



The Next Wave in IT: Trends, Tools, and Techniques

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OUTLINE



- EXECUTIVE SUMMARY
- INTRODUCTION
- METHODOLOGY
- RESULTS
 - VISUALIZATION – CHARTS
 - DASHBOARD
- DISCUSSION
 - FINDINGS & IMPLICATIONS
- CONCLUSION
- APPENDIX

EXECUTIVE SUMMARY



- DATA CONTEXTUALISATION AND ANALYSIS GOAL
- METHODOLOGY DESCRIPTION
 - DATA GATHERING
 - DATA ANALYSIS
 - DATA VISUALISATION
- RESULTS PRESENTATION SUPPORTED WITH GRAPHS AND TRENDS
- DISCUSSION OF OVERALL FINDINGS AND IMPLICATION REGARDING THE RESULTS PREVIOUSLY EXPOSED
- FINAL CONCLUSION OF THE CARRIED OUT RESEARCH

INTRODUCTION



- STACK OVERFLOW'S ANNUAL DEVELOPER SURVEY IS THE LARGEST AND MOST COMPREHENSIVE SURVEY OF PEOPLE WHO CODE AROUND THE WORLD.
- RESULTS DON'T REPRESENT EVERYONE IN THE DEVELOPER COMMUNITY EVENLY.
- NEARLY 90,000 DEVELOPERS.
- TRENDS TO PREDICT WHERE THE DEVELOPERS ARE GOING.
- CHARACTERIZATION OF DEVELOPERS AROUND THE GLOBE.

METHODOLOGY



- Collect survey data & explore its content
 - Web Scraping
 - APIs.
 - Request library
- Data Wrangling
- Exploratory data analysis
 - Analyzing data distribution
 - Handling outliers
 - Correlations
- Data Visualization
 - Highlight distribution of data, relationships, the composition and comparison of data
- Dashboards

RESULTS

- Current Popularity:
 - JavaScript and MySQL remain dominant, reflecting their continued relevance in web development and database management.
- Emerging Technologies:
 - Python shows strong growth potential, particularly in data science and machine learning.
 - TypeScript is gaining traction among JavaScript developers, indicating a trend toward safer, large-scale JavaScript projects.
- Declining Technologies:
 - C++, PHP and SQLite are seeing reduced interest, signaling a potential decline in their usage.
- Database Trends:
 - PostgreSQL is emerging as a preferred choice for advanced, scalable projects, potentially leading to a shift away from MySQL.
 - MongoDB is gaining popularity in NoSQL environments.
 - Microsoft SQL Server shows declining interest, indicating a potential move towards more modern database solutions.

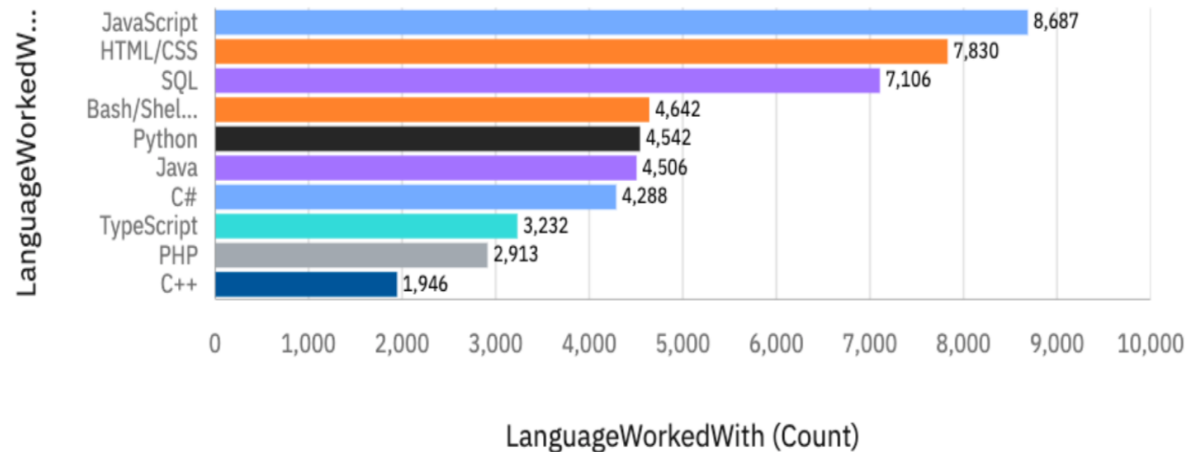
PROGRAMMING LANGUAGE TRENDS

Current Year

Current Technology Usage

Top 10 LanguageWorkedWith

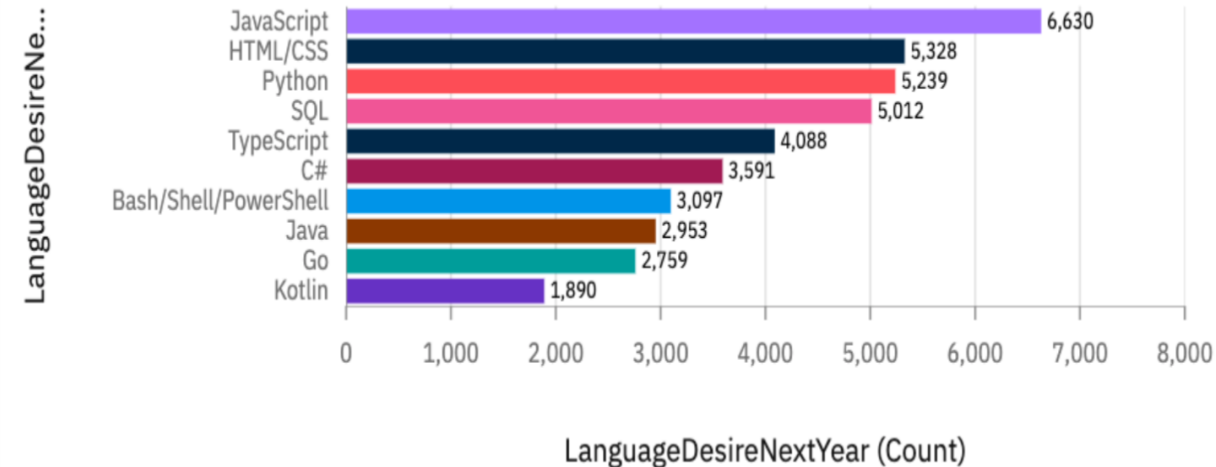
LanguageWorkedWith



Next Year

Top 10 LanguageDesireNextYear

LanguageDesireNextYear



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- JavaScript seems to be most popular
- Python has strong growth potential
- Increase of interest in TypeScript
- Decrease of interest in of some languages like : C++, PHP

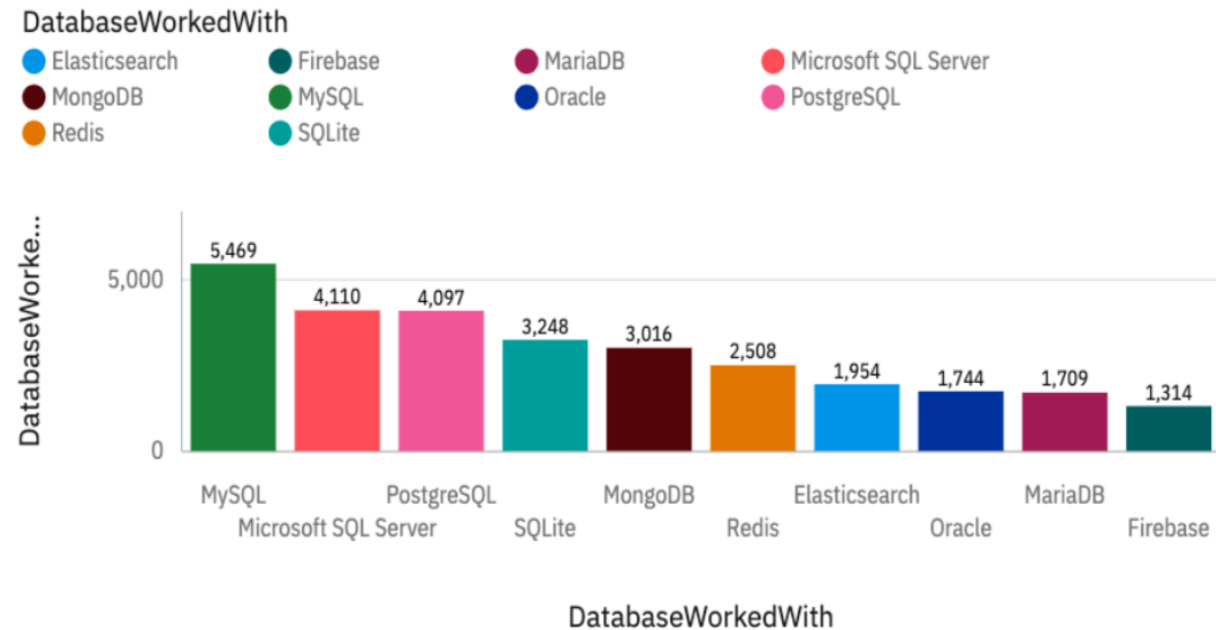
Implications:

- Possible developers migration from JavaScript to TypeScript
- New emerging languages like : Kotlin, GO
- Decrease in demand of PowerShell/Bash/Shell
- Demands of HTML/CSS and SQL remains equivalent

DATABASE TRENDS

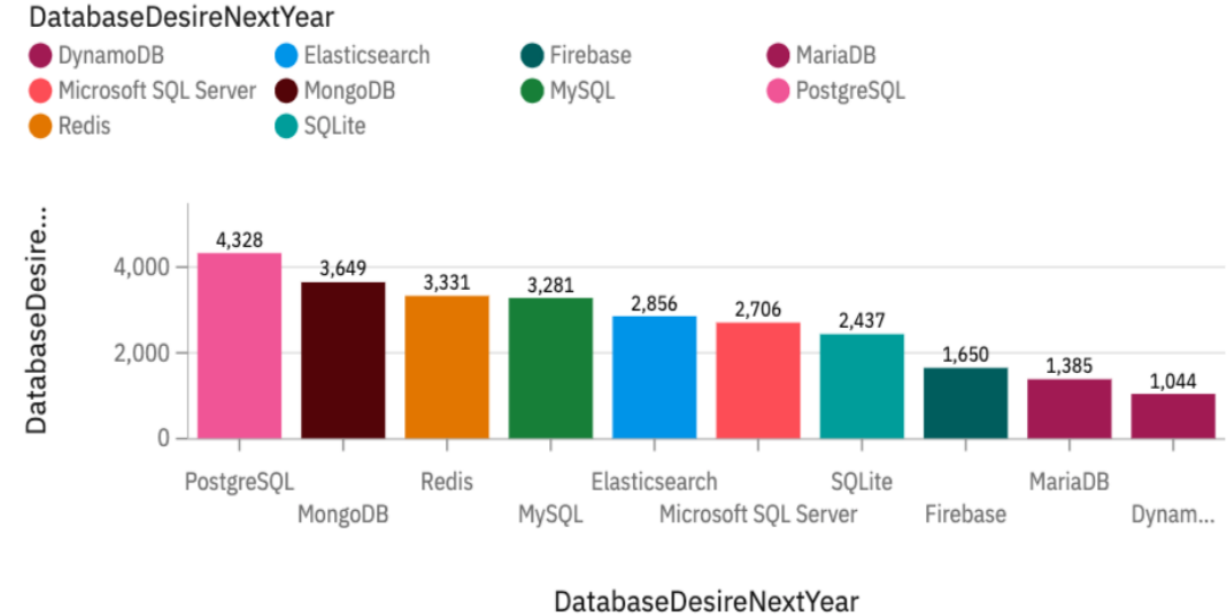
Current Year

Top 10 DatabaseWorkedWith



Next Year

Top 10 DatabaseDesireNextYear



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- MySQL is the most popular
- Firebase is the least popular
- Postgre SQL has strong growth potential
- Significant decrease of interest in SQLite

Implications:

- Possible migration from MySQL to Postgre SQL or MongoDB
- Decrease of interest in Microsoft SQL server
- Oracle is not desired in the future
- Emerge of new Database like: DynamoDB

DASHBOARD



<https://github.com/sudhanshu000729/Building-a-dashboard-with-IBM-Cognos-Analytics/blob/a6f42e3a3d5de3a5af7e49cb154b5406d2bfbef/Building%20a%20dashboard%20with%20IBM%20Cognos%20Analytics.pdf>

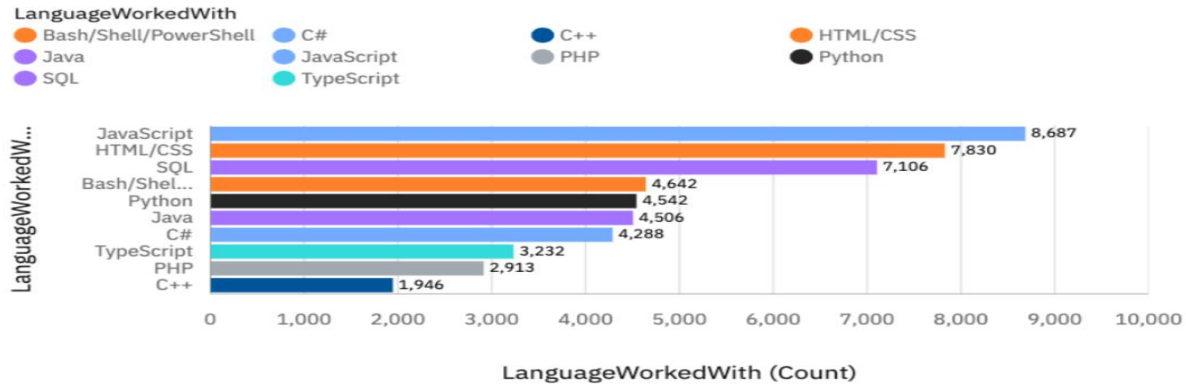
CURRENTLY TECHNOLOGY USAGE

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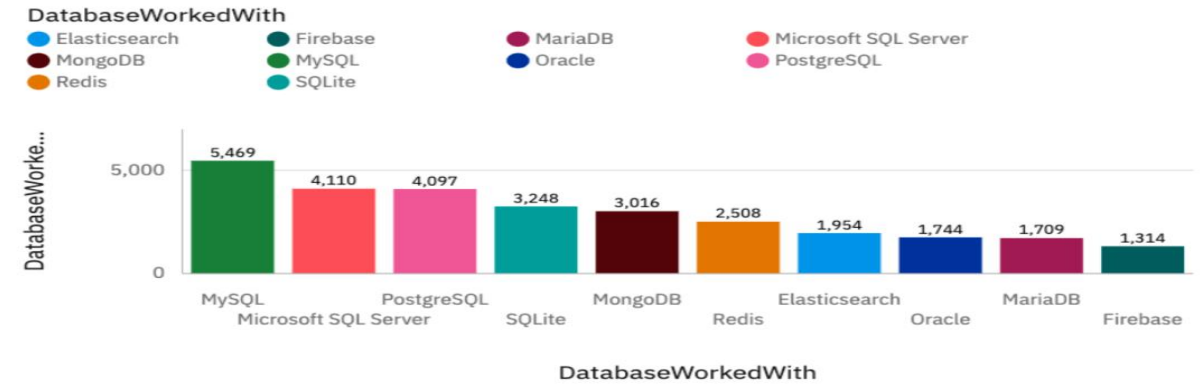
Building a dashboard with IBM Cognos Analytics

Current Technology Usage

Top 10 LanguageWorkedWith



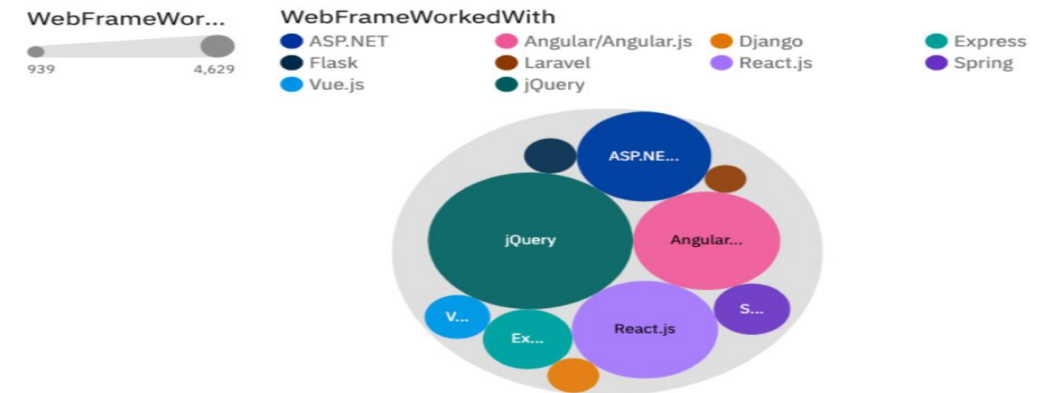
Top 10 DatabaseWorkedWith



PlatformWorkedWith



Top 10 WebFrameWorkedWith

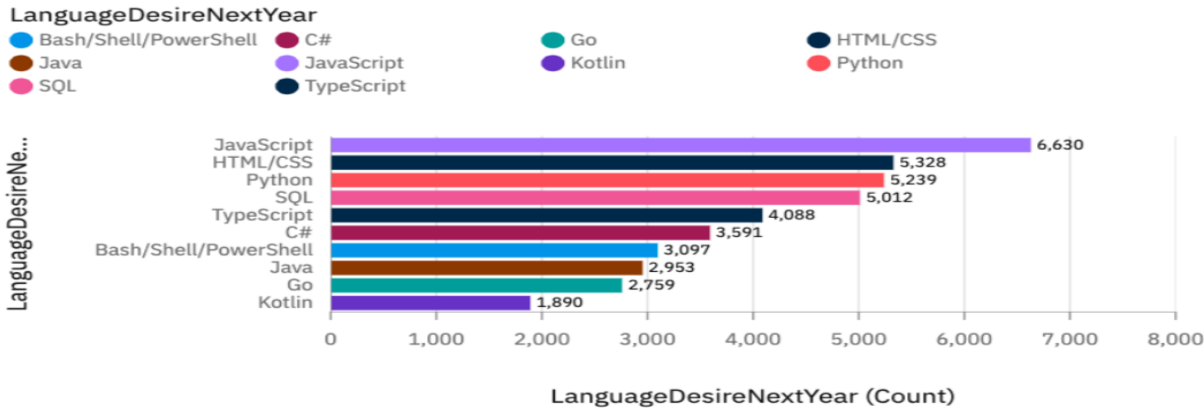


FUTURE TECHNOLOGY TREND

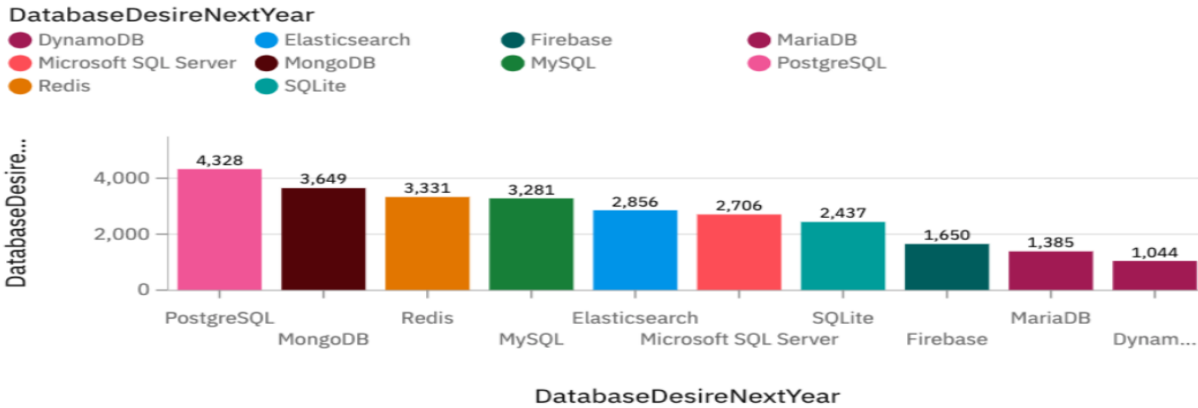
04/09/2024, 19:05 Building a dashboard with IBM Cognos Analytics

Future Technology Trend

Top 10 LanguageDesireNextYear



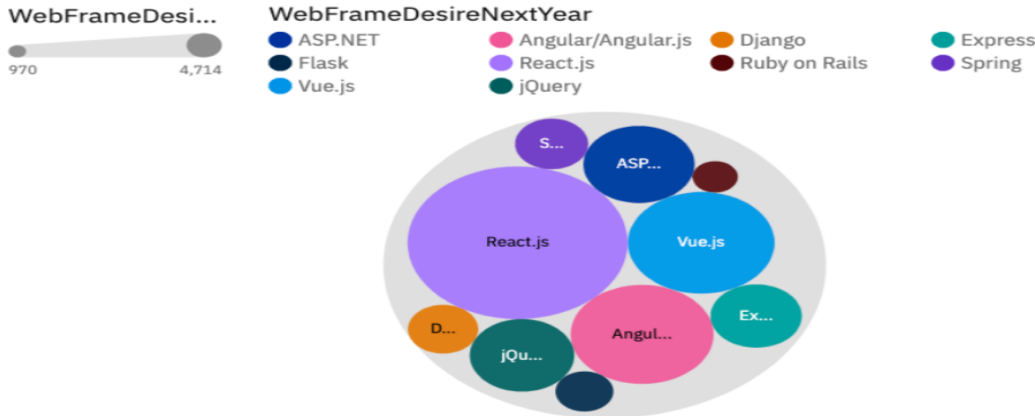
Top 10 DatabaseDesireNextYear



PlatformDesireNextYear



Top 10 WebFrameDesireNextYear



DEMOGRAPHICS

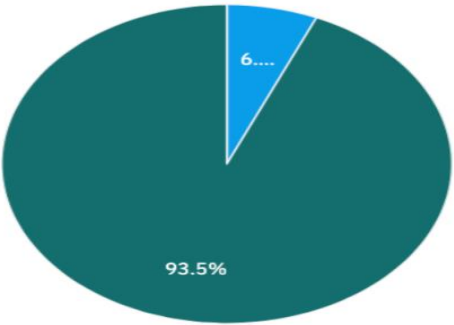
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Building a dashboard with IBM Cognos Analytics

Demographics

Respondent classified by Gender

Gender
● Woman ● Man

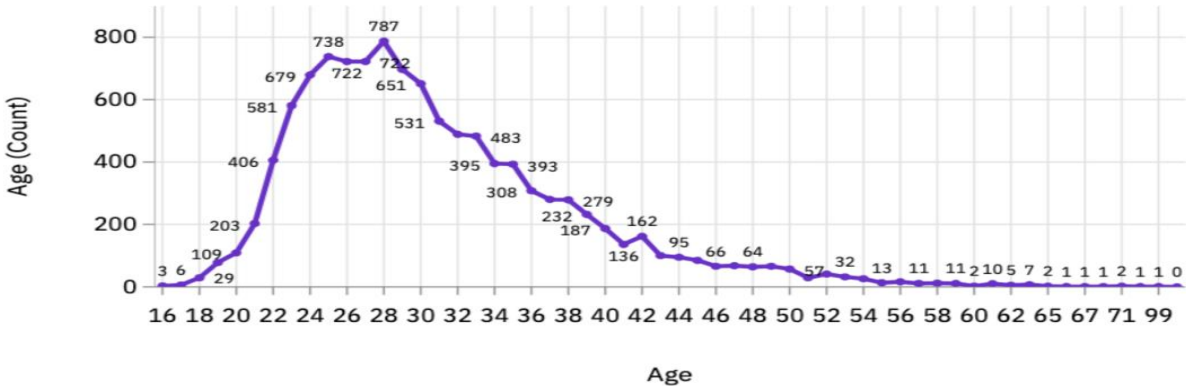


Respondent Count for Countries

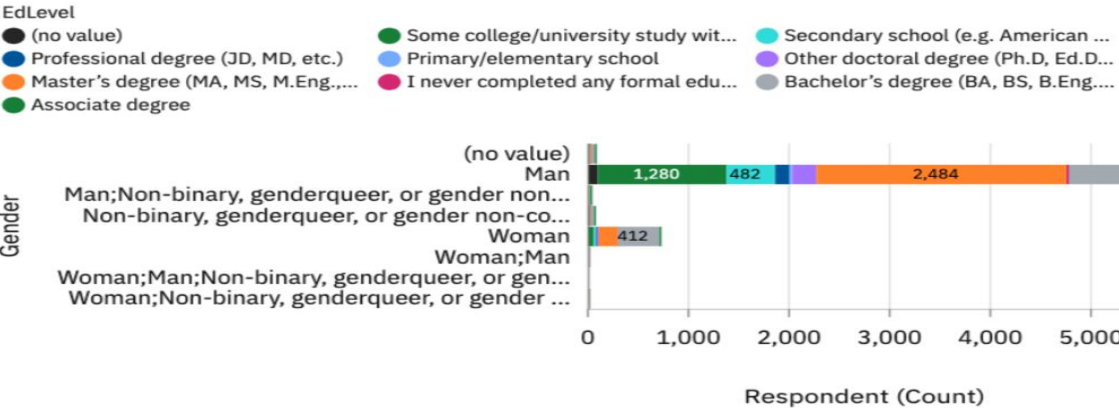
Country (Count)
1 3,127



Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level



DISCUSSION



The current technology landscape shows a clear dominance of JavaScript and MySQL, with emerging interest in Python, TypeScript, and newer languages like Kotlin and Go. As developers seek more modern and scalable solutions, there may be a shift from traditional databases like MySQL to PostgreSQL and MongoDB. Additionally, legacy languages and tools like C++, PHP, and PowerShell may see declining demand, making way for newer, more versatile technologies.

OVERALL FINDINGS & IMPLICATIONS

Findings:

- JavaScript and MySQL are currently the most popular technologies.
- Python and PostgreSQL show strong potential for growth in future use.
- TypeScript and newer languages like Kotlin and Go are gaining popularity.
- There is a notable decrease in interest for older languages like C++, PHP, and databases like SQLite.

Implications:

- There may be a shift towards using PostgreSQL and MongoDB over MySQL in the future.
- Companies may invest more in Python and TypeScript development, given their growing interest.
- Older technologies such as C++, PHP, and PowerShell/Bash/Shell may see reduced demand in the job market.
- Emerging languages and databases like Kotlin, Go, and DynamoDB may become more prominent in the coming years.

CONCLUSION

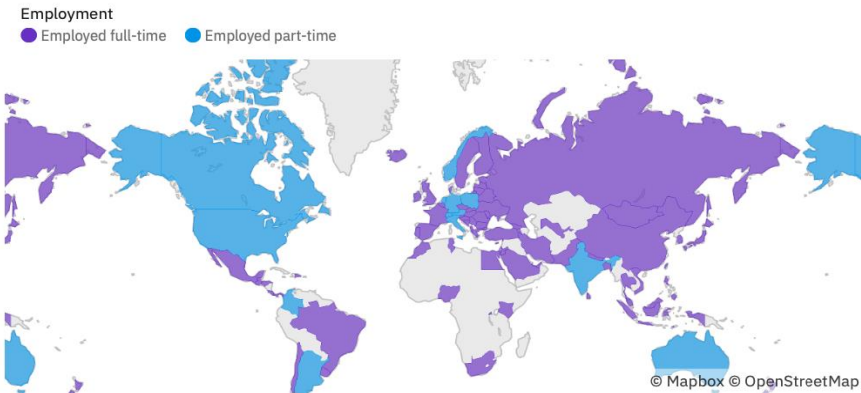


- JavaScript and MySQL will likely continue to dominate their respective domains, but developers and organizations may start exploring alternatives like TypeScript and PostgreSQL for more robust solutions.
- Python's increasing popularity suggests it will play an even more significant role in future tech stacks, especially in fields like data science and machine learning.
- The rise of newer languages like Kotlin and Go indicates a trend towards modern, versatile programming languages, potentially leading to a decline in the use of legacy languages such as C++ and PHP.
- The emergence of databases like DynamoDB and the potential migration from traditional databases like MySQL and Microsoft SQL Server to PostgreSQL and MongoDB suggest a shift towards more flexible, scalable database solutions.

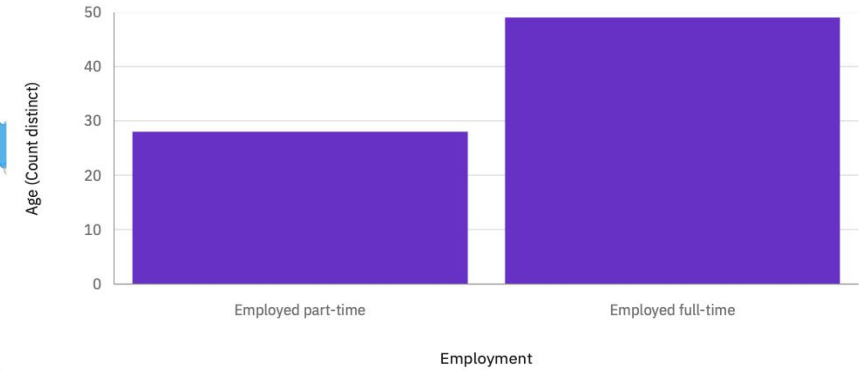
APPENDIX



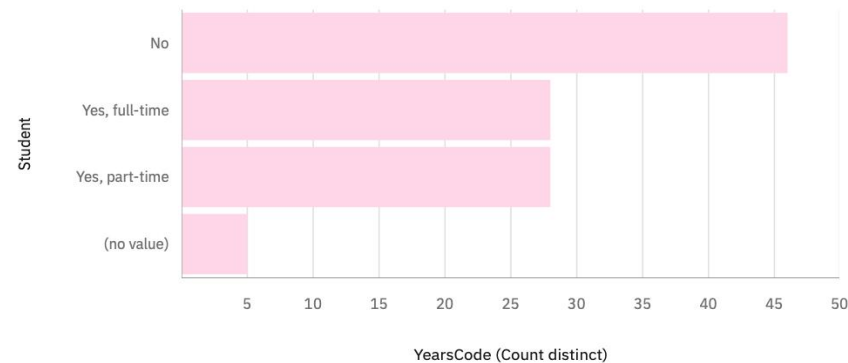
Employment for Country regions



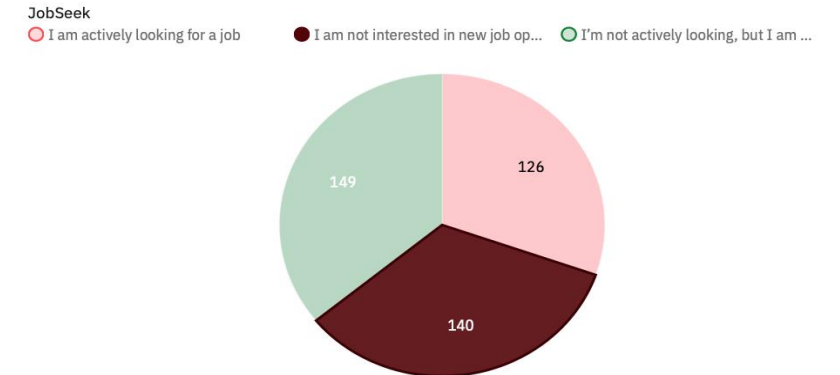
Age by Employment



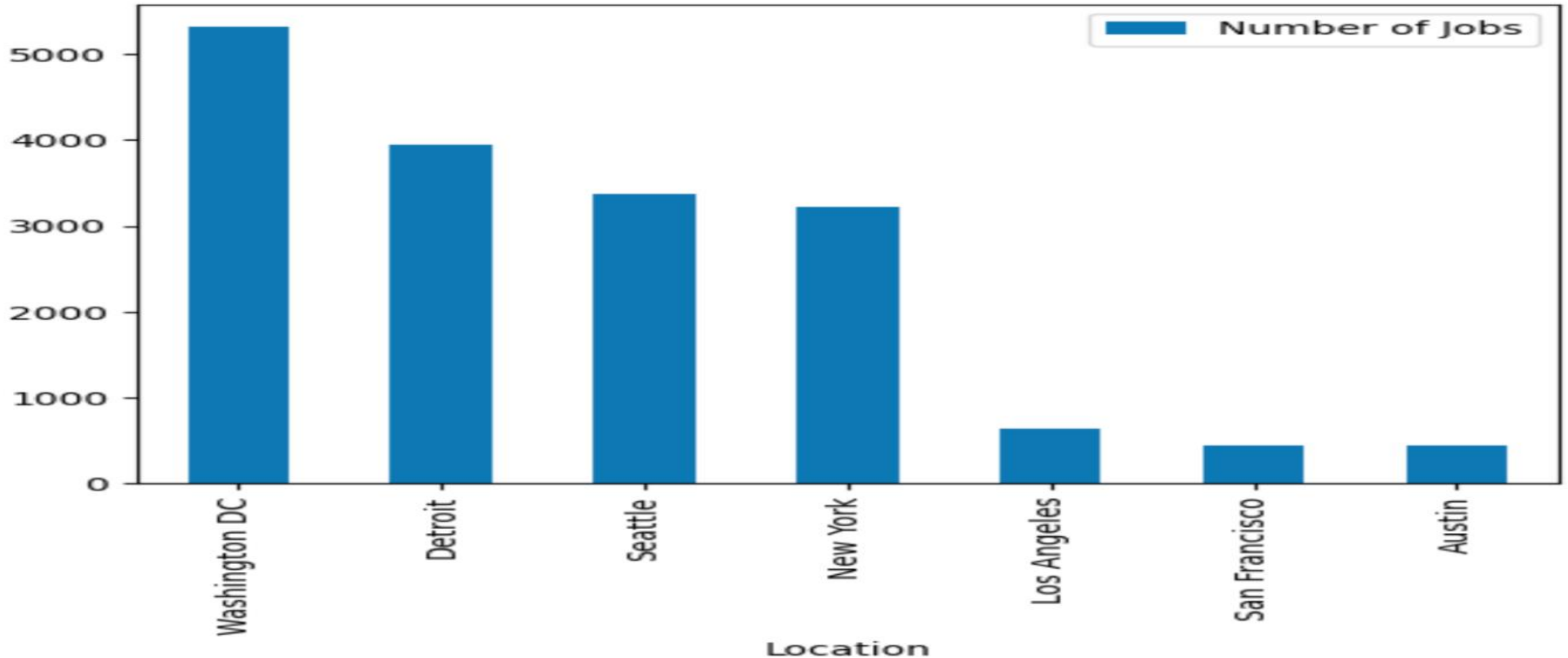
YearsCode by Student



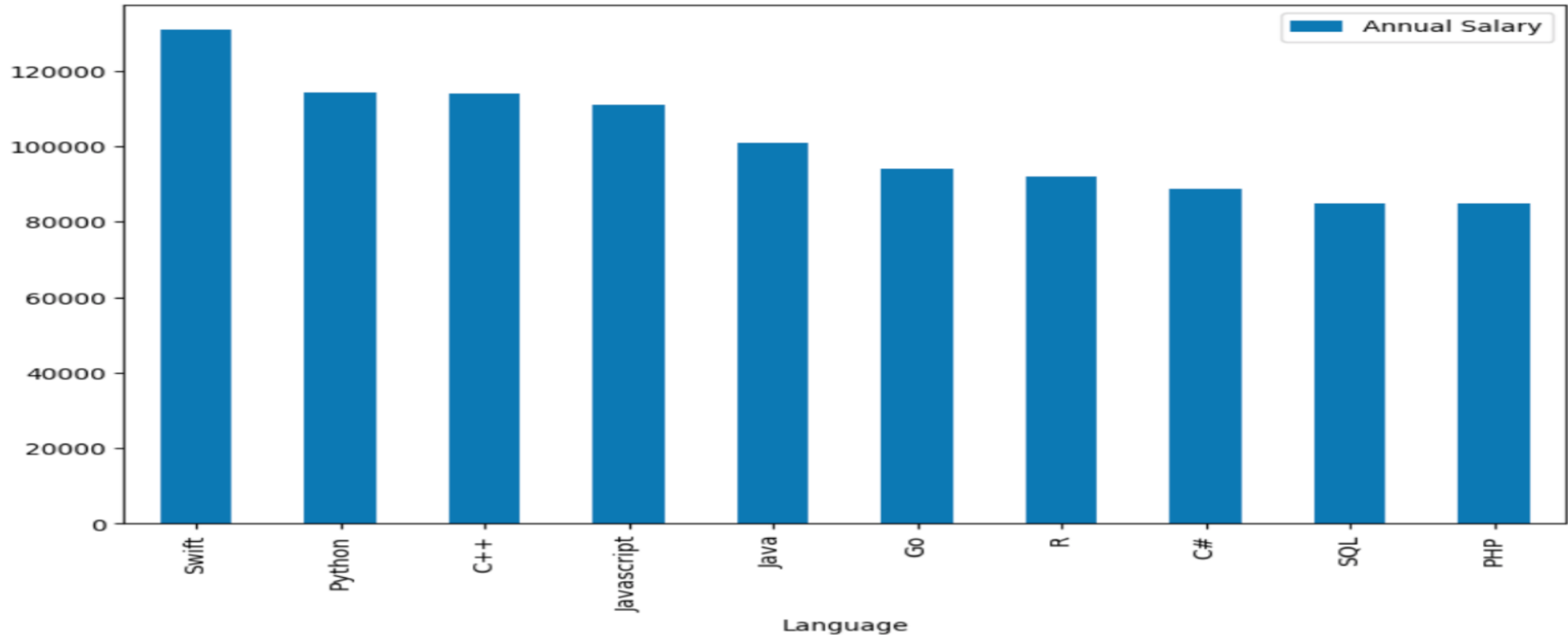
JobFactors by JobSeek



JOB POSTINGS



POPULAR LANGUAGES



VALUE ADDITION

- **Custom Python Libraries:** Develop specialized Python libraries for niche applications in data science or machine learning, adding unique features that address specific industry needs.
- **TypeScript Tooling:** Create TypeScript-focused development tools such as linters, formatters, or IDE plugins that enhance productivity and code quality.
- **Kotlin-Based Frameworks:** Build Kotlin-based frameworks or libraries to simplify common mobile development tasks, making it easier to implement best practices and integrate with other technologies.
- **Go Performance Optimization:** Offer Go-based performance optimization services or tools that help developers write efficient, high-performance code and optimize existing systems.
- **PostgreSQL Extensions:** Develop PostgreSQL extensions or plugins that add functionality or improve performance, catering to specific business requirements or use cases.
- **MongoDB Management Tools:** Create tools for easier management and optimization of MongoDB instances, including data migration, backup, and monitoring solutions.
- **AI Development Assistants:** Develop AI-driven code completion, refactoring, and debugging tools that integrate with popular IDEs to boost developer productivity across various languages.

INNOVATIVE IDEAS

- **Advanced Data Analytics Platforms:** Build platforms that leverage Python and PostgreSQL to offer scalable data analytics and machine learning solutions for enterprises.
- **TypeScript-Based Development Tools:** Develop tools and libraries to enhance the TypeScript ecosystem, improving developer productivity and code safety in large-scale projects.
- **Kotlin-Enhanced Mobile Applications:** Create mobile apps using Kotlin that leverage modern features and best practices to offer a superior user experience.
- **Cloud-Native Database Solutions:** Innovate with DynamoDB and other cloud-native databases to provide high-performance, scalable data management solutions for dynamic environments.
- **PostgreSQL Optimization Services:** Offer services or tools that optimize PostgreSQL performance and scalability for large-scale projects.
- **AI-Powered Development Assistants:** Create AI-powered tools to assist developers in writing, debugging, and optimizing code in emerging languages and frameworks.