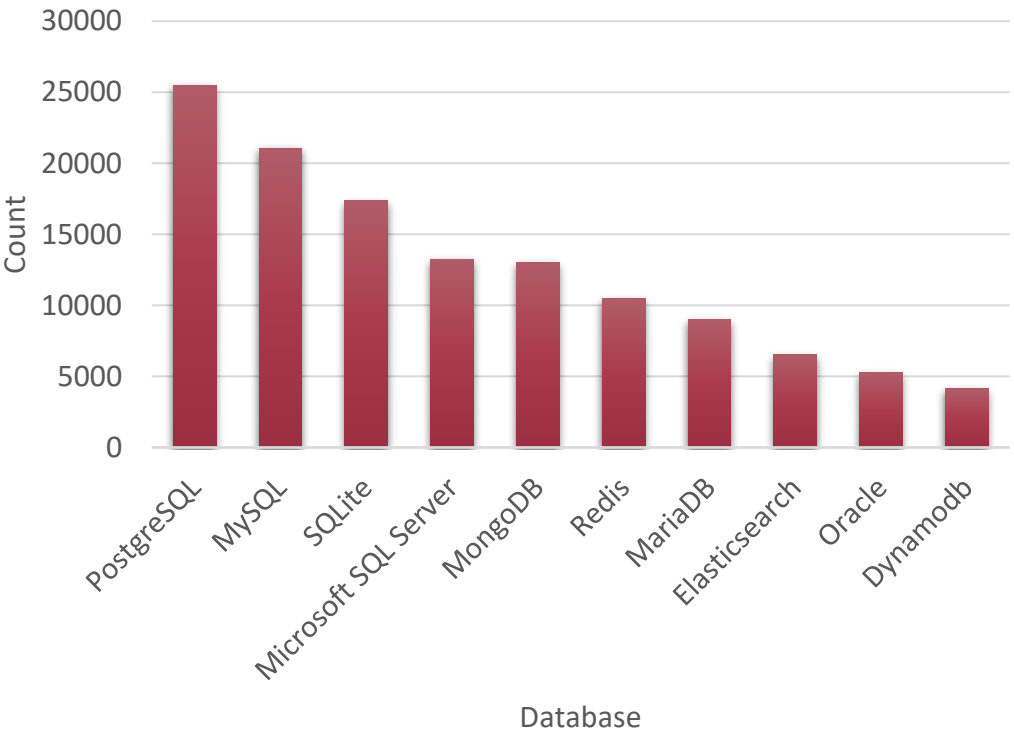
Decline in Java's desirability suggests it may lose relevance

Rust shows signs of growth – companies should potentially monitor it

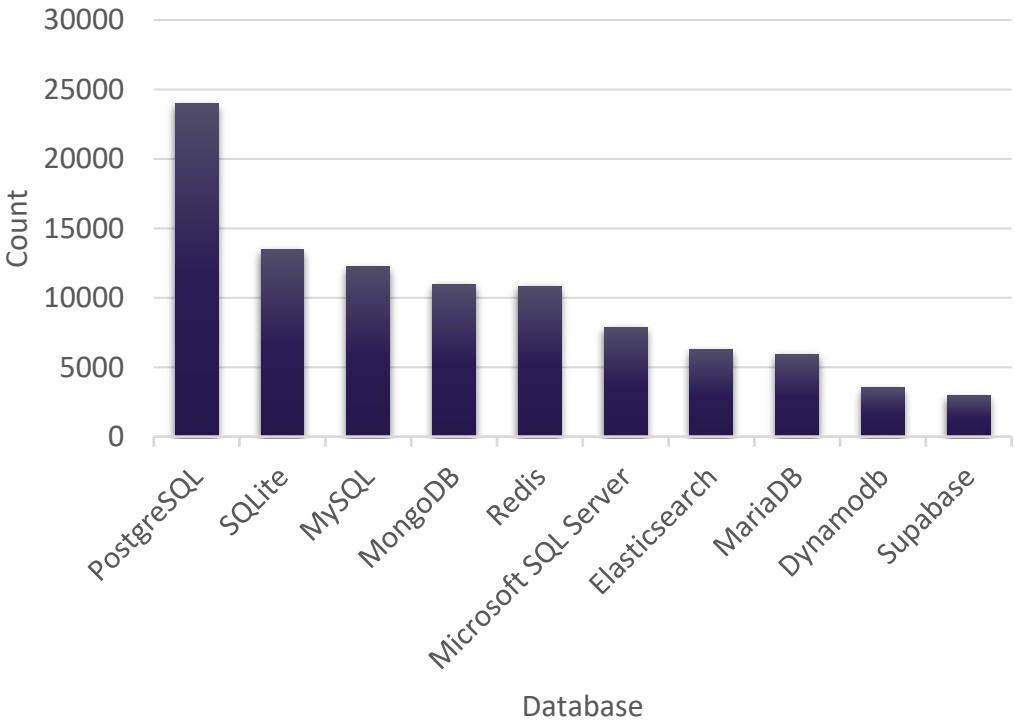
The used languages for the foreseeable future will not experience a drastic change

DATABASE TRENDS

Top 10 Databases Used



Top 10 Databases Desired



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

PostgreSQL ranks #1 in both usage and desirability

PostgreSQL, MySQL, and SQLite ranks in the top 3

9/10 databases are consistent across usage and desirability

Implications

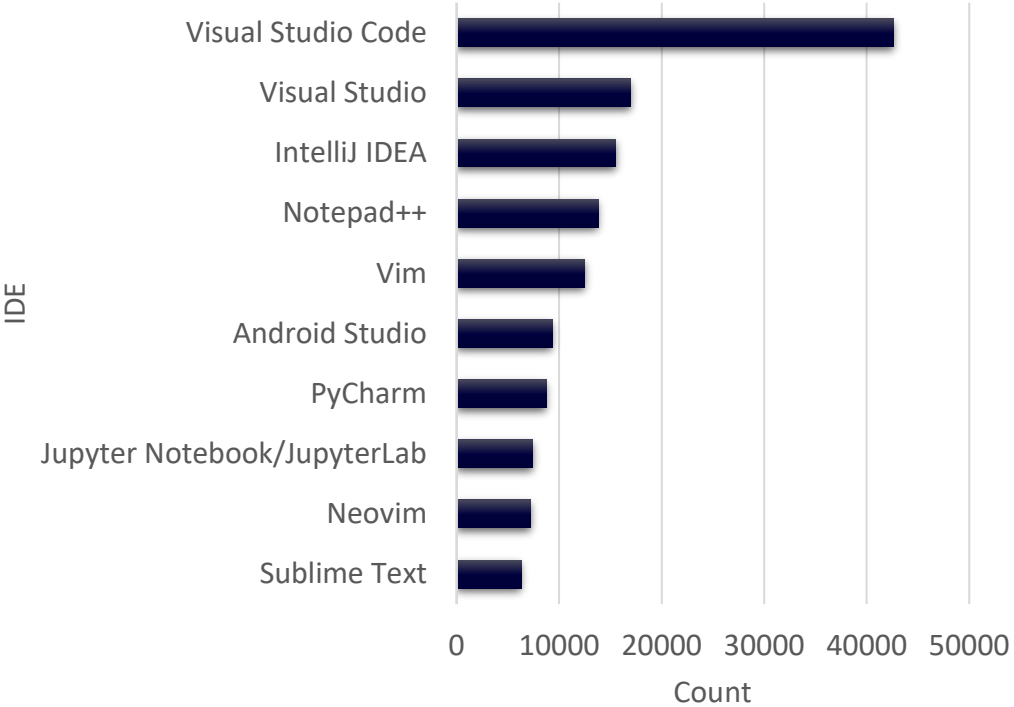
Recruiters or companies should focus on PostgreSQL, MySQL, or SQLite

Oracle's decline in desirability signals potential future migration in database

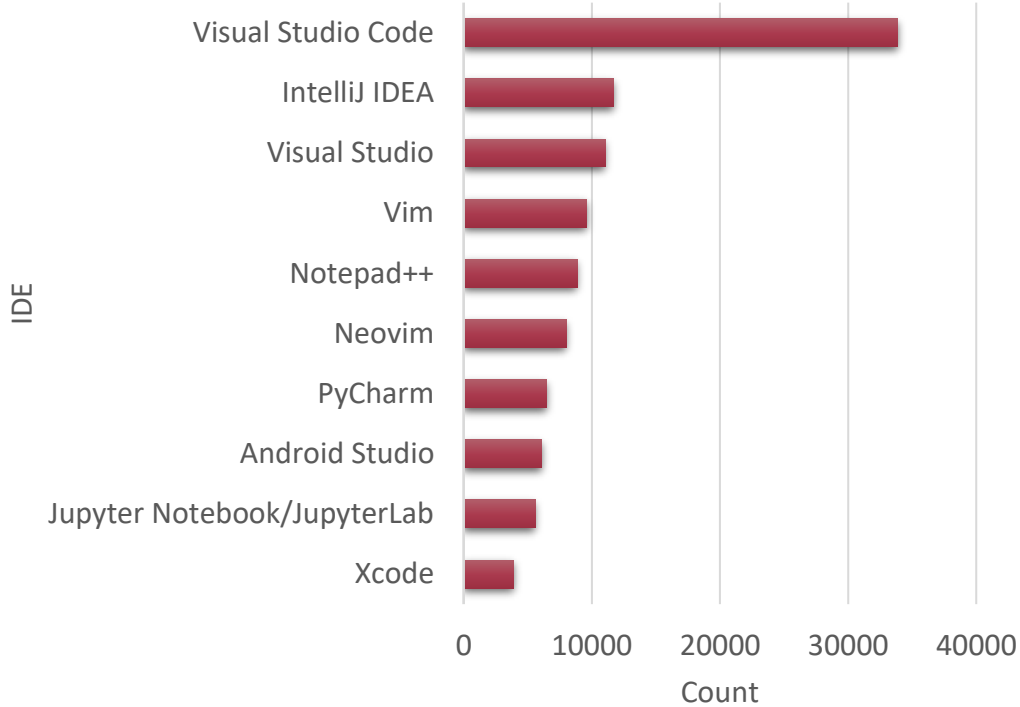
Companies should not worry much about swapping databases for now

IDE TRENDS

Top 10 IDEs Used



Top 10 IDEs Desired



IDE TRENDS - FINDINGS & IMPLICATIONS

Findings

VS Code by far dominated the most used and desired IDE

Visual Studio and IntelliJ IDEA are consistent secondary options in the top 3

Minimal variation between current and future use

Implications

VS Code is the clear standard IDE – companies should consider adopting it

The lack of difference of the top 10 indicates a lack of foreseeable change

A stable trend indicates a lower risk for investing in the top IDEs

OVERALL FINDINGS AND IMPLICATIONS

Findings

- The technologies ranked in the top 10 are largely consistent across both current usage and future interest
- While the technologies are similar, their order of appearance shows some variation

Implications

- The foreseeable future will not see a major shift in the technologies used
- Businesses can feel confident investing in using the current popular technologies
- Some of the technologies falling out of desirability could be investigated for further conclusions

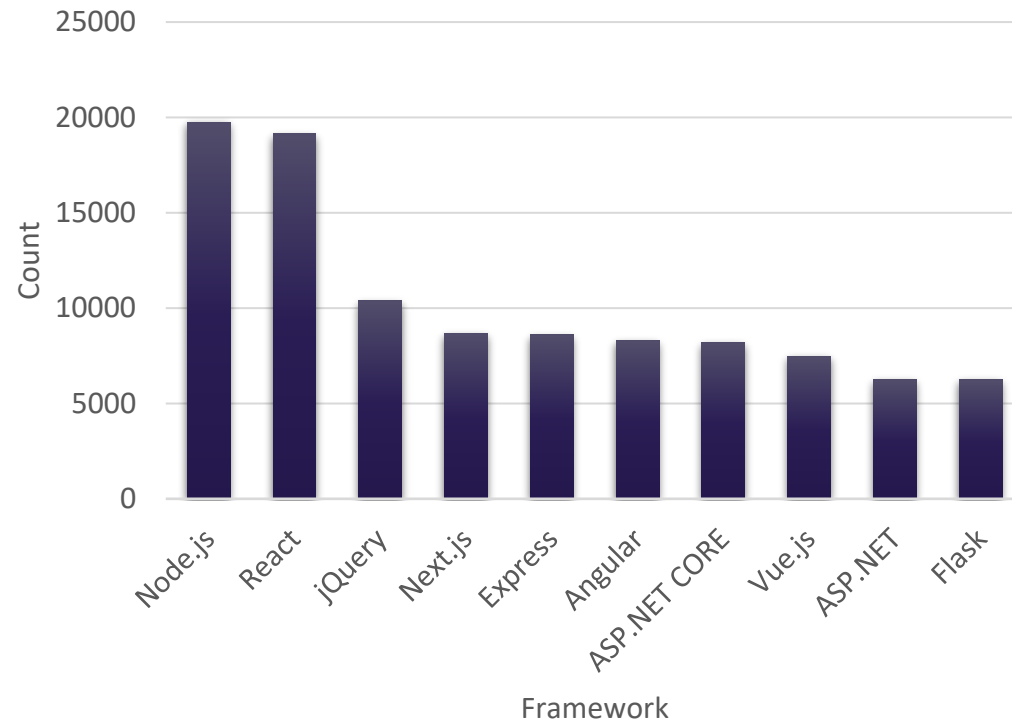
CONCLUSION

1. **Top Languages:** JavaScript, Python, SQL, and HTML/CSS are essential and consistent within the top programming languages.
2. **Database Options:** PostgreSQL leads as the top database. Other alternatives could include, MySQL, SQLite and MongoDB
3. **VS Code Dominates:** Integration with VS Code can enhance developers' experience with collaboration and work environment.
4. **Next Steps:** Businesses and companies should focus resources on the top technologies indicated while observing trends in rising and declining technologies

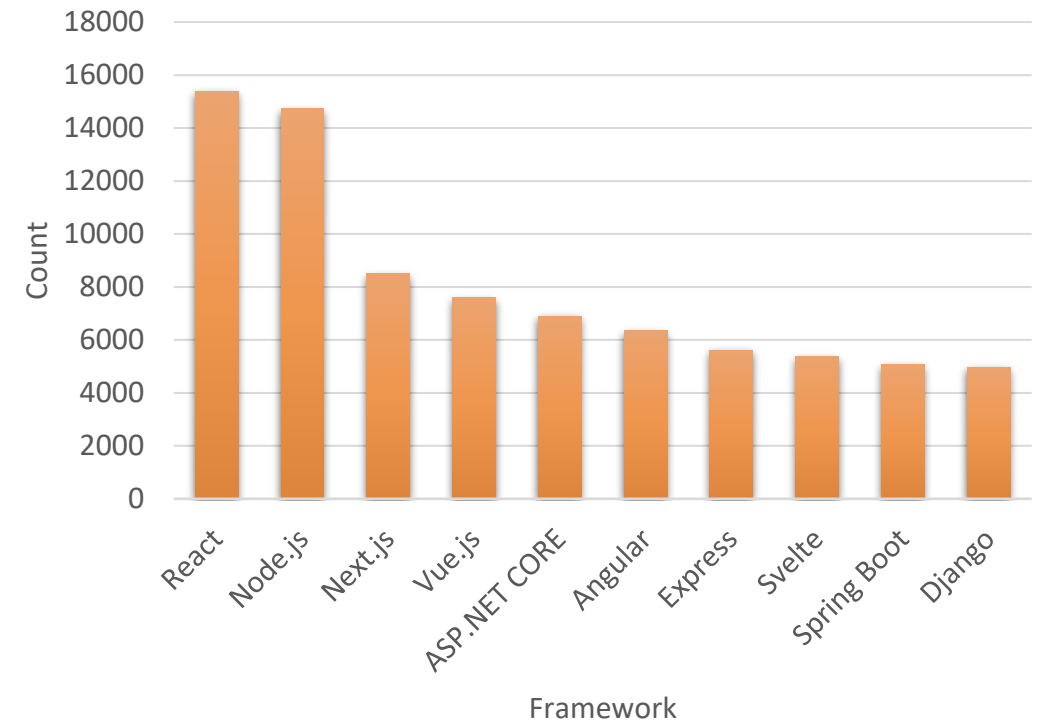


APPENDIX – WEB FRAMEWORKS

Top 10 Web Frameworks Used

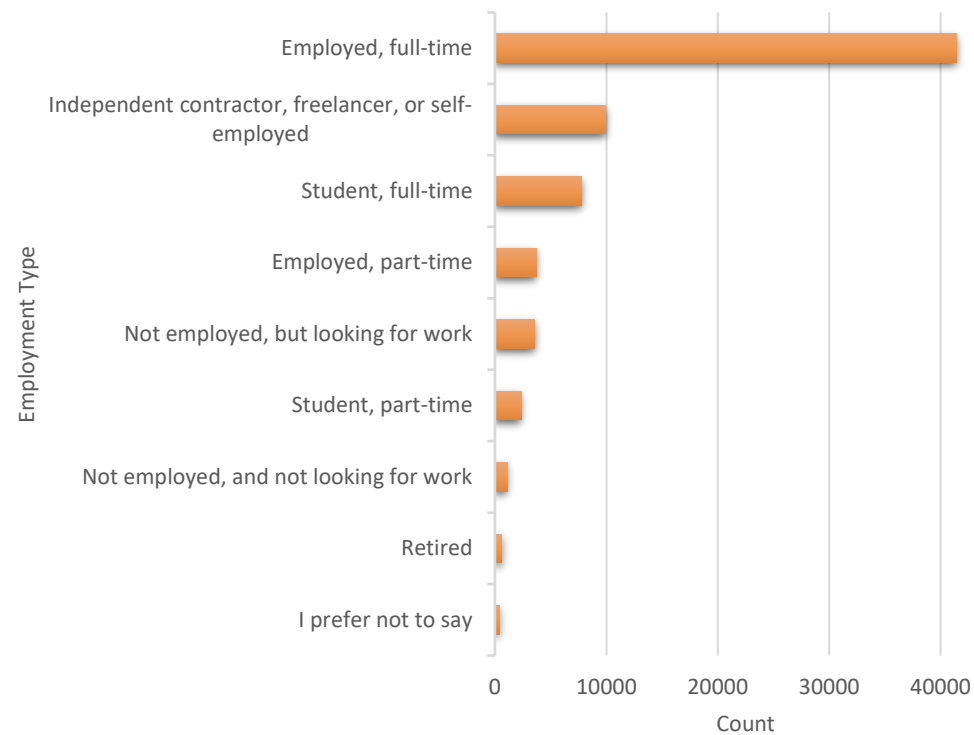


Top 10 Web Frameworks Desired

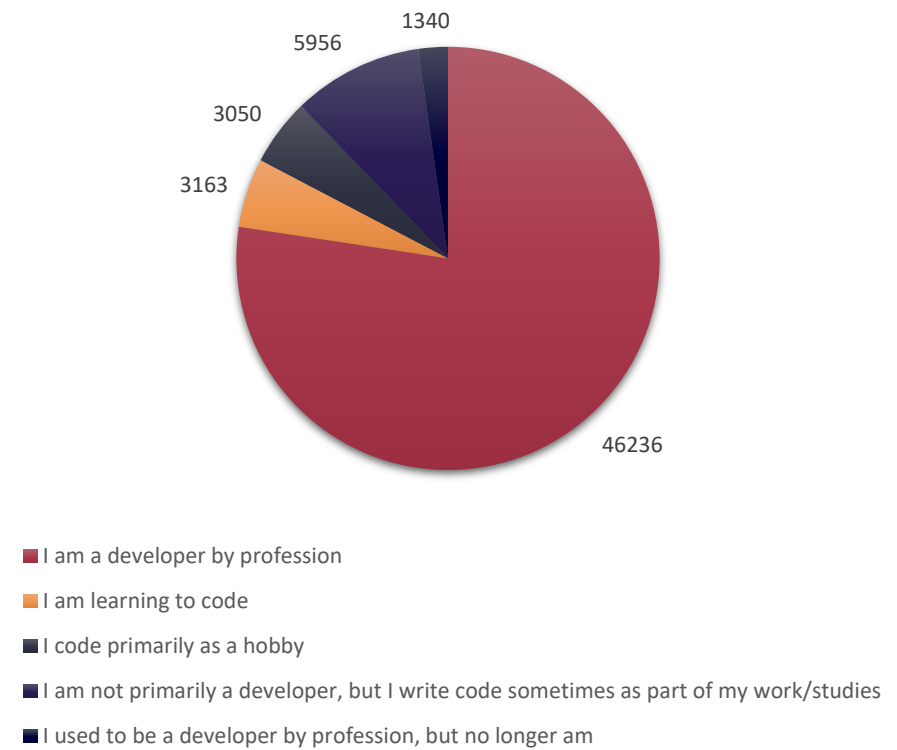


APPENDIX – EMPLOYMENT & DEV STATUS

Employment Distribution

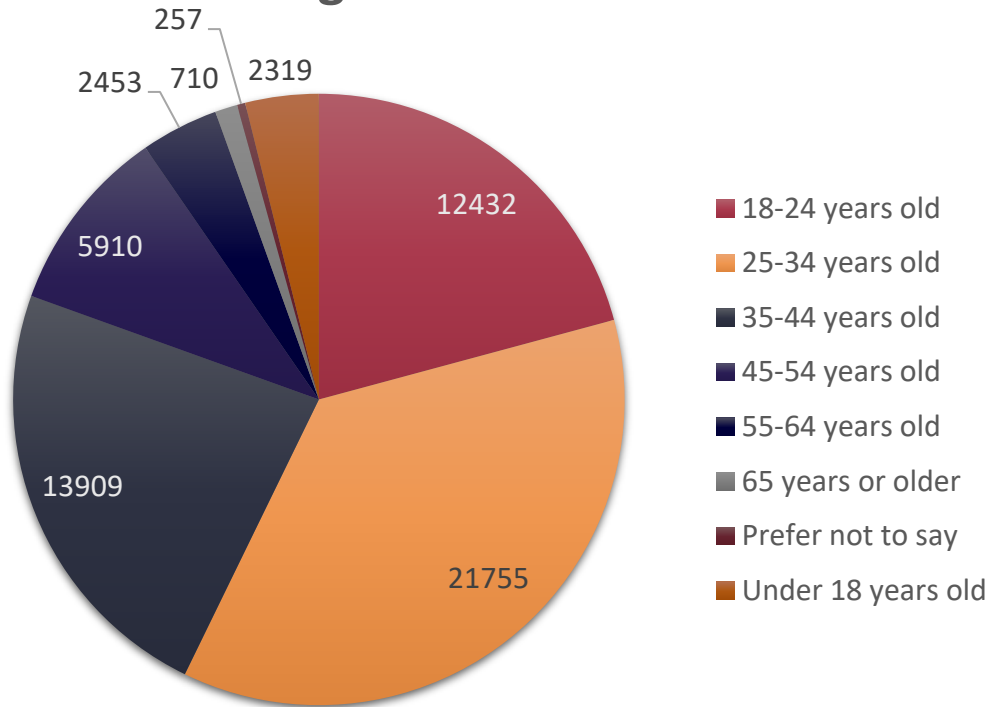


Dev Status Distribution

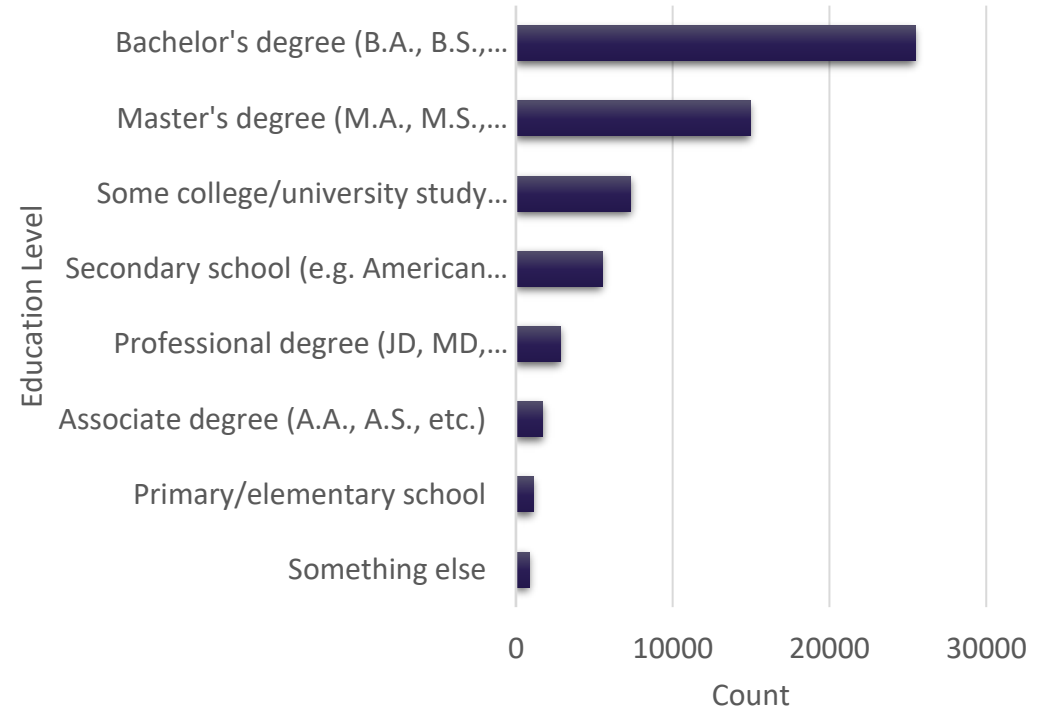


APPENDIX – AGE & EDUCATION

Age Distribution

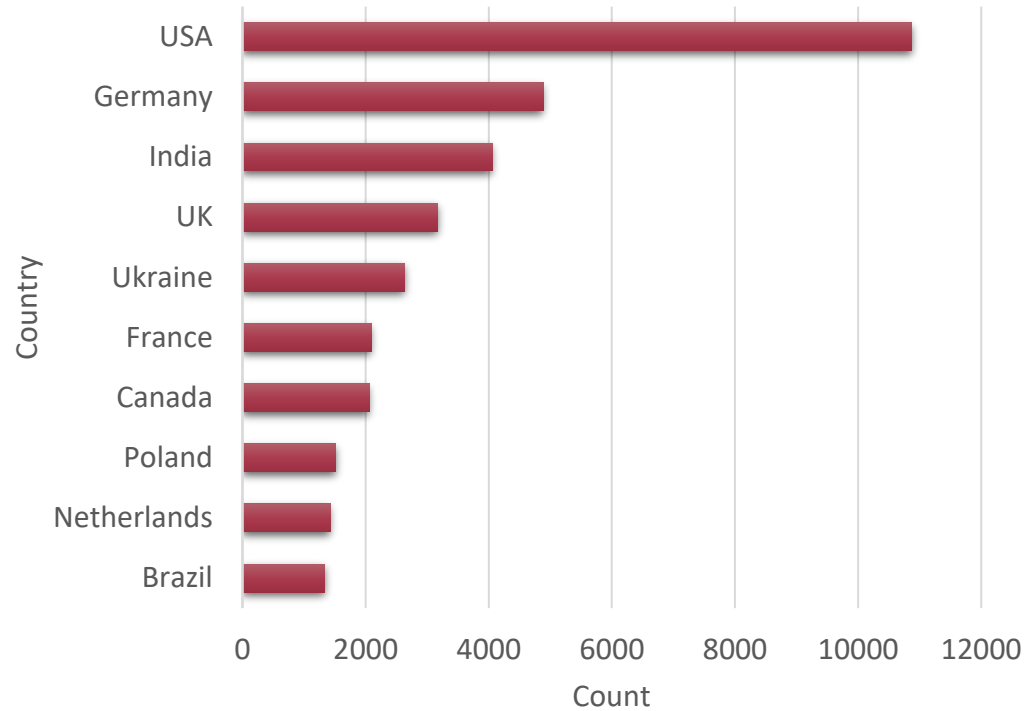


Education Distribution

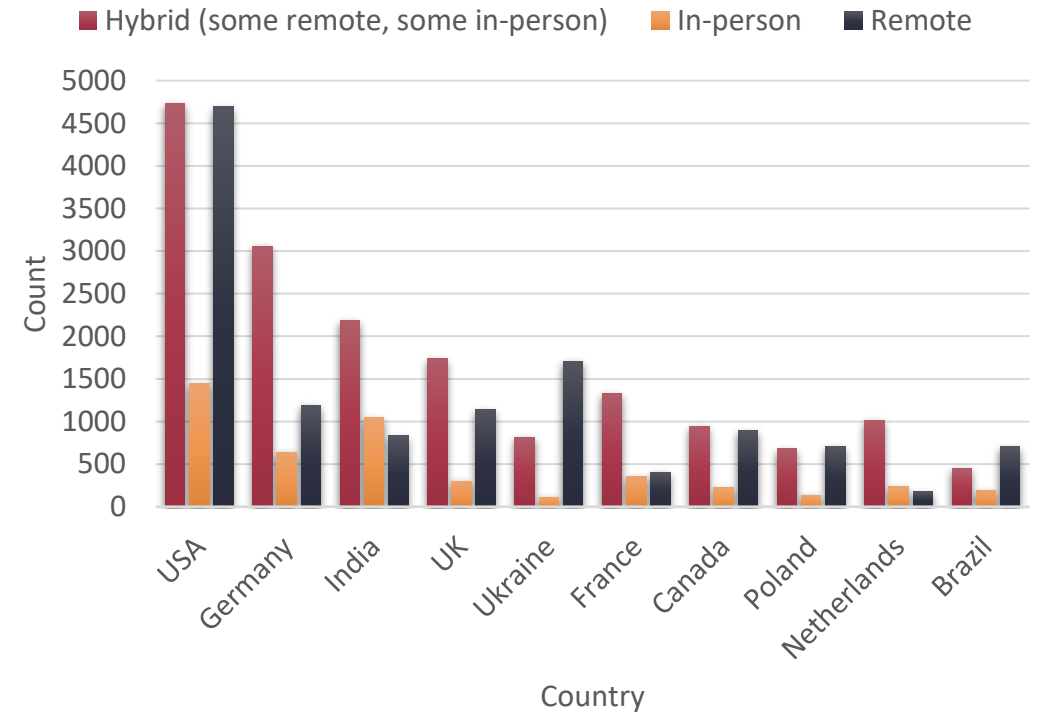


APPENDIX – COUNTRIES

Top 10 Participating Countries



Work Type Distribution by Country



APPENDIX - LINKS

- [Data Source](#) (Stack Overflow)
- [Original Dataset](#) (CSV file download)
- [Clean Dataset](#) (GitHub)
- [Whole Project](#) (GitHub)
- [Tableau Dashboard](#) (Tableau Public)
- [Plotly Dash Dashboard](#) (GitHub)





THANK YOU

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