

Capstone Project Report

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OUTLINE



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EXECUTIVE SUMMARY



In this report, emerging and future skill requirements and various trends were identified by analyzing data. In order to do that, the data was collected from diverse sources and thoroughly processed and analyzed.

Key conclusions

- JavaScript, Python, and HTML/CSS are the most popular programming languages and are in demand.
- PostgreSQL, MySQL, and SQLite database technologies are currently the most sought-after.
- Amazon Web Services (AWS) and Microsoft Azure are the most utilized platforms currently.
- Spring Boot and React are the most utilized web frameworks.

INTRODUCTION



To stay competitive in the rapidly evolving technology landscape, it is important to analyze data to identify emerging and future skill requirements. In order to do that, the data should be collected from diverse sources.

This report is useful for clients of a global IT and business consulting firm. Various trends for in-demand skills should be identified for this year's report.

Main questions:

- Which programming languages are most in demand?
- Which database technologies are currently most sought after?
- Which platforms and web frameworks are the most popular?

METHODOLOGY



Data sources:

- Job postings
- Training portals
- Developer surveys, such as the latest Stack Overflow Developer Survey, a comprehensive dataset offering insights into the global developer community.

Data collection: scraping internet websites, accessing APIs, and working with datasets like the latest Stack Overflow Developer Survey in various formats such as .csv files, Excel sheets, and databases.

Data wrangling steps:

- Removing duplicates and dealing with missing values
- Data formatting
- Data normalization
- Data binning and converting categorical to quantitative variables.

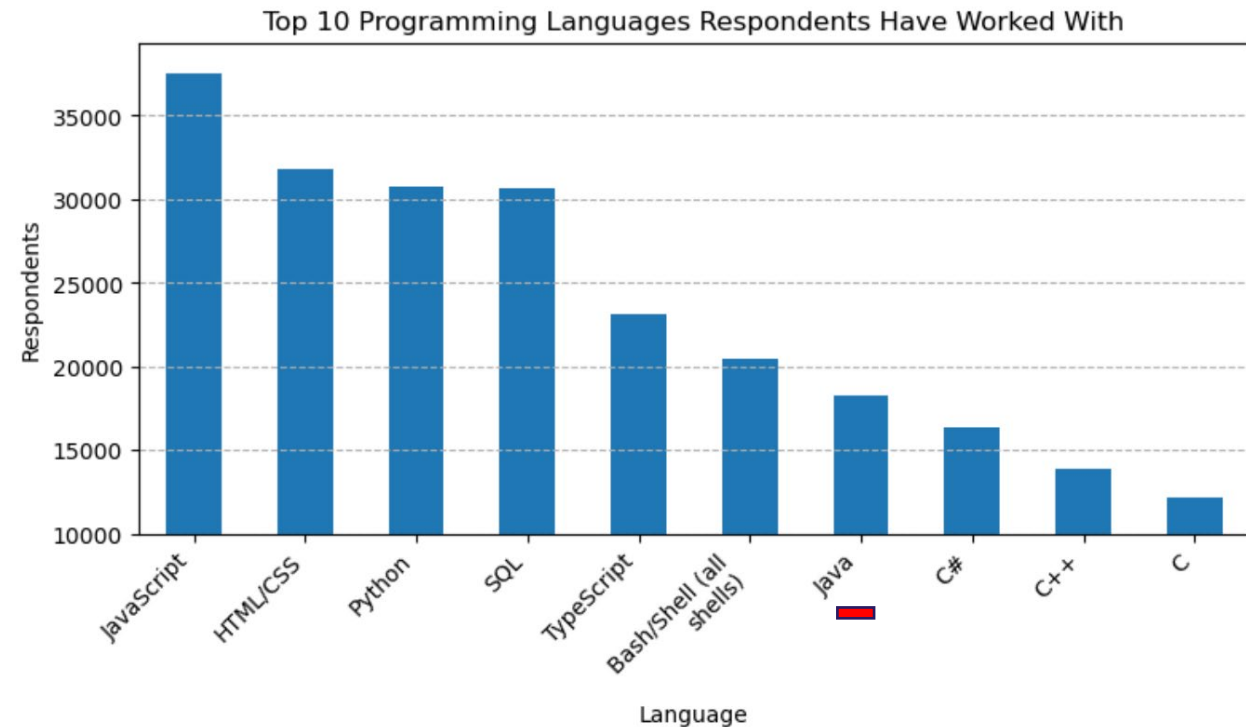


Results

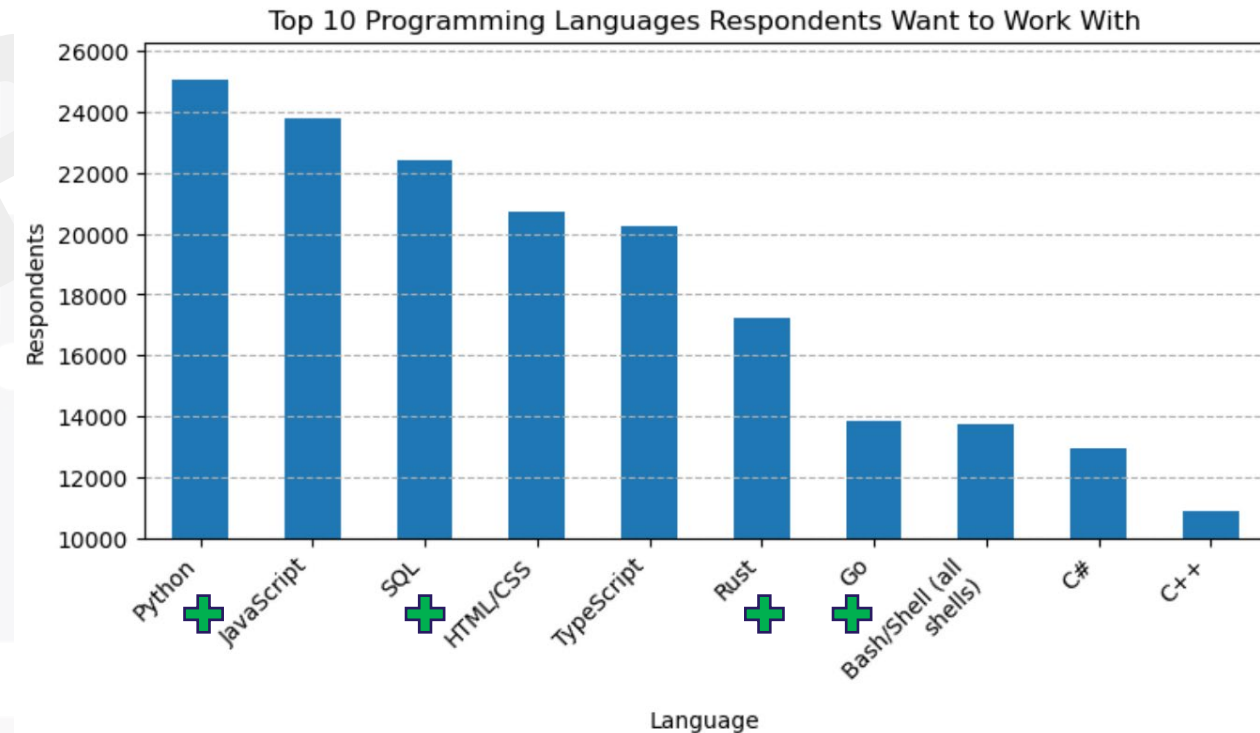
PROGRAMMING LANGUAGE TRENDS

Summarize key trends shown in the charts.

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

- JavaScript is the most utilized language currently.
- Python is the most desired language to work with.
- JavaScript, HTML/CSS, Bash/Shell, C#, C++, C, and especially Java will probably fall in popularity next year.
- Python, SQL, Rust, and Go are rising in popularity among respondents.

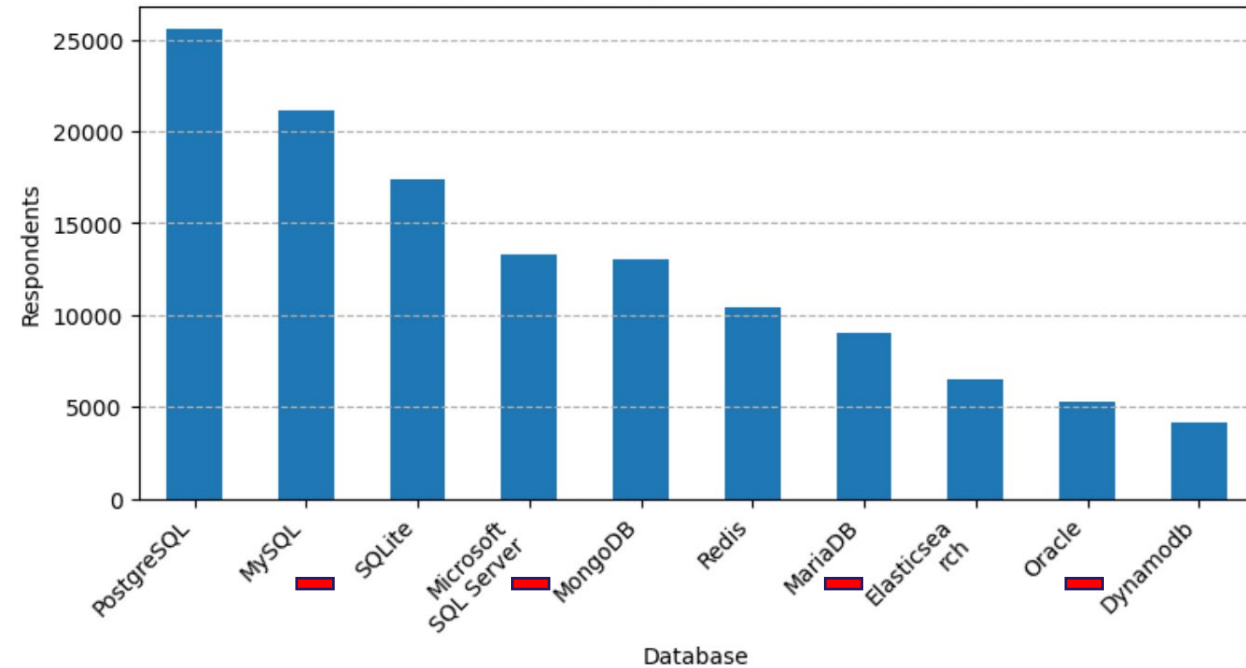


DATABASE TRENDS

Summarize key trends shown in the charts.

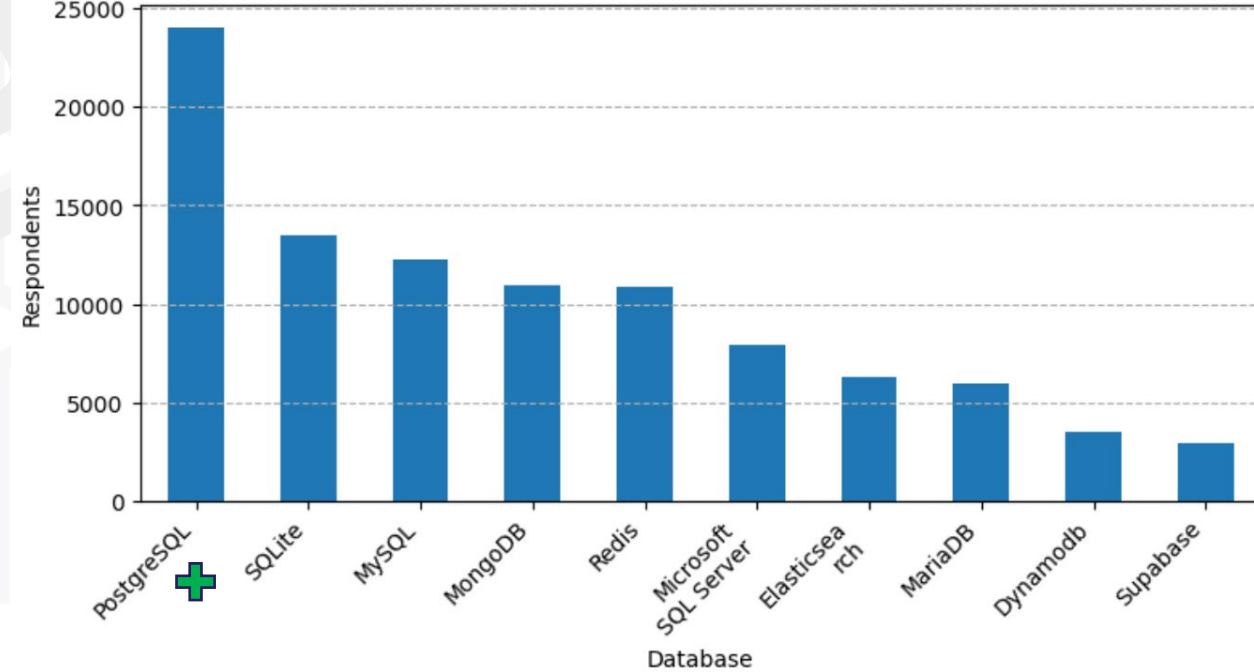
Current Year

Top 10 Databases Respondents Have Worked With



Next Year

Top 10 Databases Respondents Want to Work With

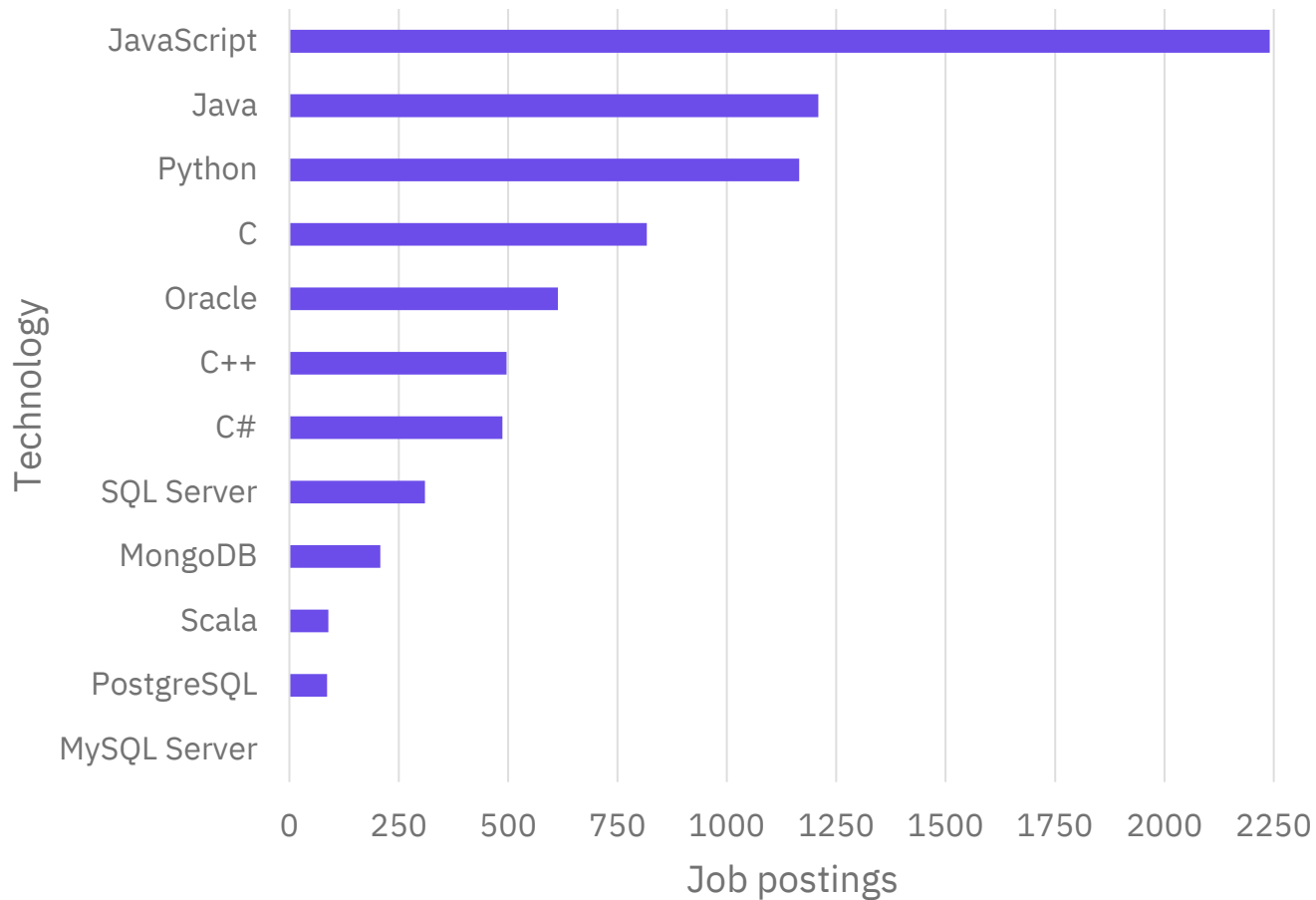


DATABASE TRENDS - FINDINGS & IMPLICATIONS

- PostgreSQL is the most utilized database currently, and it is the most desired one to work with.
- MySQL, Microsoft SQL Server, MariaDB, and especially Oracle will probably fall in popularity next year.
- SQLite, MongoDB, Redis, Elasticsearch, DynamoDB, and Supabase are rising in popularity among respondents.



JOB POSTINGS



- JavaScript has the most demand on the job market.
- Scala and PostgreSQL have the lowest demand.
- There are no job postings that require knowledge of MySQL Server.

DASHBOARD

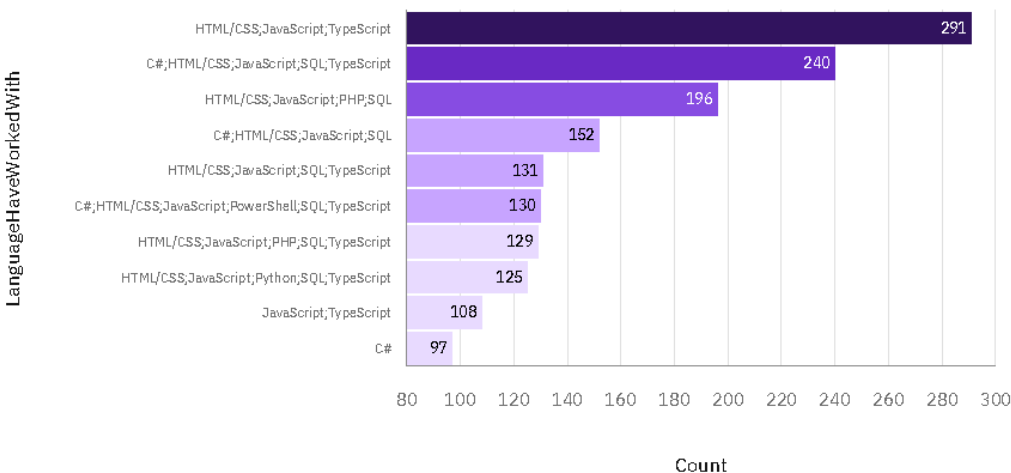


The dashboard was created using the IBM Cognos Analytics Tool

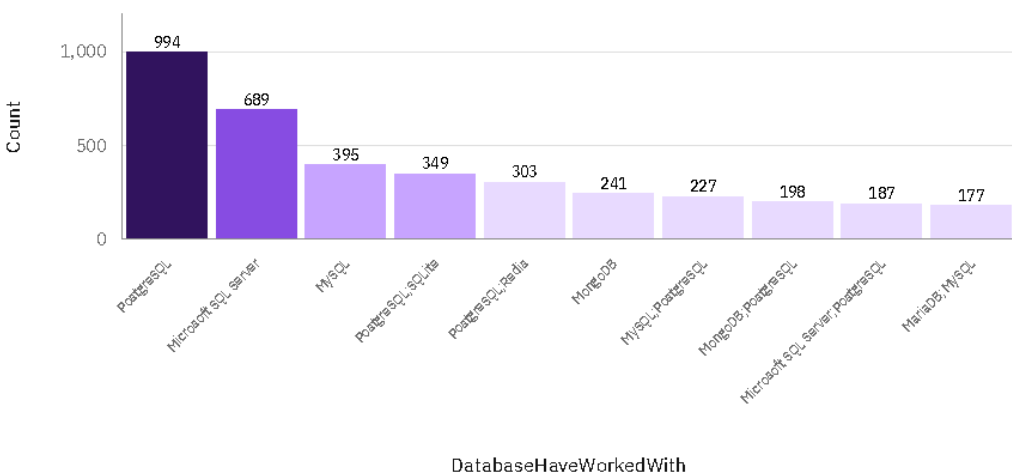


DASHBOARD TAB 1: Current Technology Usage

Top 10 LanguageHaveWorkedWith



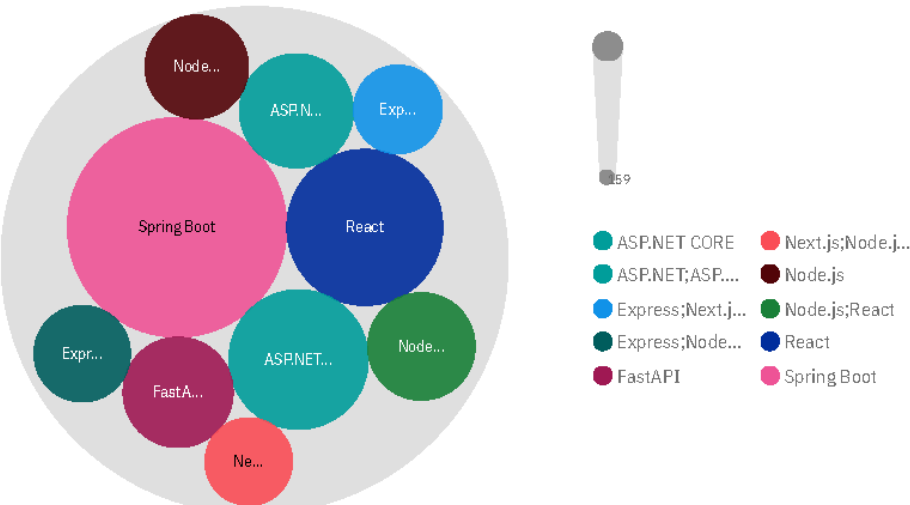
Top 10 DatabaseHaveWorkedWith



Top 10 PlatformHaveWorkedWith

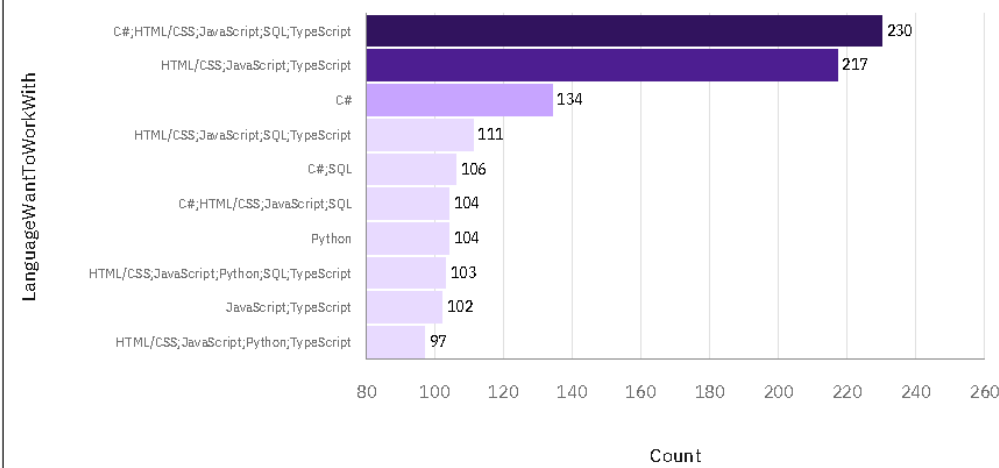


Top 10 WebFrameHaveWorkedWith

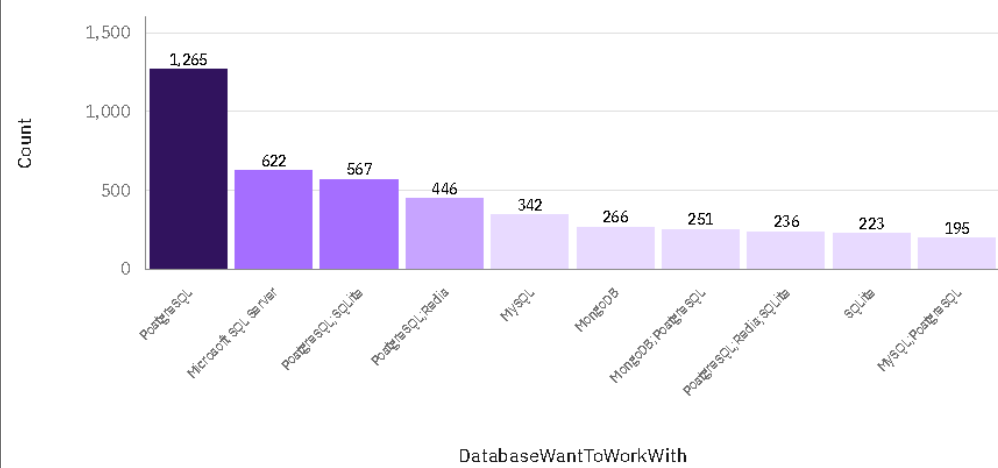


DASHBOARD TAB 2: Future Technology Trends

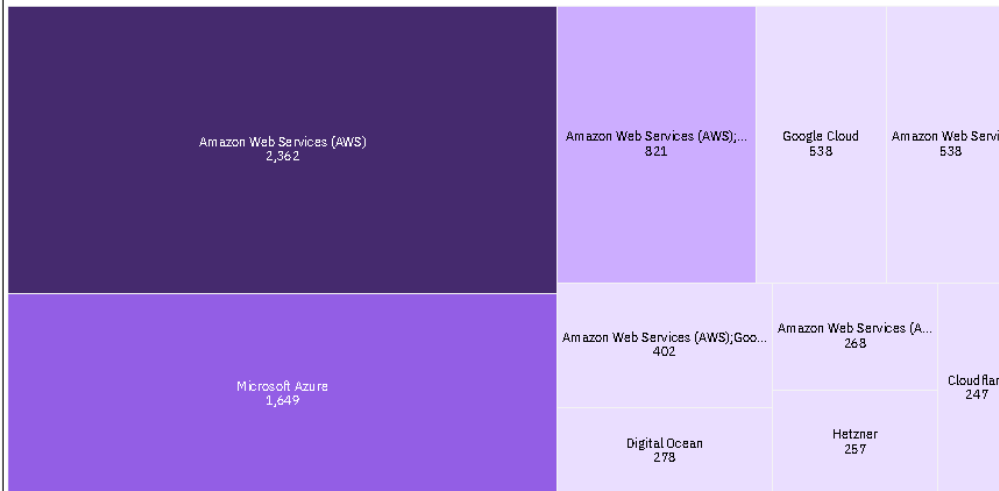
Top 10 LanguageWantToWorkWith



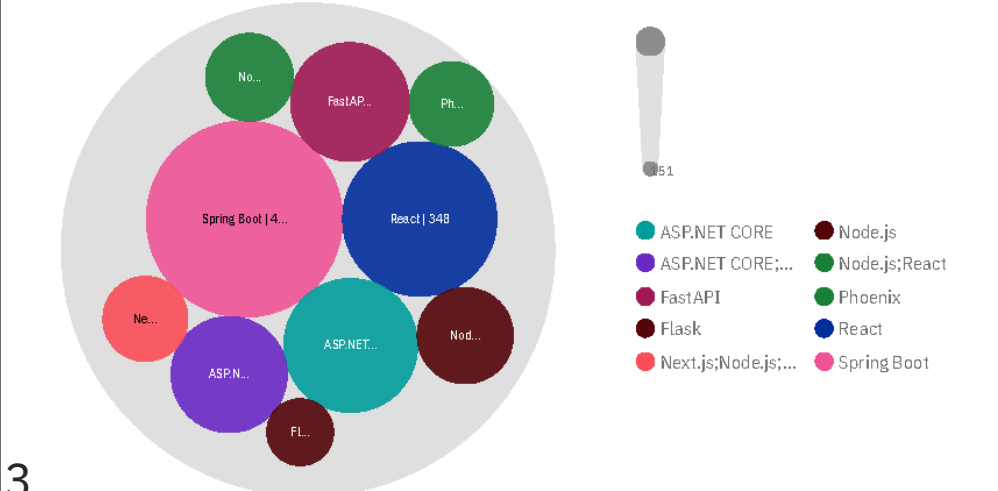
Top 10 DatabaseWantToWorkWith



Top 10 PlatformWantToWorkWith

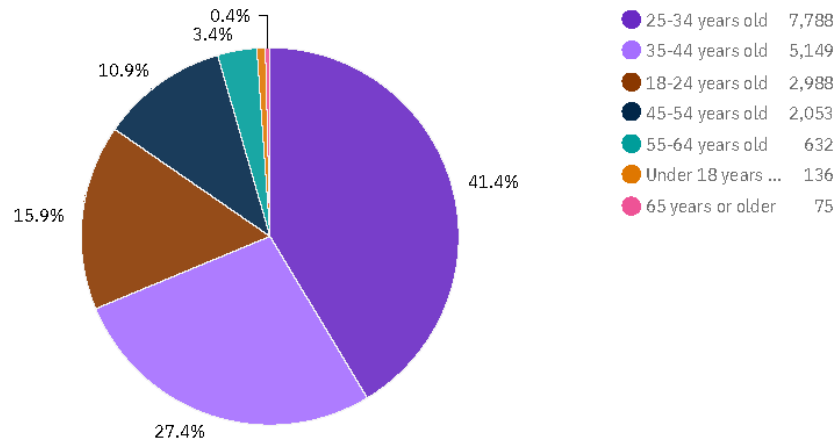


Top 10 WebframeWantToWorkWith

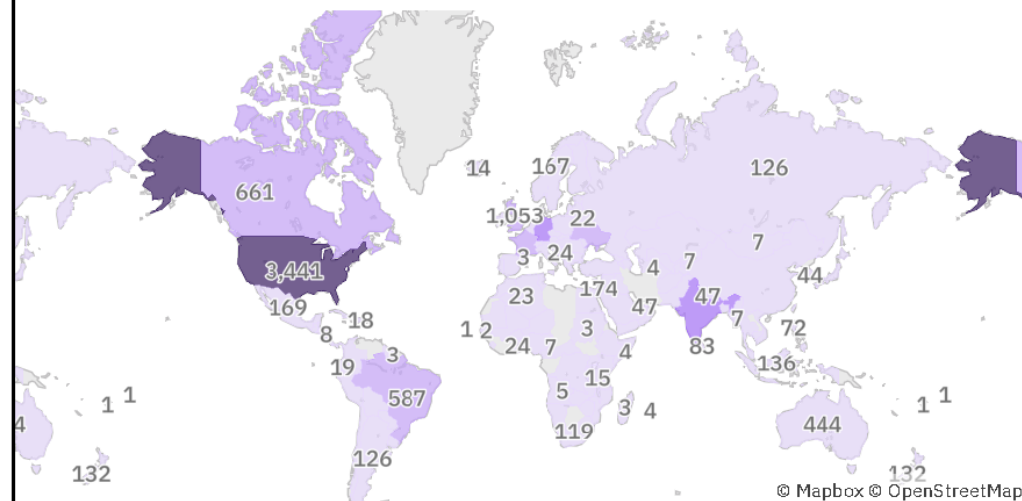


DASHBOARD TAB 3: Demographics

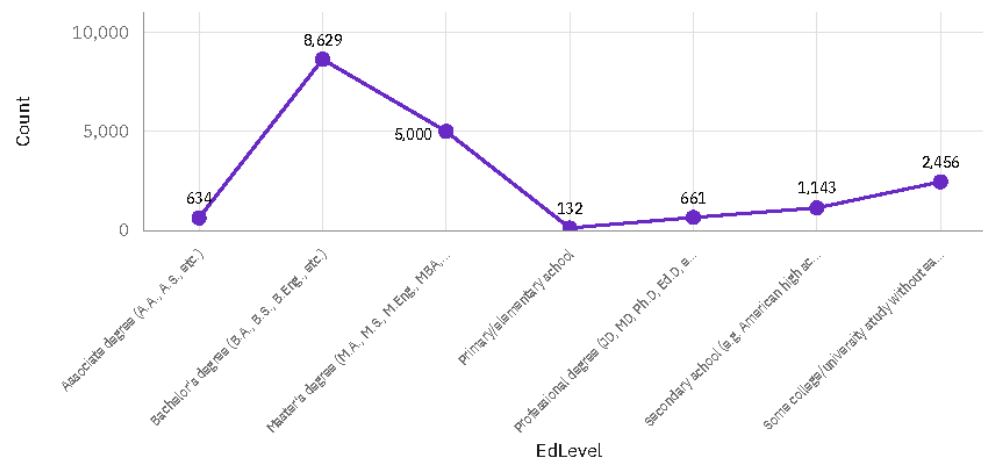
Respondent distribution by Age



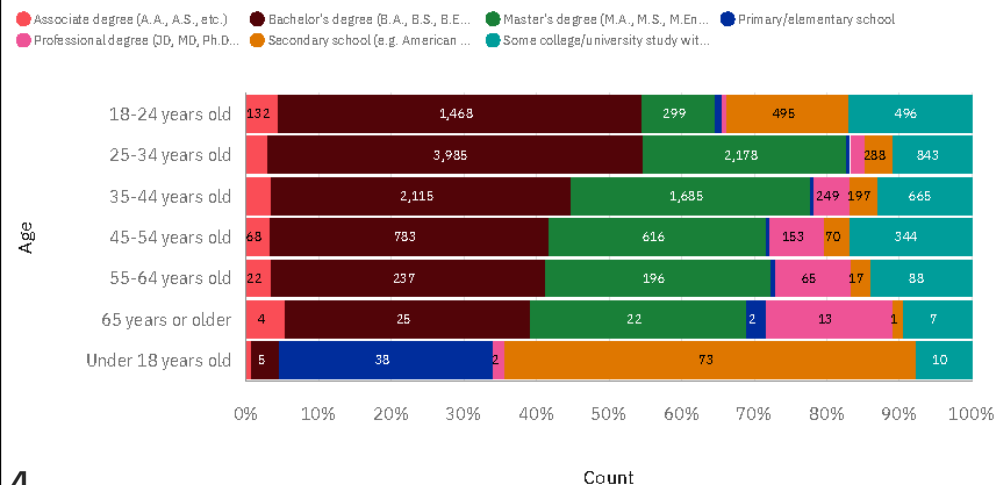
Respondent Count by Country



Respondent distribution by Formal Education Level



Respondent Count by Age, classified by Education Level



DISCUSSION



- Amazon Web Services (AWS) and Microsoft Azure are the most utilized platforms currently, and their popularity remains stable.
- Spring Boot and React are the most utilized web frameworks currently, and their popularity remains stable.
- The vast majority of respondents (69%) are 25 – 44 years old.
- The most common countries of respondents are the USA, Germany, and India.
- In most cases, respondents were enrolled in college or university.

OVERALL FINDINGS & IMPLICATIONS

- JavaScript is the most utilized language currently.
- Python is the most desired language to work with.
- Python, SQL, Rust, and Go are rising in popularity among respondents.
- PostgreSQL is the most utilized database currently, and it is the most desired one to work with.
- SQLite, MongoDB, Redis, Elasticsearch, DynamoDB, and Supabase databases are rising in popularity among respondents.
- Amazon Web Services (AWS) and Microsoft Azure are the most utilized platforms currently, and their popularity remains stable.
- Spring Boot and React are the most utilized web frameworks currently, and their popularity remains stable.



CONCLUSION



This report is useful for clients of a global IT and business consulting firm.

In this report, emerging and future skill requirements and various trends were identified by analyzing data. In order to do that, the data was collected from diverse sources.

- JavaScript, Python, and HTML/CSS are the most popular programming languages and are in demand.
- PostgreSQL, MySQL, and SQLite database technologies are currently the most sought-after.
- Amazon Web Services (AWS) and Microsoft Azure are the most utilized platforms currently.
- Spring Boot and React are the most utilized web frameworks.

This report can be improved by conducting an additional survey for underrepresented countries.

APPENDIX



Additional charts that were created during the analysis phase.

References

Jobs On Naukri.com,

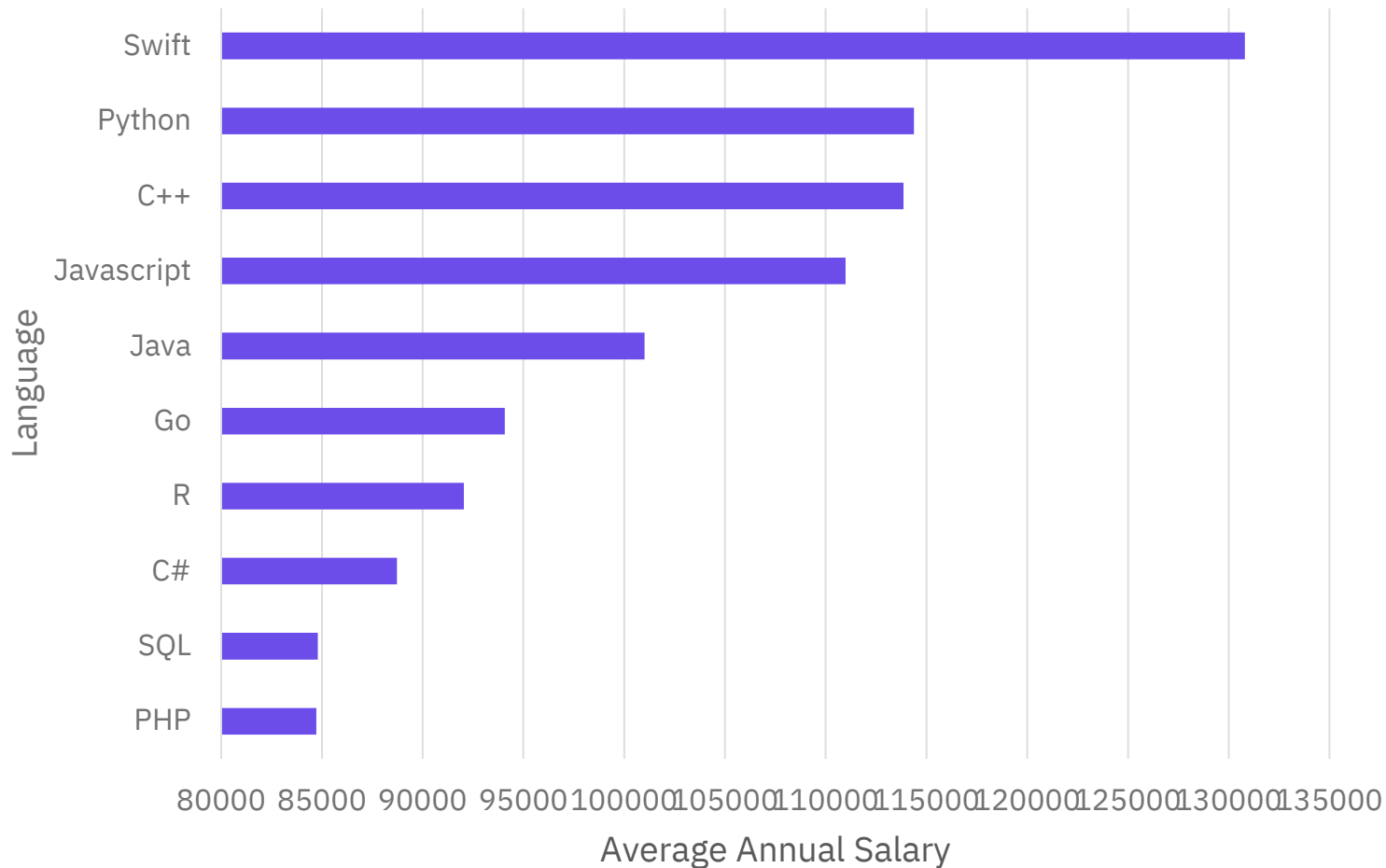
<https://www.kaggle.com/datasets/promptcloud/jobs-on-naukricom>

Unpacking the 2024 Developer Survey results,

<https://stackoverflow.blog/2024/08/06/2024-developer-survey/>

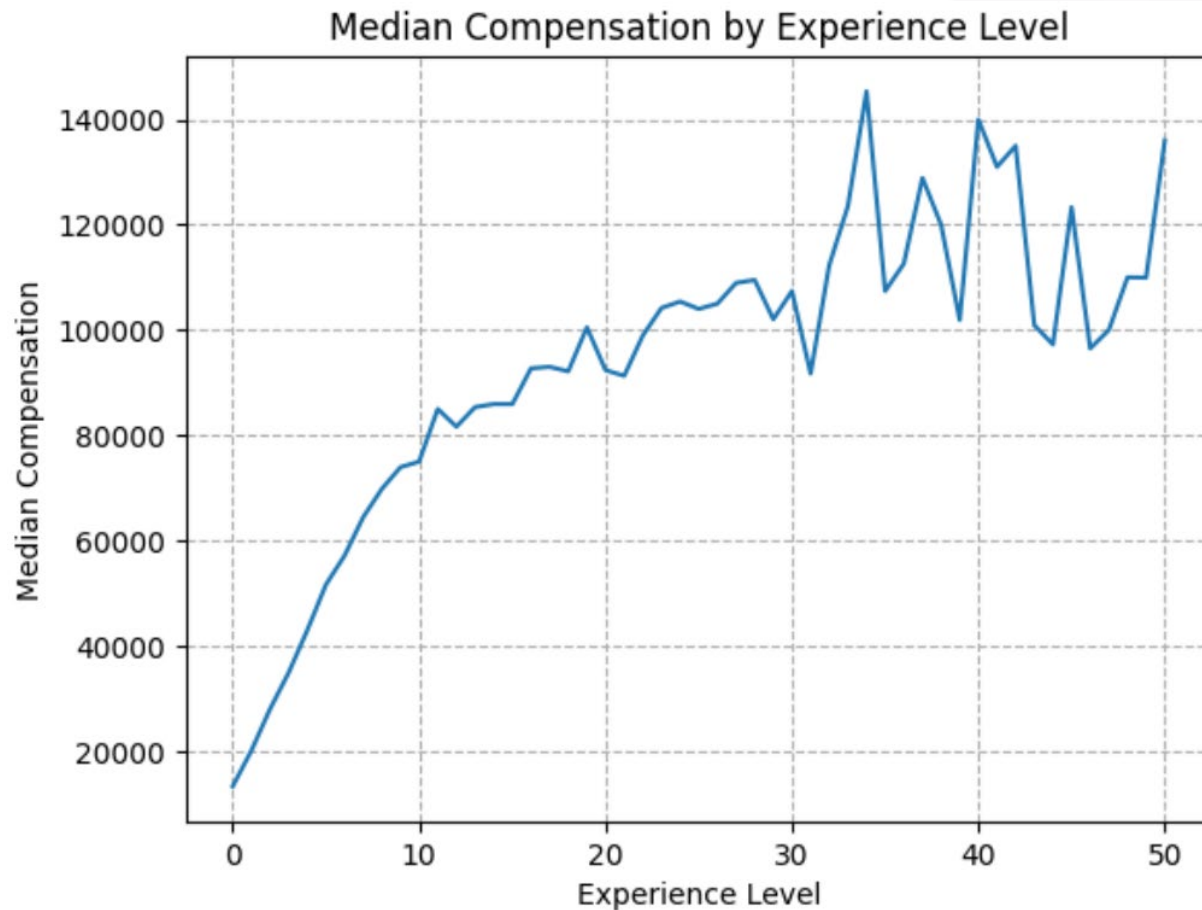


Annual salaries



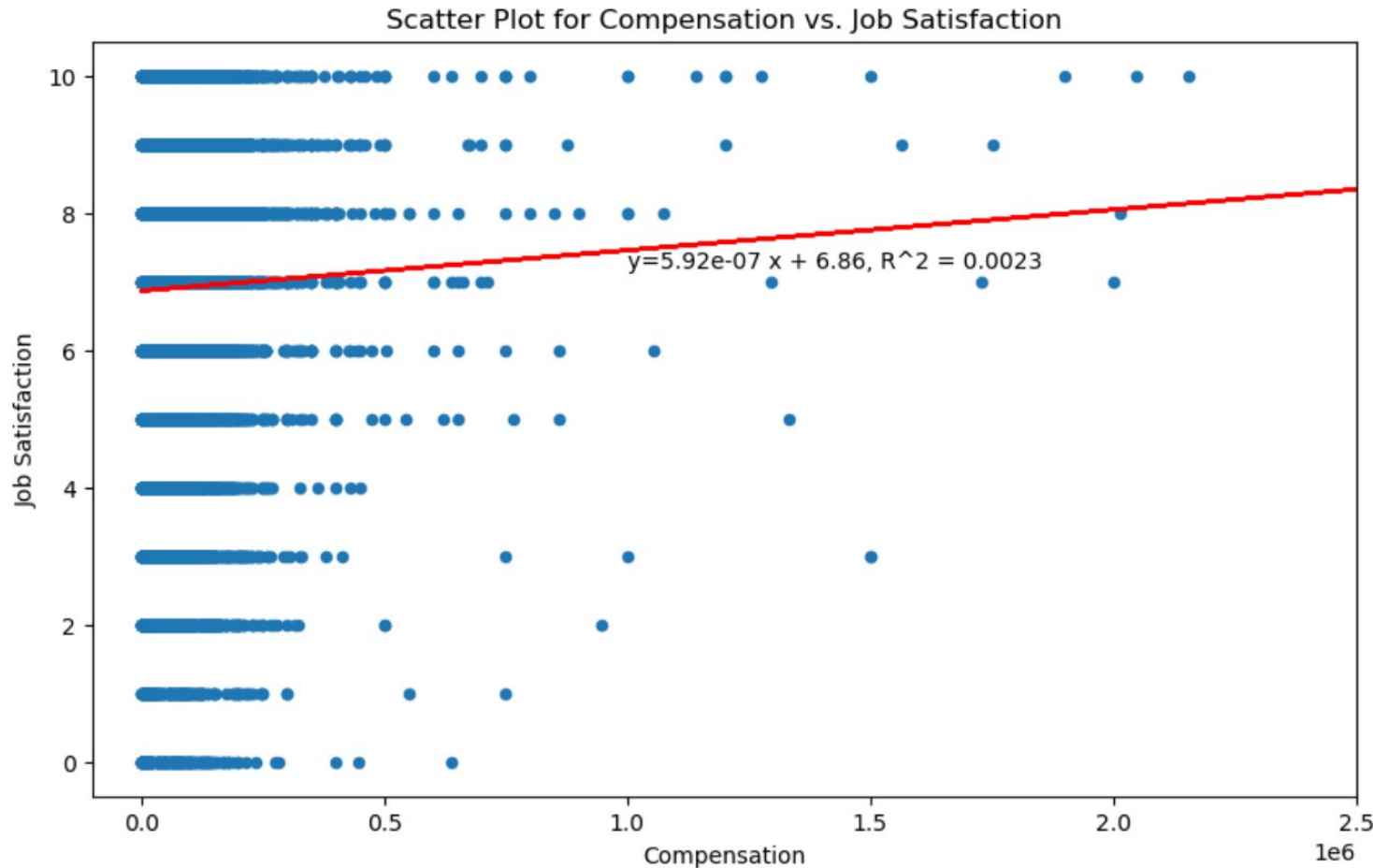
Swift and C++ are not among the most popular languages among developers, even though they offer higher average annual salaries.

Compensation and experience



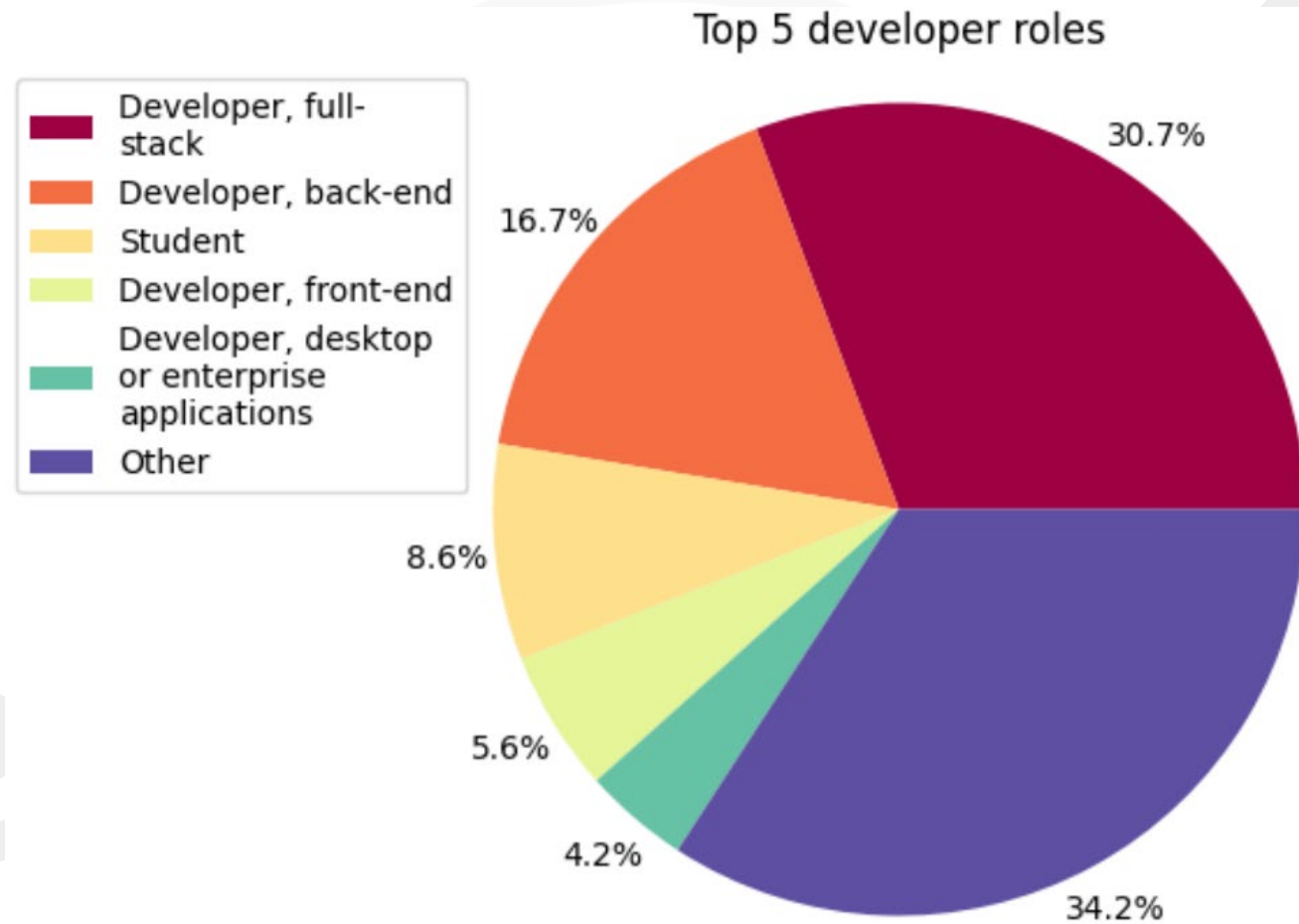
During the first 10 years, the median compensation has increased the fastest.

Compensation and job satisfaction



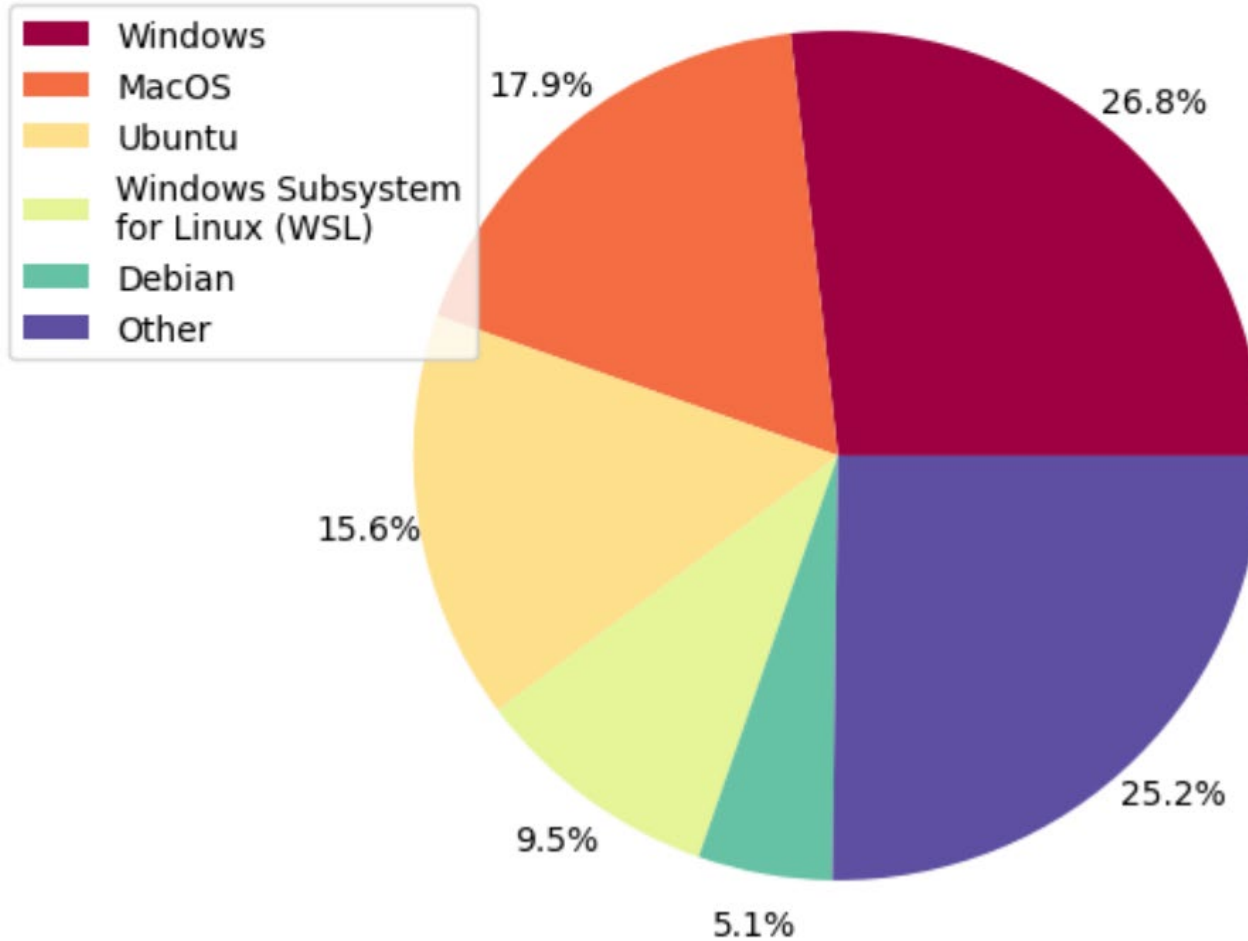
Values of job satisfaction and yearly compensation show almost no linear or monotonic correlation. The two variables most likely do not affect each other.

Developer roles



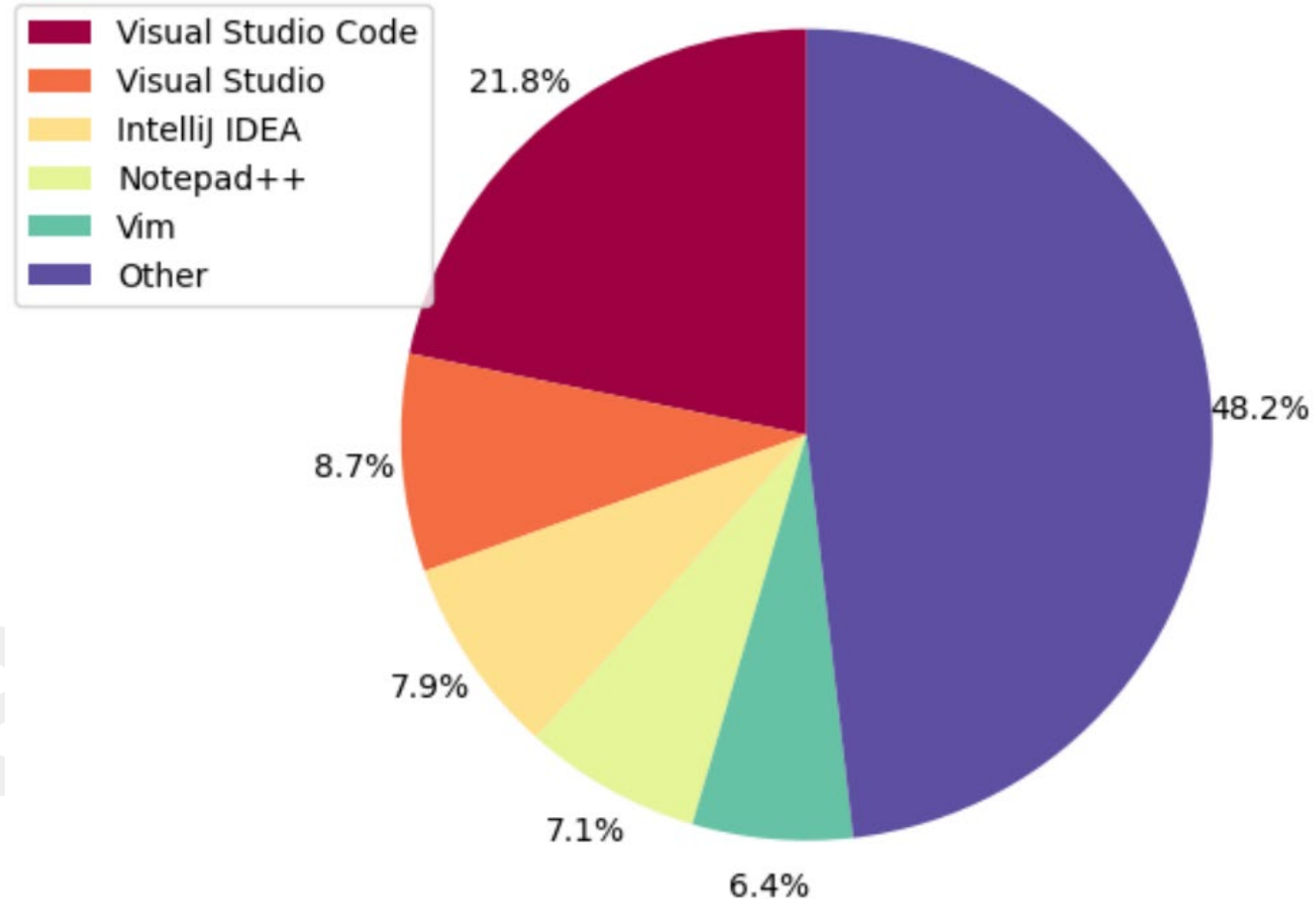
Operating systems

Top 5 operating systems developers use professionally



Collaboration tools

Top 5 Collaboration Tools used in Professional Use



AI use cases

