TECHTRENDS: UNVEILING EMERGING SKILLS IN THE DIGITAL ERA

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EXECUTIVE SUMMARY

- This comprehensive report explores the dynamic landscape of the IT industry, providing valuable insights into the most sought-after programming languages, databases, platforms, and web frameworks.

- Meticulously curated data from diverse sources, including job postings, surveys, and industry reports, underpins our analysis.

- Notably, HTML/CSS, JavaScript, PowerShell, Java, and SQL emerge as the top programming languages in demand, with MySQL, Microsoft SQL Server, PostgreSQL, MongoDB, Redis, and SQLite leading the database landscape. Additionally, Google Cloud Platform, AWS, IBM Cloud, Windows, and Microsoft Azure are identified as the top platforms sought after in the industry. React.js, Angular, JQuery, ASP.NET, and Express stand out as the most utilized Web Frameworks.

- As we delve into the present demand landscape, it's crucial to anticipate future technology trends for comprehensive insights. By considering emerging technologies, this report offers invaluable guidance to IT professionals and organizations, empowering them to make informed strategic decisions and proactively address skill development initiatives.

INTRODUCTION

This comprehensive report delves into the evolving landscape of the IT industry, offering valuable insights into emerging skills and technologies. Through meticulous data collection from diverse sources including job postings and surveys, this analysis highlights the most sought-after programming languages, databases, platforms, and web frameworks.

Tailored for IT professionals and organizations keen on staying abreast of industry trends, this report equips readers with a deep understanding of current patterns and future projections. By exploring key inquiries such as the demand for programming languages, database skills, and popular technologies, this report serves as a strategic resource for personal and professional development in the dynamic IT sector.

METHODOLOGY

Data Collection

Various data formats, including job availability across diverse locations for different technologies, were procured using Python's GitHub Jobs API. This involved meticulous data collection via APIs and employed web scraping methodologies to supplement the dataset with pertinent information.

Data Wrangling

Data wrangling methods will be employed to accomplish the following tasks: identifying and removing duplicate rows, assessing missing values, obtaining employment column value counts, and normalizing data using two existing columns, all through Python.

Exploratory Data Analysis

I generated a distribution curve and histogram, analyze column medians and outliers, compute the interquartile range, establish upper and lower bounds, and investigate correlations among numerical columns. Furthermore, I will construct a new dataframe to facilitate further analysis.

Data Visualization

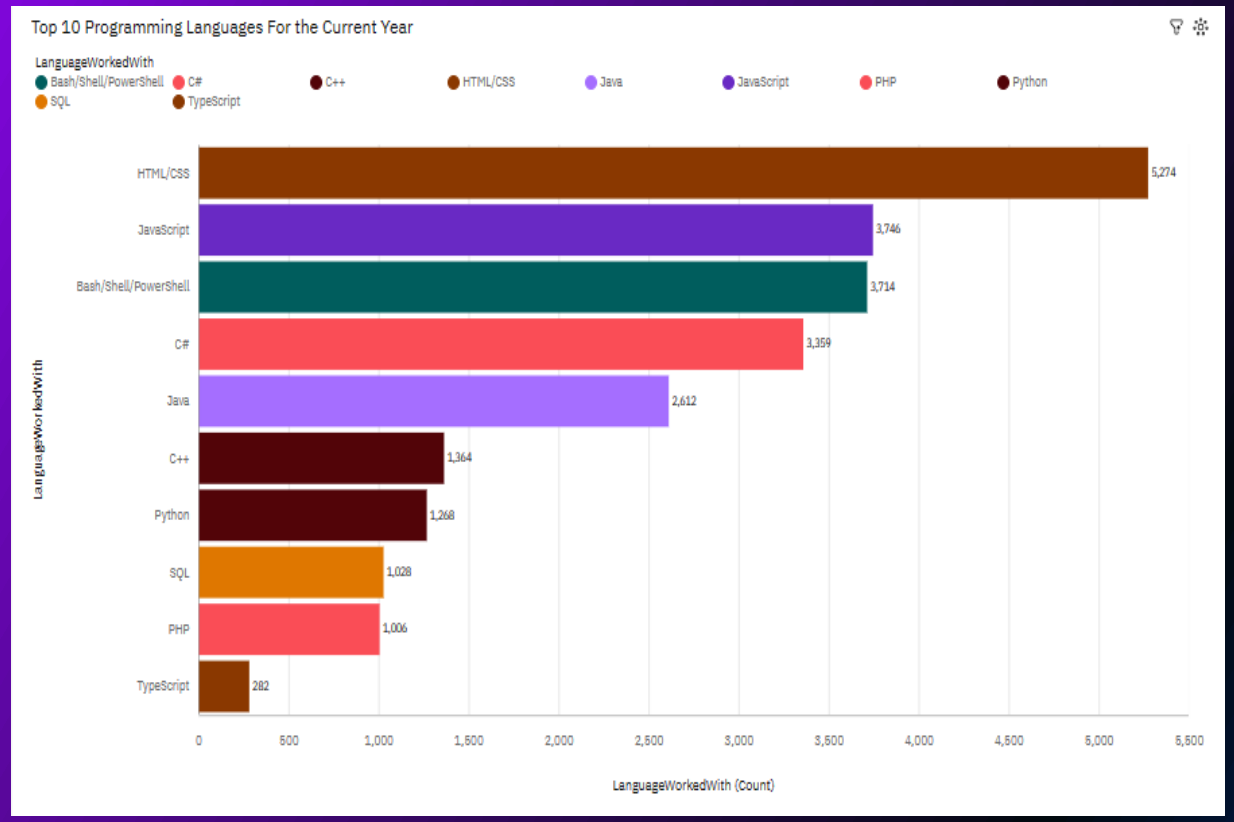
I utilized the Stack Overflow Developer Survey 2019 dataset to craft visual representations. These will encompass a range of plots such as histograms, scatter plots, bubble plots, box plots, pie charts, bar charts, and stacked charts. These visualizations will effectively depict the distribution, correlations, and counts present within the dataset.

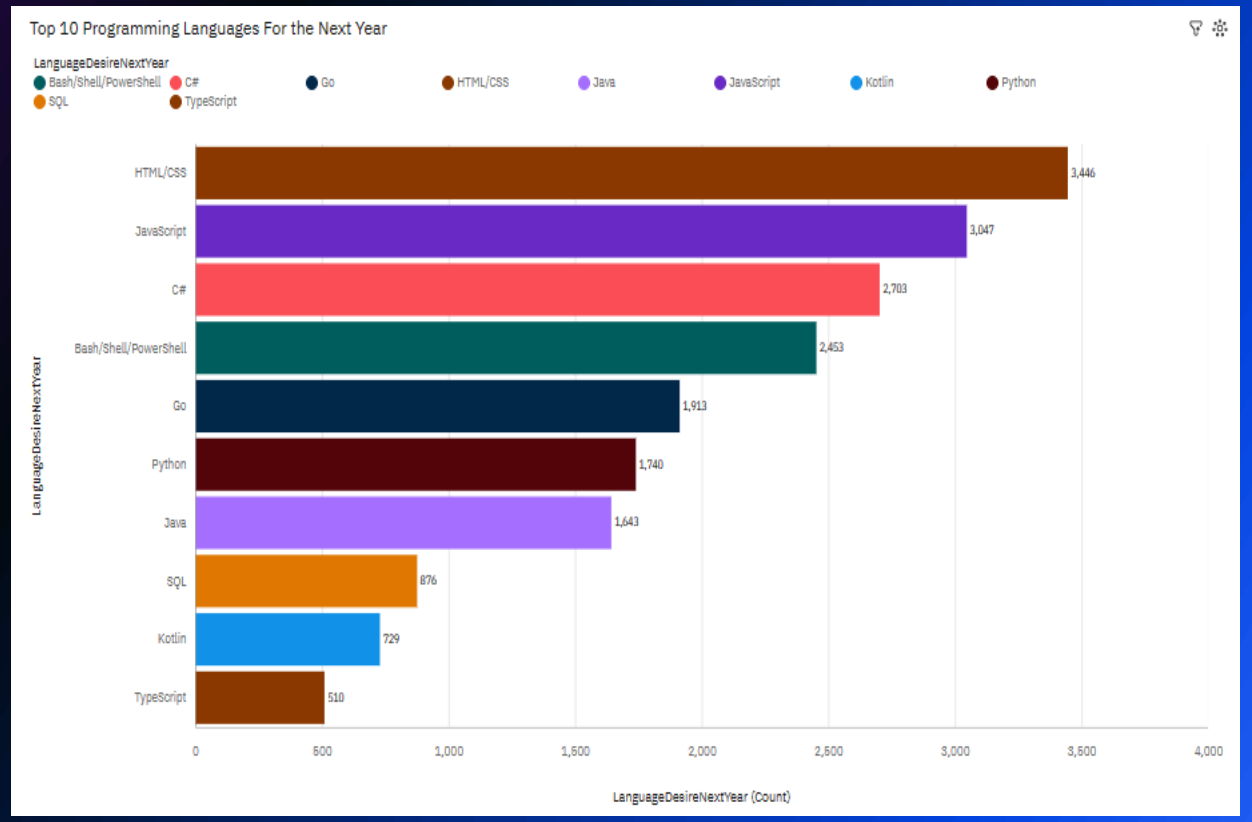
Dashboard

I developed three IBM Cognos Analytics dashboard tabs using survey data. They cover current technology usage, future trends, and demographics. Each tab offers insights into top languages, databases, platforms, web frameworks, and demographic information. Visualizations were created using Python and Cognos Analytics, with Python analyses conducted in Jupiter Notebook


RESULTS

PROGRAMMING LANGUAGE TRENDS





PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

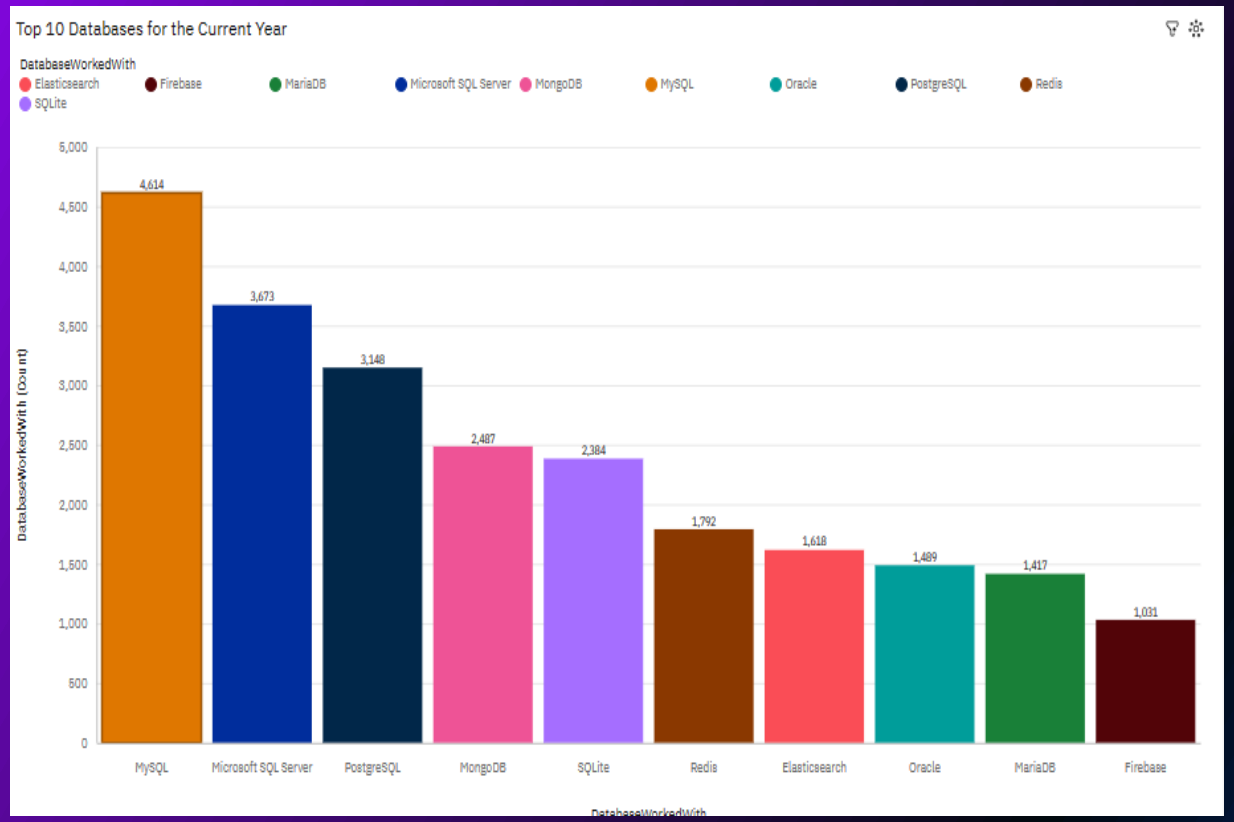
Findings

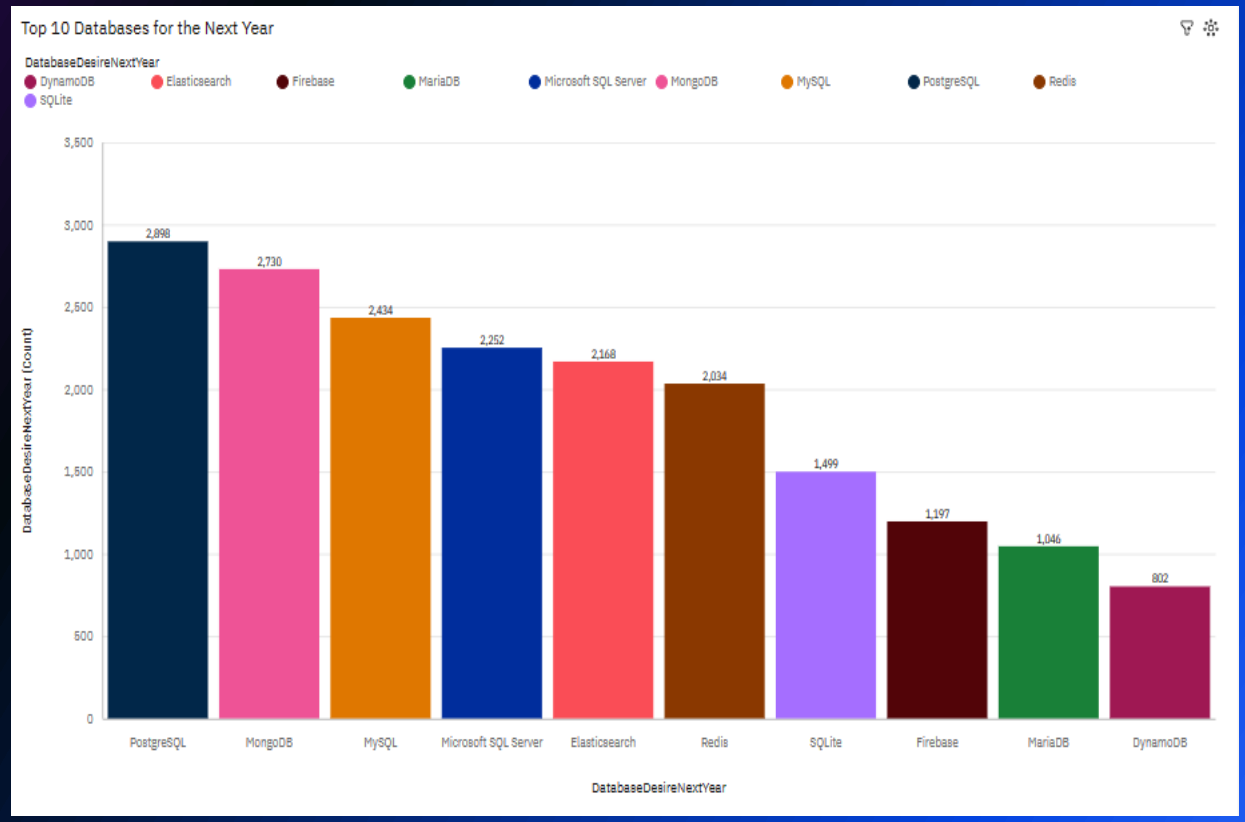
- HTML/CSS, the standard markup language for web pages, remains pivotal for web development, signaling its enduring popularity.
- JavaScript, a dynamic scripting language, empowers interactive content creation and multimedia control, securing its position as the second most prominent language, set to maintain its status in the future.
- PowerShell, favored for system management automation, experiences current high demand but faces potential displacement by C# in future trends.
- C#, a versatile high-level language, witnesses increasing demand and is poised for further utilization in the upcoming year.
- Java, widely used for web application development, faces potential challenges from emerging contenders like Python and Go in future market dynamics.

Implications

- The enduring relevance of HTML/CSS in web development underscores the necessity for professionals skilled in these technologies, ensuring continued demand for visually appealing and functional websites.
- JavaScript's sustained prominence in enabling dynamic web content highlights its critical role in delivering interactive user experiences, necessitating ongoing investment in JavaScript-based technologies.
- While PowerShell currently meets system management needs, its projected decline in dominance suggests a shift in automation tools, urging organizations to explore alternatives like C# for streamlined processes and future readiness.

PROGRAMMING LANGUAGE TRENDS





DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL, a leading relational database, organizes data into separate tables for efficient management. Despite its current dominance, it's expected to rank third next year.
- Microsoft SQL Server, renowned for its robustness, is currently second in demand but will likely fall to fourth place next year.
- PostgreSQL, an object-relational database, offers advanced capabilities and is anticipated to lead the market next year.
- MongoDB, with its scalable architecture, closely follows PostgreSQL and is poised to maintain its position ahead of MySQL and Microsoft SQL Server.
- SQLite, ideal for embedded software, currently ranks fifth but is expected to be overtaken by Elasticsearch next year. Elasticsearch's versatility makes it popular for various analytical and search.

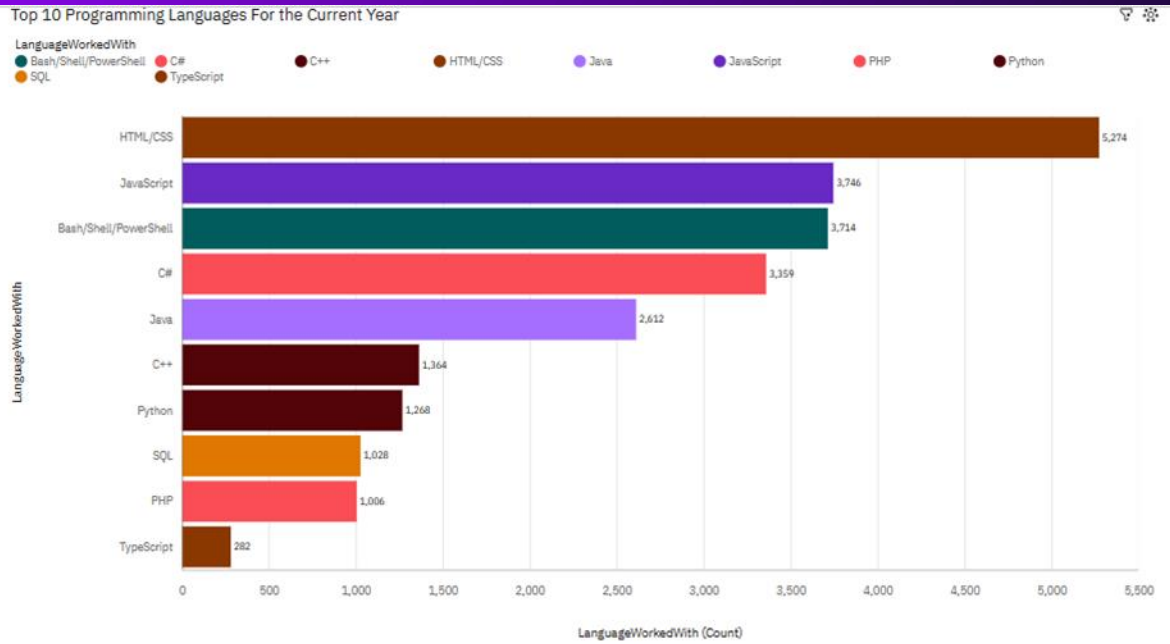
Implications

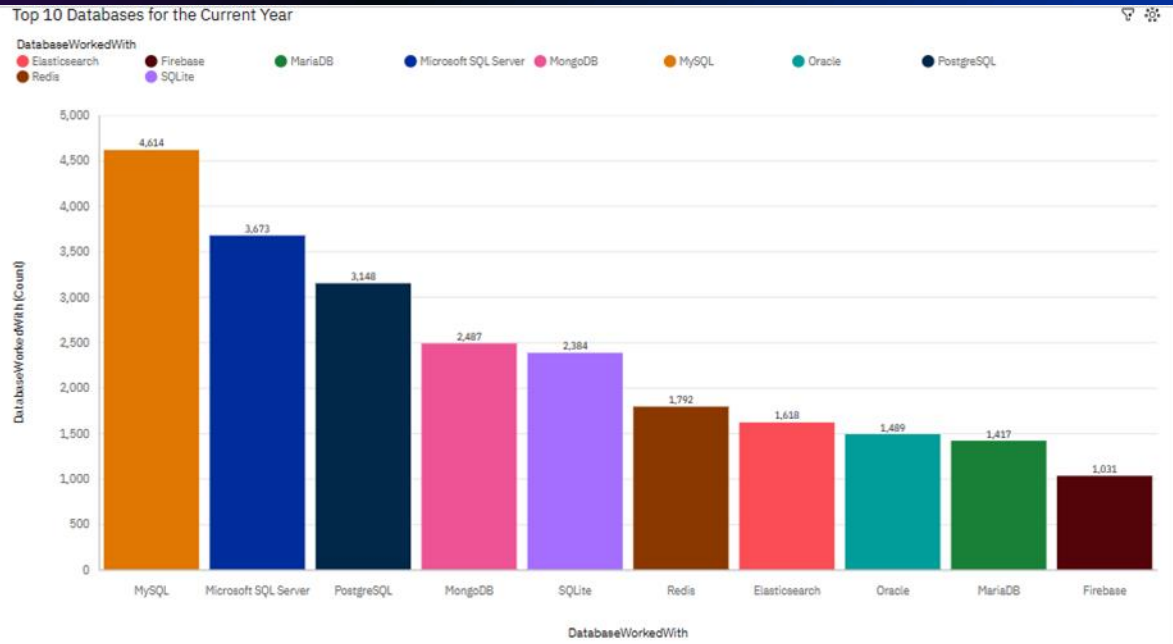
- MySQL, despite its current market dominance, faces a projected shift to third place next year, prompting organizations to explore alternative solutions to adapt to evolving preferences and technological advancements.
- Microsoft SQL Server, currently second in demand, anticipates a drop to fourth place, signaling the need for organizations to reassess their database strategies and consider alternative solutions to maintain competitiveness in a changing landscape.
- PostgreSQL emerges as the leading database solution for the upcoming year, offering advanced capabilities and an object-oriented design that effectively addresses complex data management requirements, potentially surpassing MySQL and Microsoft SQL Server in adoption and utilization.

DASHBOARDS

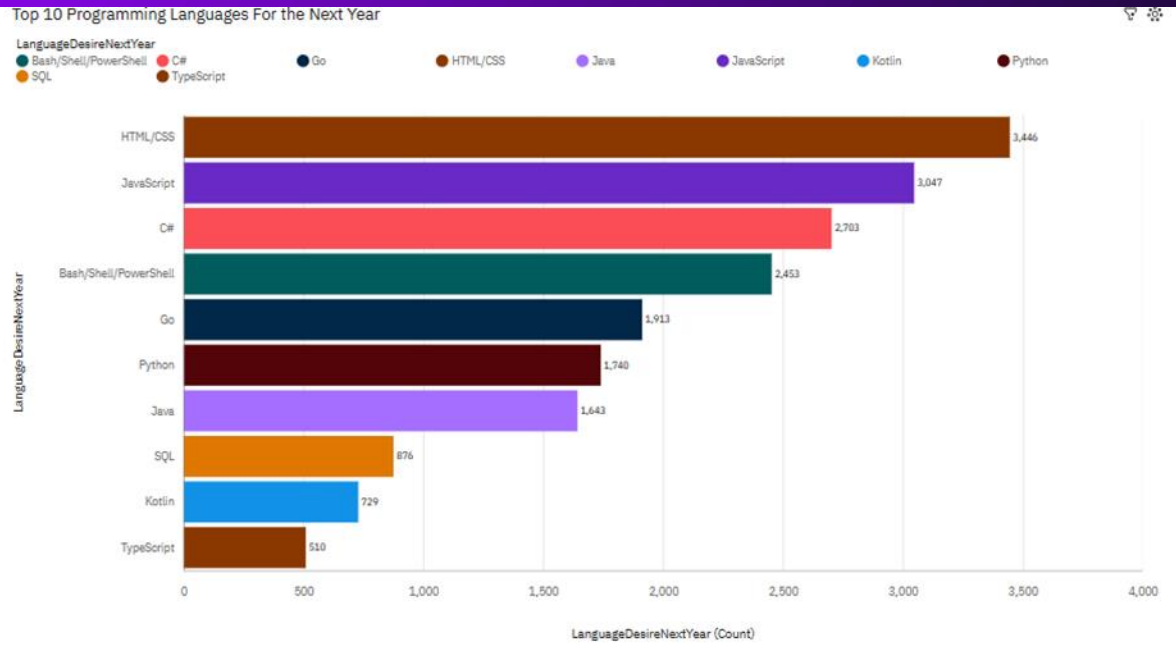
GITHUB LINK

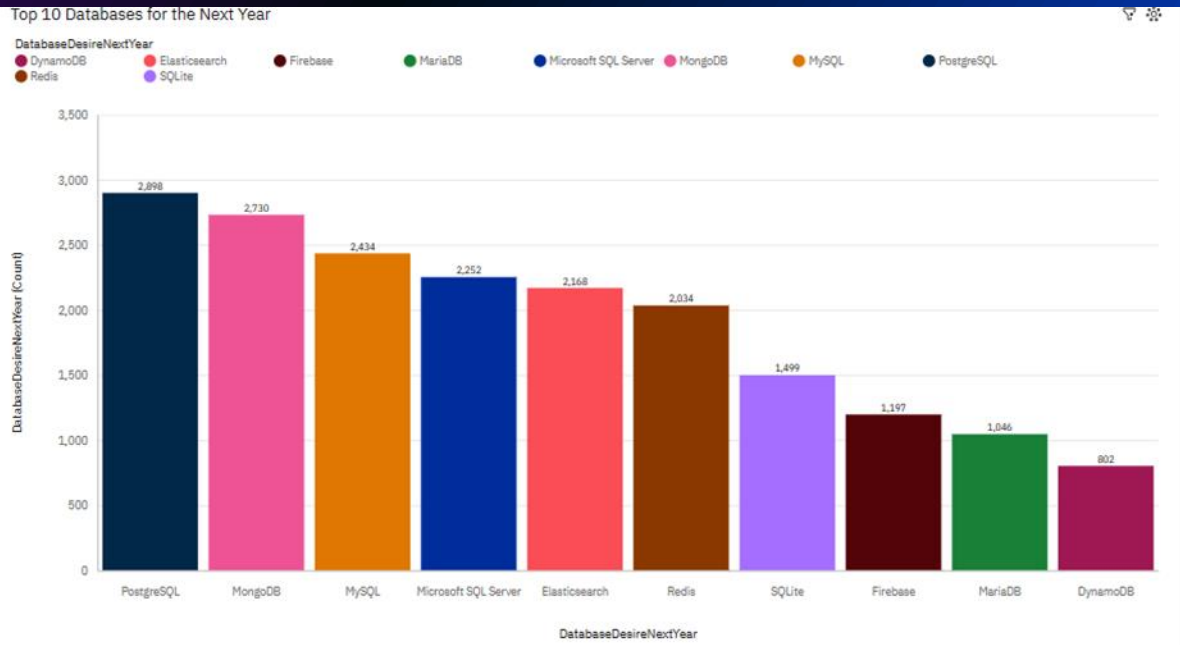
CURRENT TECHNOLOGY USAGE

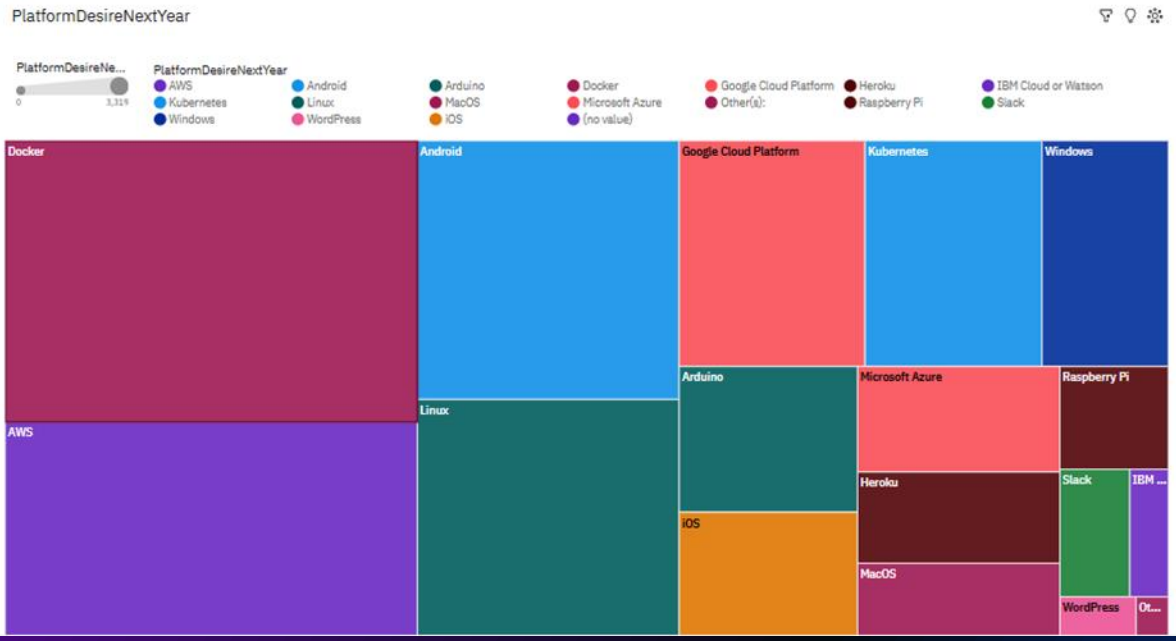




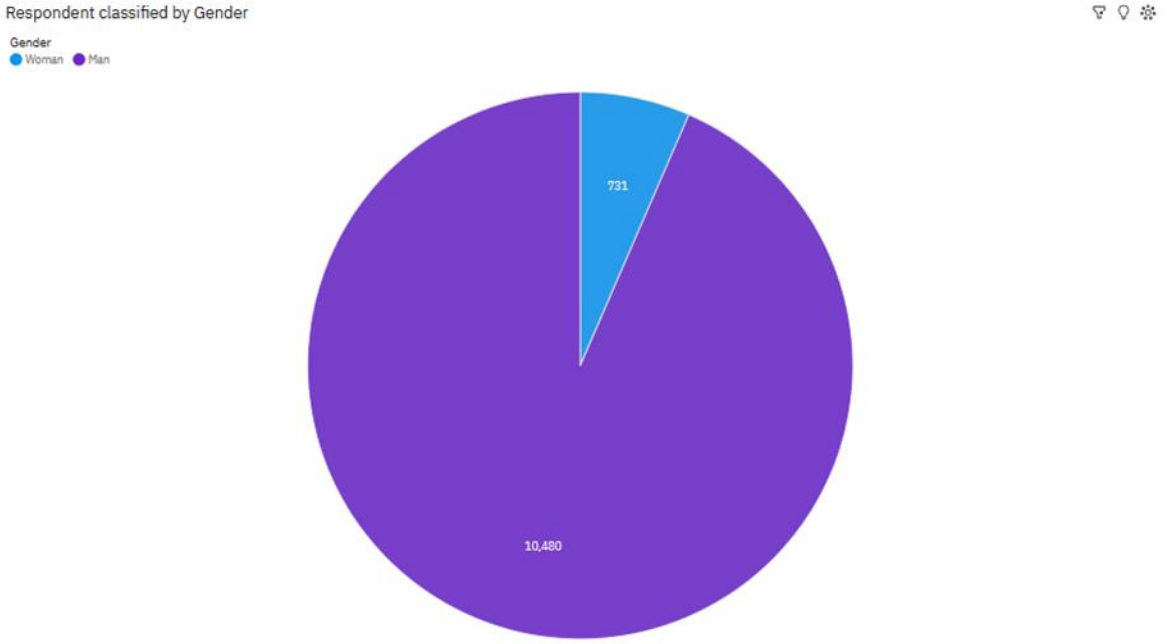
FUTURE TECHNOLOGY TREND

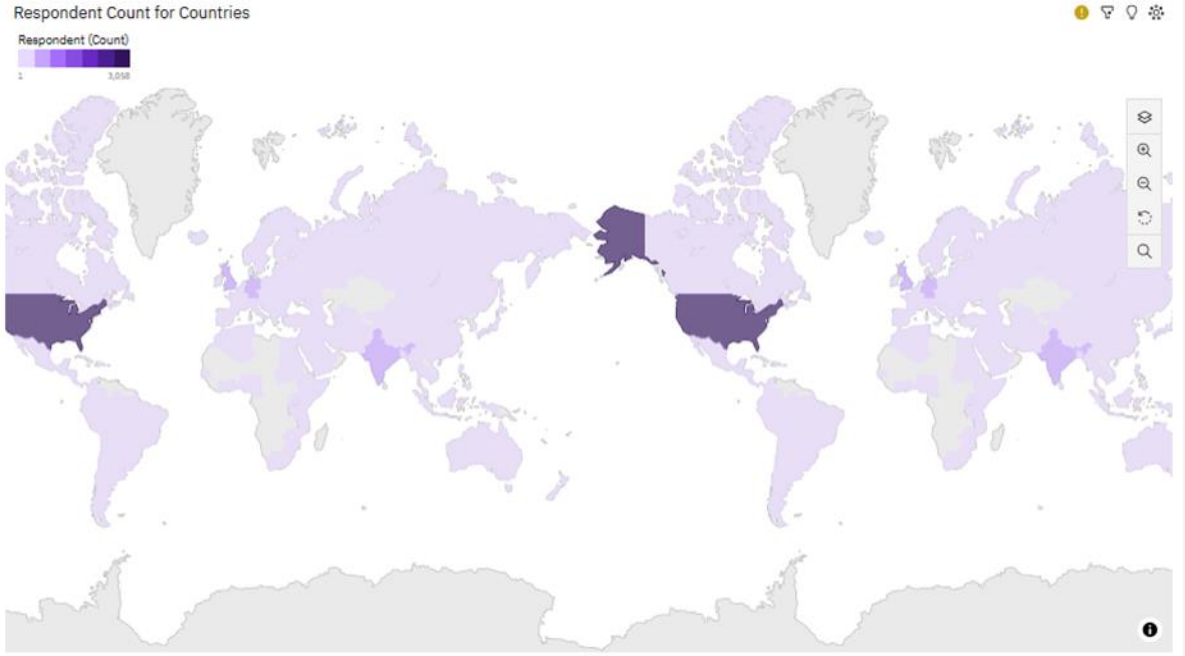


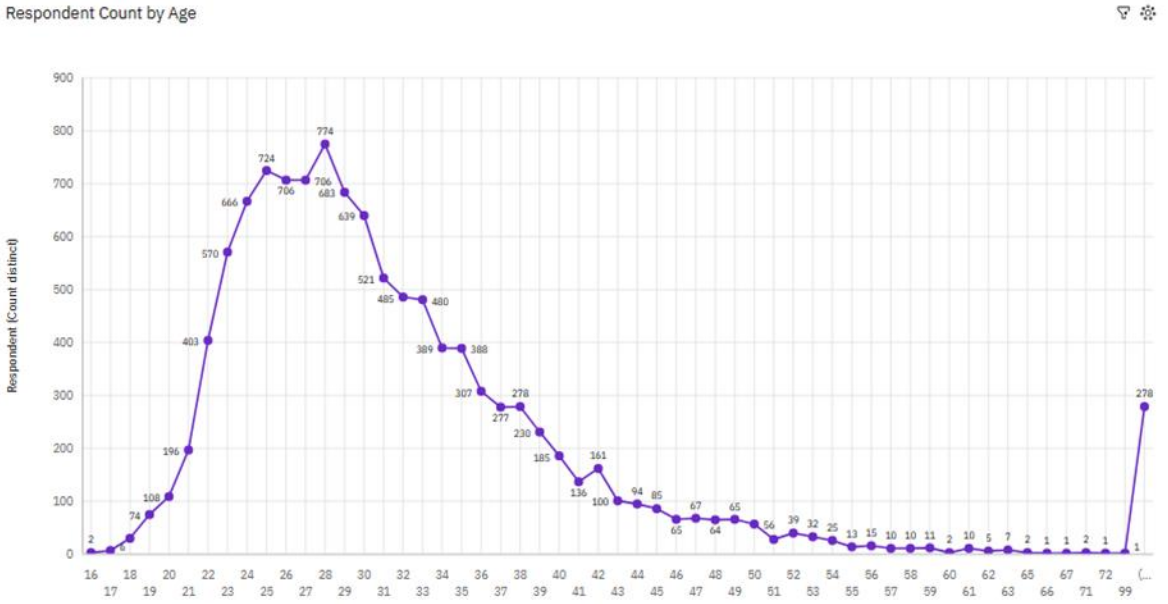


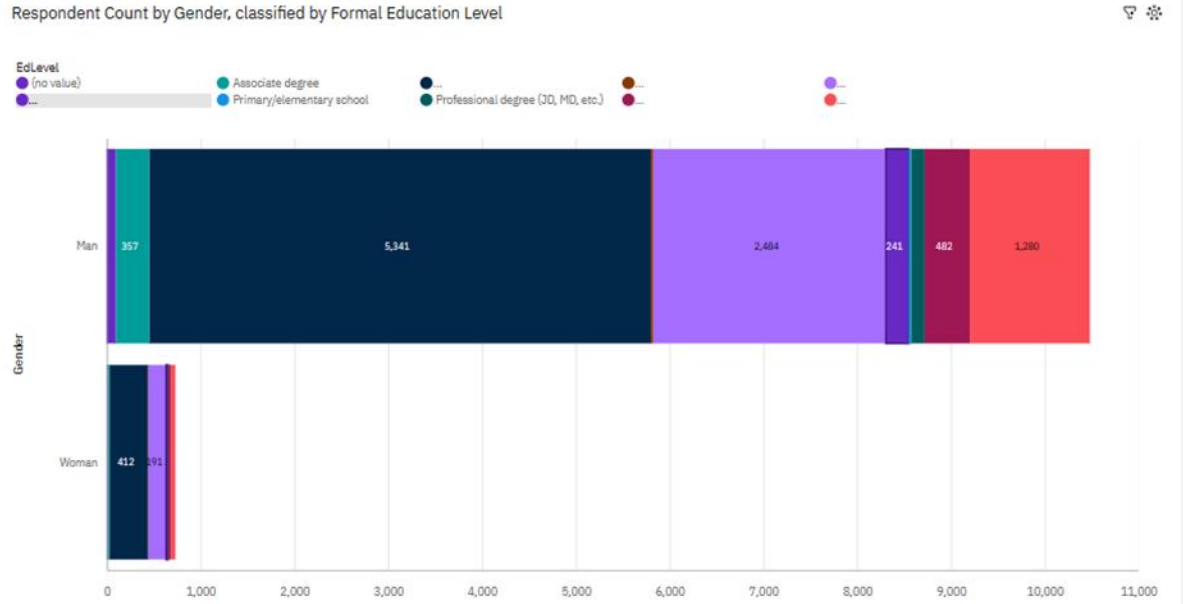


DEMOGRAPHICS









DISCUSSION










OVERALL FINDINGS & IMPLICATIONS

FINDINGS

The findings reveal that a significant portion of individuals in the IT field possess a Bachelor's degree, indicating its importance as a foundational qualification.
Web development languages emerge as the predominant and sought-after tools within the IT sector presently, highlighting their critical role in driving technological advancements.
The IT landscape primarily comprises young professionals below the age of 40, suggesting a youthful workforce driving innovation and progress within the industry.
The desire to acquire skills in Postgre SQL and React JS among most respondents underscores the importance of staying abreast of emerging technologies to remain competitive in the field.
The analysis sheds light on the current demand for programming languages and database skills, offering insights into industry trends and future growth prospects.

IMPLICATIONS

Implications drawn from the analysis suggest a need for data professionals to diversify their skill sets by acquiring proficiency in NoSQL databases alongside SQL.
The continued importance of web development as a lucrative skill underscores the significance of investing in and advancing expertise in this domain.
Addressing the disparity in access to tech training and education, particularly in less developed countries, emerges as a crucial aspect for fostering inclusivity and promoting growth in the tech industry.
These findings have significant implications for organizations, guiding their technology investments and project prioritization based on current demand trends. For individuals, understanding the requisite skills for career advancement enables them to remain competitive and agile in a rapidly evolving industry landscape.

CONCLUSION

- Programming Language Trend: The findings reveal that JavaScript, HTML/CSS, PowerShell, Java, and C# emerge as the top five programming languages in demand for the current year, with Go replacing Java's position. This underscores the industry's robust demand for both front-end and back-end development expertise, as well as proficient data analysis and management skills.

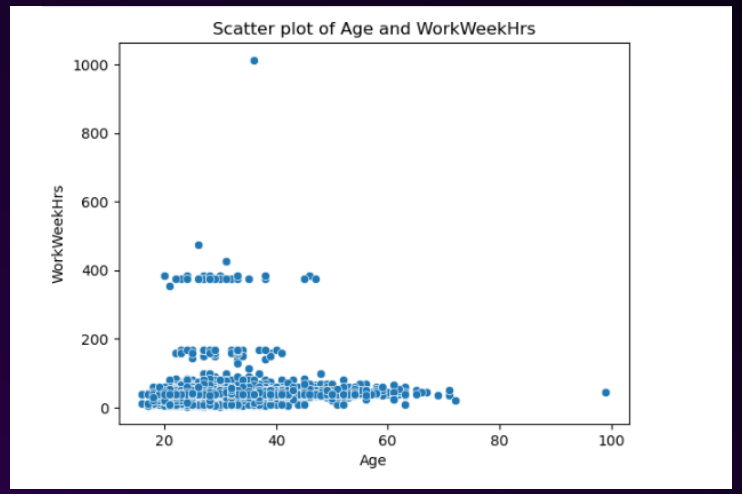
- Database Trend: Analysis indicates that PostgreSQL, MongoDB, Microsoft SQL Server, MySQL, and SQLite lead in demand for databases next year, with Elasticsearch supplanting SQLite. This emphasizes the escalating significance of data management and big data technologies within the industry landscape.

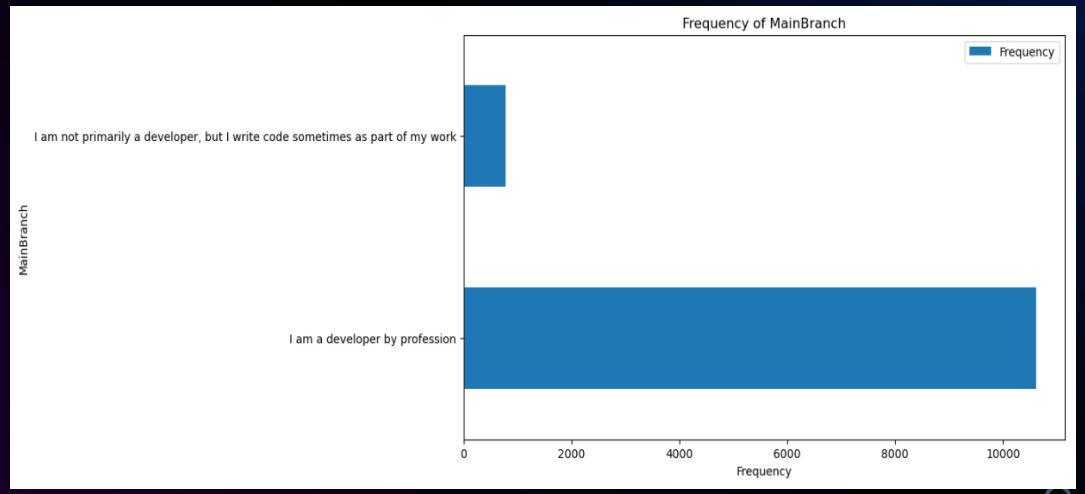
- Platform Trend: The study identifies Google Cloud Platform, AWS, IBM Cloud, Windows, and Microsoft Azure as the top platforms for the current year, while Docker, AWS, Android, Linux, Google Cloud Platform, and Kubernetes are forecasted as high-demand platforms for the upcoming year. This underscores developers' versatility and adaptability in navigating diverse platforms and technologies.

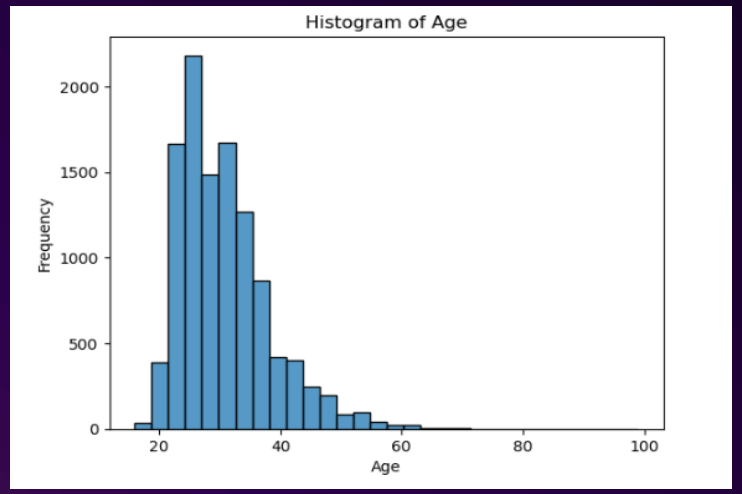
- Web Framework Trend: Results indicate that React.js, Angular, JQuery, ASP.NET, and Express remain the top five desired web frameworks for both the current and upcoming year. This highlights the increasing importance of front-end development skills and underscores the necessity fo developers to excel in constructing dynamic and user-friendly websites

- Demographic Trend: The study identifies a predominance of male respondents, with fewer female participants, predominantly below the age of 40. The United States emerges as the country with the highest number of respondents, with a significant proportion holding a degree. These demographic insights provide valuable context for understanding the composition of the IT workforce and the factors influencing industry trends.

APPENDIX



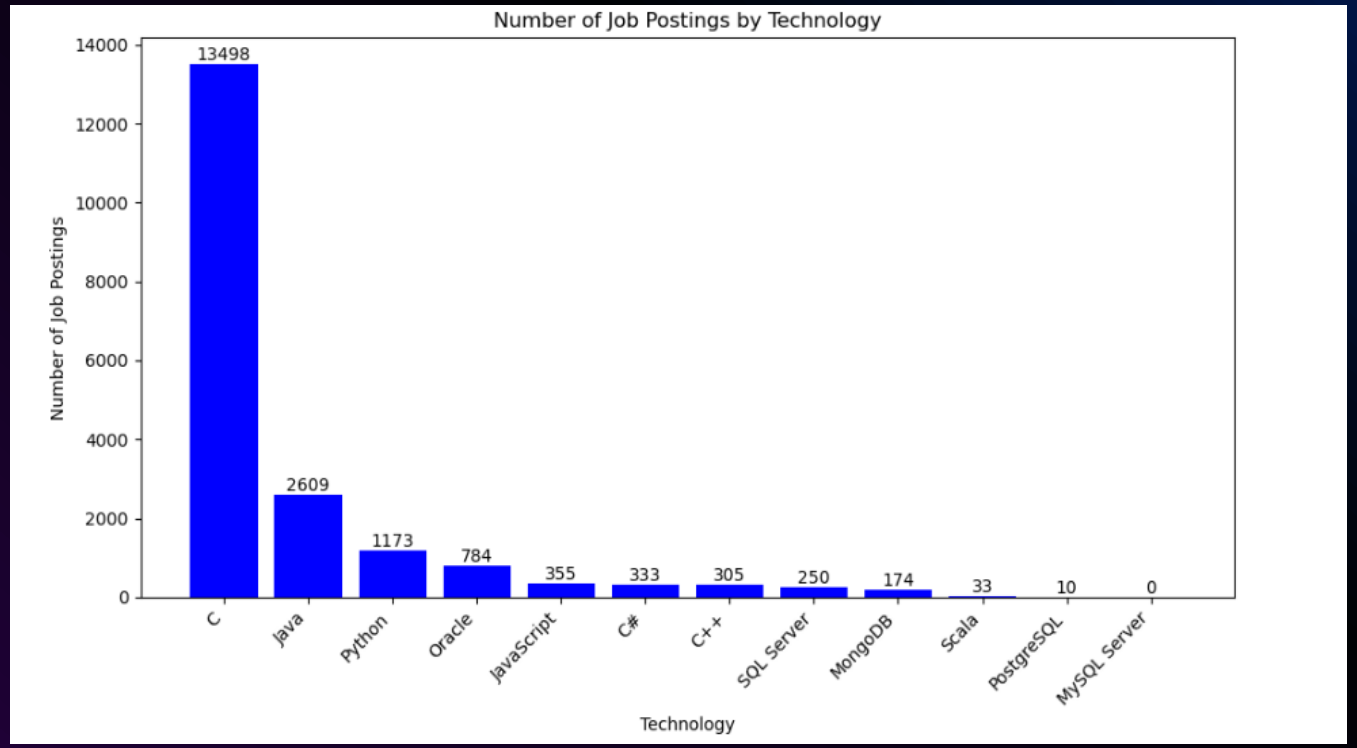




	DevType	Count
0	Developer, full-stack	6928
1	Developer, back-end	6290
2	Developer, front-end	3920
3	Developer, desktop or enterprise applications	2575
4	Developer, mobile	1959

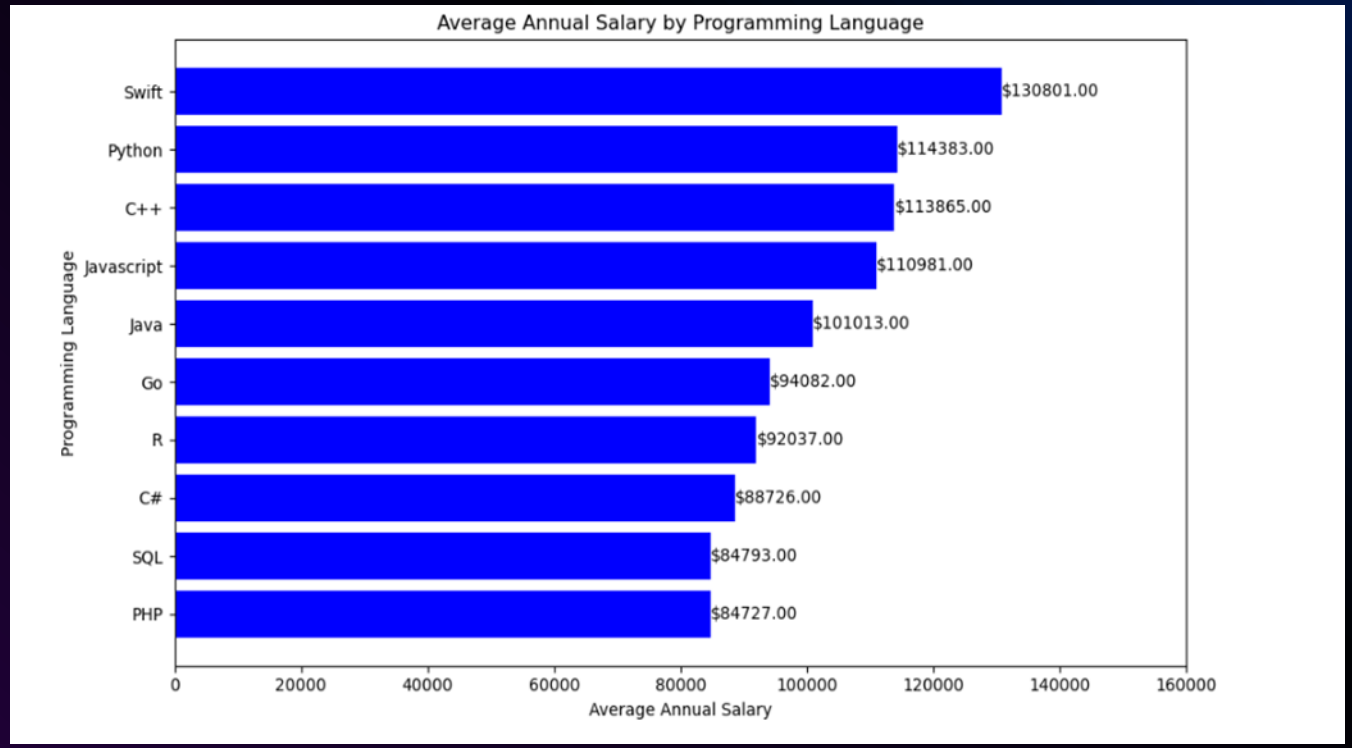
JOB POSTINGS

Presenting a bar chart depicting the insightful job posting data meticulously gathered through the utilization of the GitHub Job API



POPULAR LANGUAGES

Introducing an informative bar chart showcasing prominent programming languages alongside their corresponding average annual salaries. This data set is the result of a comprehensive web scraping endeavor, meticulously extracting insights from GitHub job postings, subsequently saved in a CSV format for analysis.



THANK YOU

Jordon Taylor

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www.linkedIn.com