

Data Analyst Presentation

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OUTLINE



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EXECUTIVE SUMMARY



In the rapidly evolving technological landscape, our organisation has undertaken a comprehensive analysis to identify emerging and future skill requirements. This initiative involved collecting data from various sources, cleansing and preparing the data for analysis, and employing statistical techniques to uncover key insights and trends.

Key Findings:

- **Programming Languages:** JavaScript and Python are the most popular languages across all age groups, while SQL is declining in popularity among younger programmers. New languages like Rust and Go are emerging.
- **Databases:** PostgreSQL remains the most popular database, with SQLite and MySQL also in the top three. However, their popularity has declined, and Oracle has dropped off the list.
- **Platforms and Frameworks:** Microsoft Azure and Amazon Web Services (AWS) are the most popular platforms, and Spring Boot remains a popular framework.

Implications:

- The continued popularity of JavaScript and Python suggests these languages will remain essential skills for developers.
- The decline in SQL's popularity may indicate a shift towards newer database technologies.
- PostgreSQL's sustained popularity highlights its reliability and versatility.
- The strong preference for cloud platforms underscores the importance of cloud computing skills in the current job market.
- The consistent popularity of Spring Boot suggests it remains a valuable framework for building modern applications.

By staying informed about these trends, our organisation can remain competitive and adapt to the evolving demands of the tech industry.



INTRODUCTION



Did you know that the demand for certain programming languages has skyrocketed by over 50% in the past year?

To stay competitive in the rapidly evolving technological landscape, our organisation regularly analyses data to identify emerging and future skill requirements.

To contribute to this initiative, I was tasked with:

- Collecting data from various sources
- Preparing the gathered data for analysis
- Analysing the data to identify key insights and trends

Specifically, I explored trends to identify:

- Which programming languages are most in demand
- Which database technologies are currently most sought after

Understanding these trends is crucial for staying ahead in the competitive tech industry

METHODOLOGY

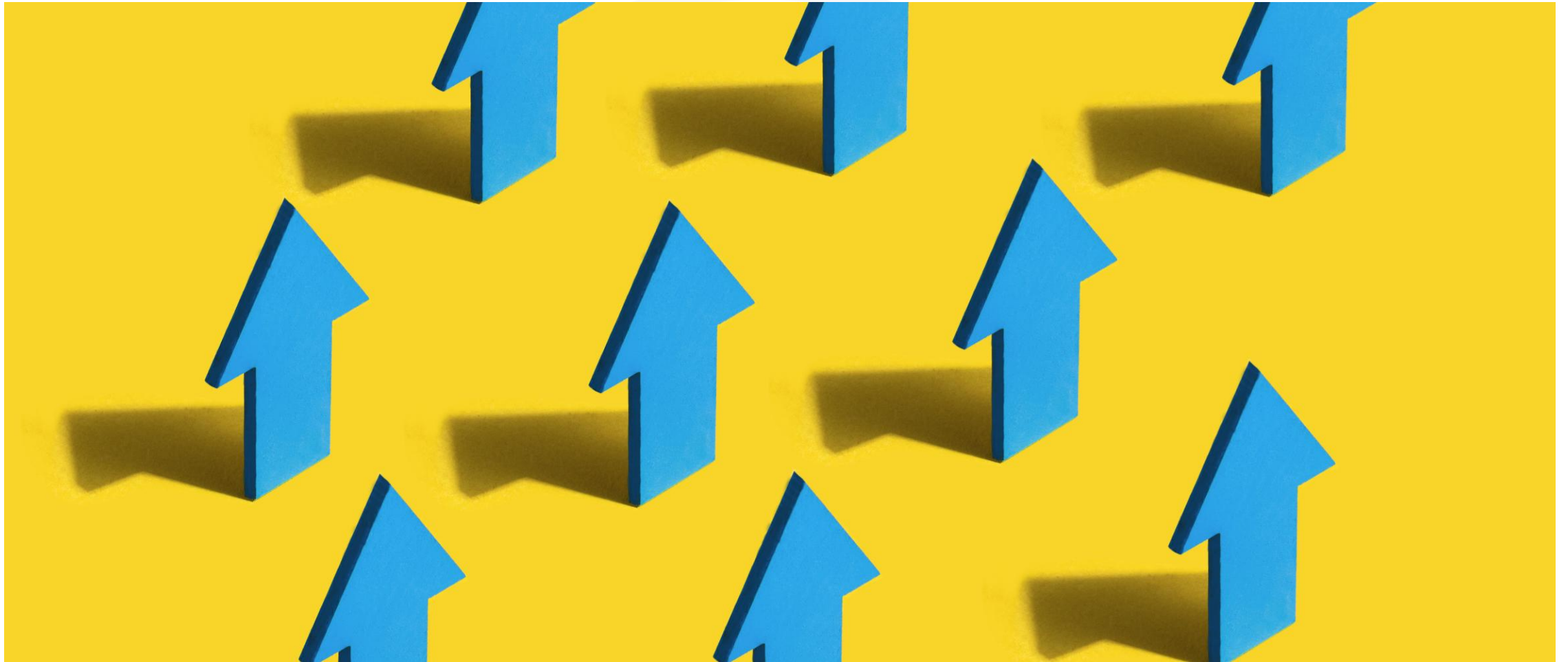


To gain valid insights from the data, I used the following methodology:

- Gathered the following data from relevant sources by using web scraping and accessing APIs
 - Job Postings
 - Training Portals
 - The latest Stack Overflow Developer Survey
- Cleansed the data by
 - Removing duplicated rows
 - Removing or replacing missing values
 - Transforming the data so it can be used for analysis
- Employed statistical techniques to analyse the data
- Visualised the data in a dashboard using various charts:
 - Bar Charts, Bubble Charts
 - Heat Map, Line Chart, Word Cloud

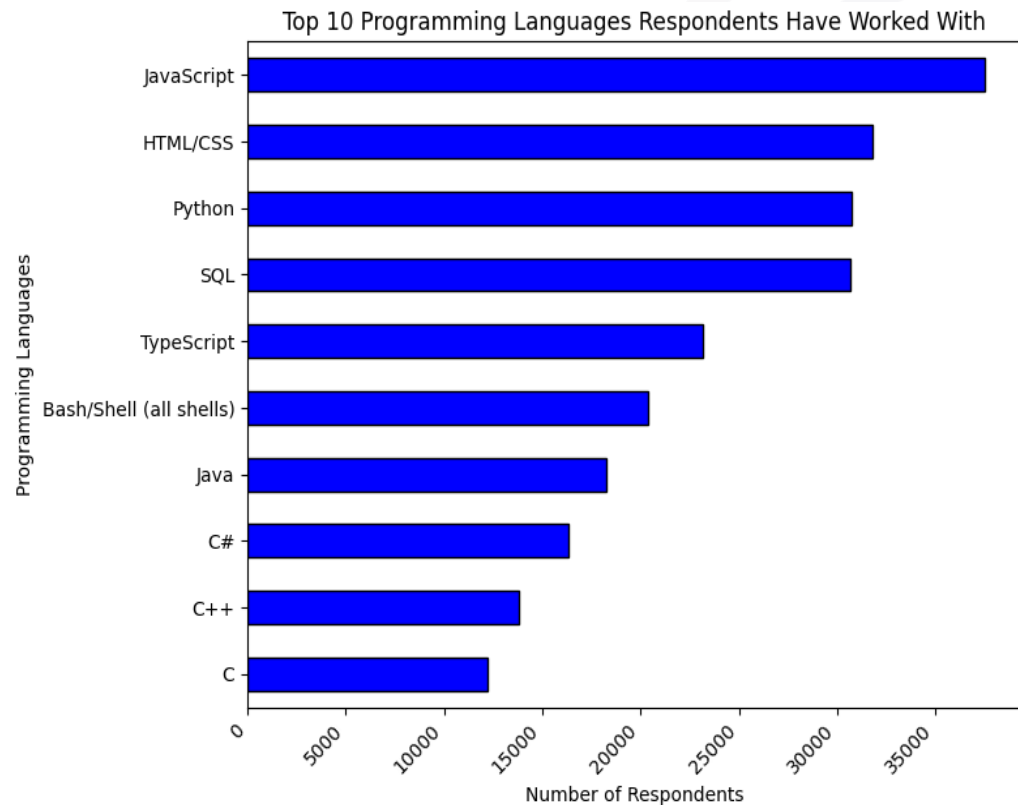
I therefore ensured that the data was accurate, relevant, and presented in a way that highlights key insights and trends.

RESULTS

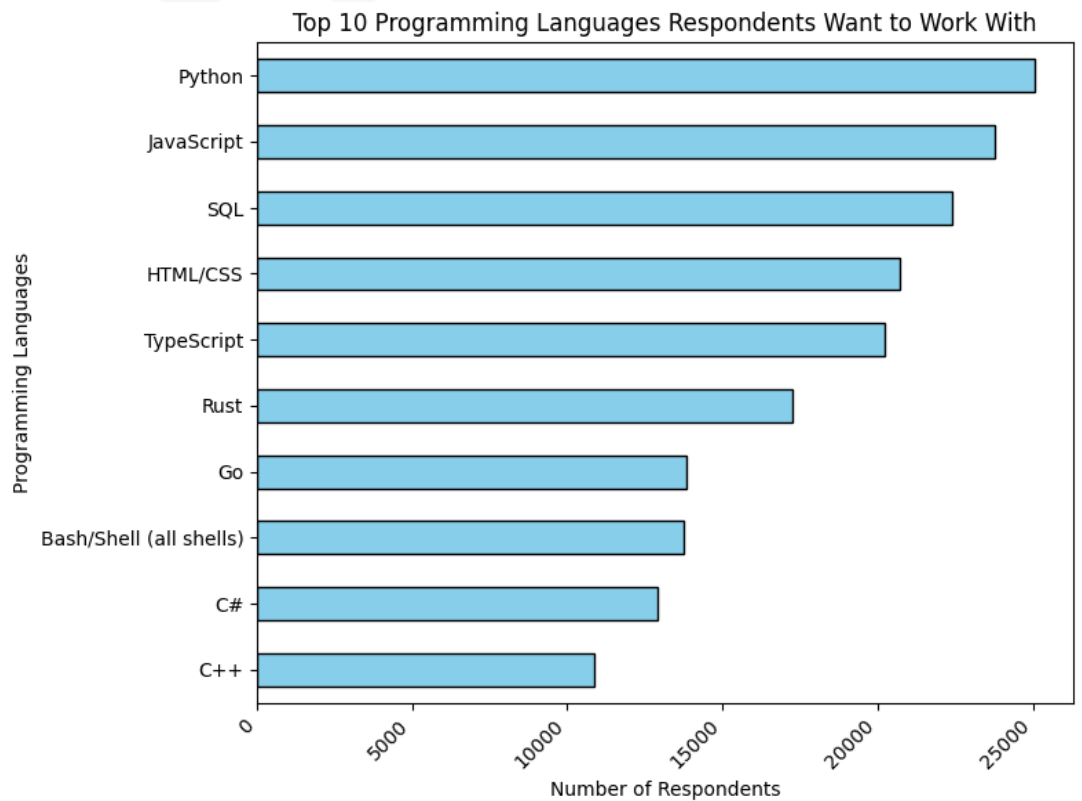


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

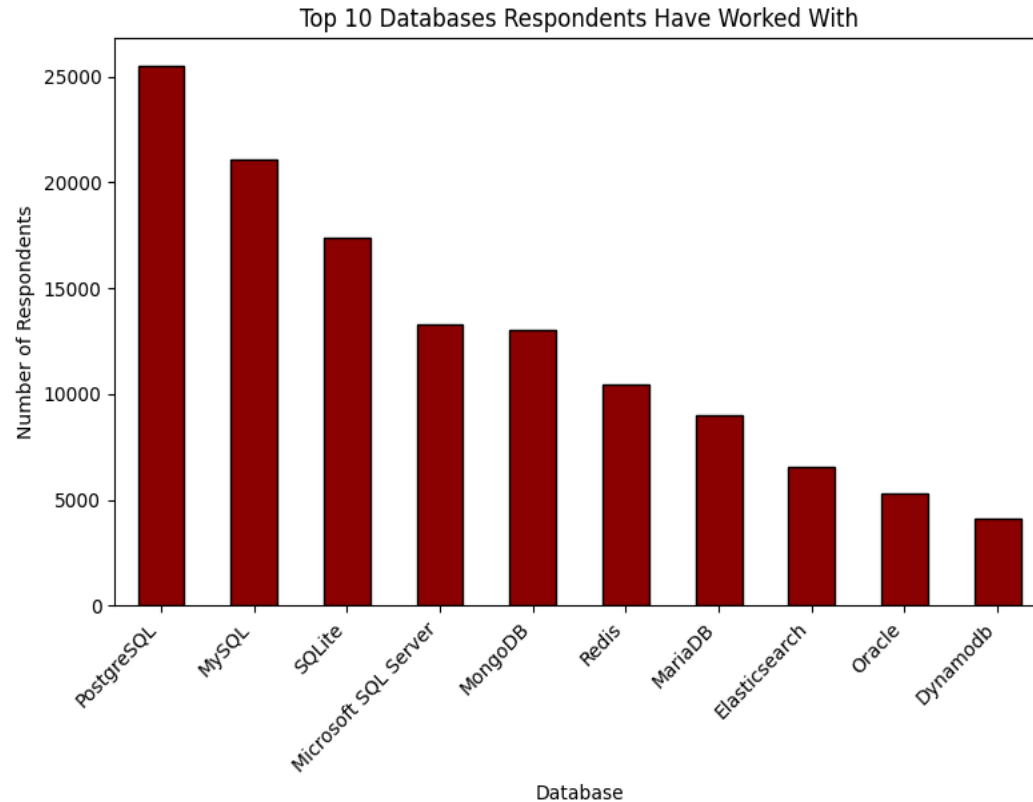
- Current top 3 languages:
 - JavaScript, HTML/CSS, Python
- Next Year's top 3 languages:
 - Python, JavaScript, SQL
- C & Java dropped off the list
- New Languages: Rust & Go

Implications

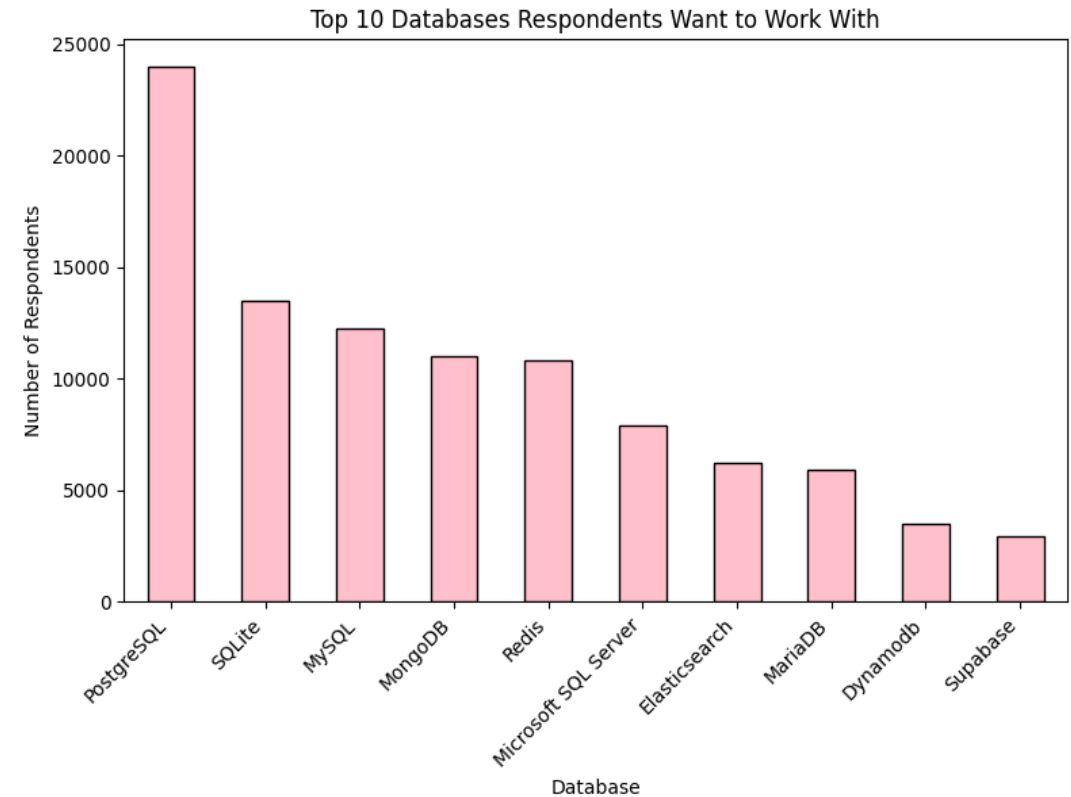
- JavaScript whilst remaining strong is declining slightly in popularity, with Python & SQL increasing.
- C & Java are no longer popular
- Rust is a strong rising language, with Go not far behind

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Current Top 3 Databases:
 - PostgreSQL, MySQL, SQLite
- Next Year's Top 3 Databases:
 - PostgreSQL, SQLite, MySQL
- Oracle dropped off the list
- Supabase new in last place

Implications

- PostgreSQL remains an incredibly popular database
- Whilst SQLite and MySQL remain in the top three their popularity has declined by a third and on a par with MongoDB & Redis
- Oracle appears to have lost interest
- Whilst Supabase is new, only around 3,000 users want to work with it



DASHBOARD



The GitHub link to the dashboard created using Google Looker:

https://github.com/SteelSapphire/StudyRepo/blob/main/IBM_Capstone_Project_Dashboard.pdf



Current Technology Usage

Programming Languages	Record Count
HTML/CSS;JavaScript;TypeScript	291
C#;HTML/CSS;JavaScript;SQL	240
HTML/CSS;JavaScript;PHP;SQL	196
C#;HTML/CSS;JavaScript;SQL	152
HTML/CSS;JavaScript;SQL;TypeScript	131
C#;HTML/CSS;JavaScript;PowerShell	130
HTML/CSS;JavaScript;PHP;SQL	129
HTML/CSS;JavaScript;Python;SQL	125
JavaScript;TypeScript	108
C#	97

Database	Record Count (approx.)
PostgreSQL	1000
Microsoft SQL Server	700
MySQL	400
PostgreSQL (2)	350
PostgreSQL (3)	300
MongoDB	250
MySQL PostgreSQL	230
MongoDB (2)	200
Microsoft (2)	190
MariaDB	180

[illegible]

Framework	Record Count (approx.)
Spring Boot	380
React	280
ASP.NET CORE	250
ASP.NET/ASP.NET ...	220
FastAPI	160
Node.js/React	200
Node.js	180
Express/Node.js/Re...	170
Express/Next.js/No...	150

- HTML/CSS, JavaScript, TypeScript are the top group of languages programmers work with.
- PostgreSQL is the most popular database respondents have worked with.
- Microsoft Azure is the most preferred platform of respondents.
- Spring Boot is the most popular Framework

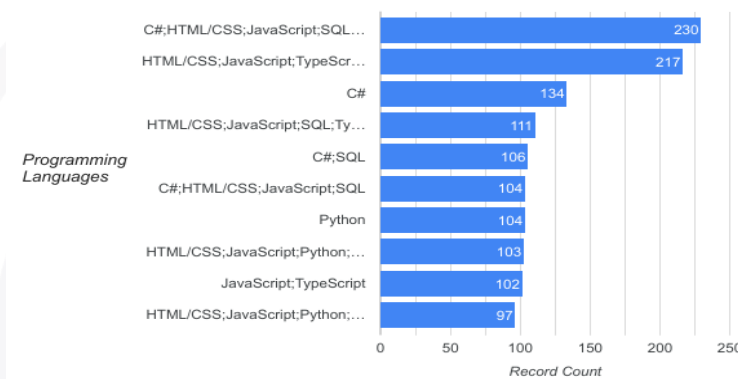
DASHBOARD TAB 2

Insights:

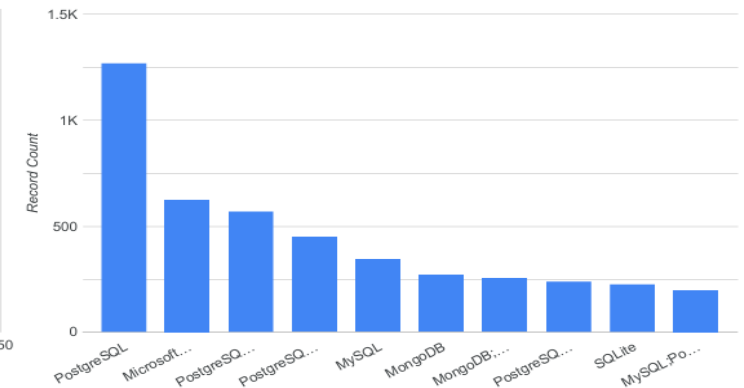
- C#,HTML/CSS, JavaScript, TypeScript are the top group of languages programmers want to work with.
- PostgreSQL is the most popular database respondents want to work with.
- Amazon Web Services (AWS) is the platform respondents are most interested in.
- Spring Boot remains the most popular Framework

Future Technology Trend

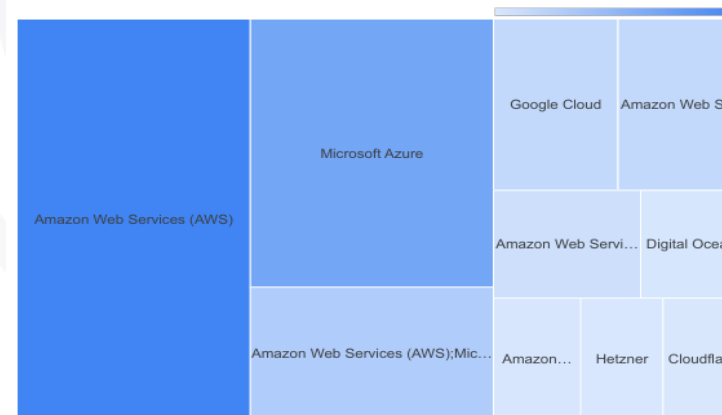
Top 10 Languages Respondents Want to Work With



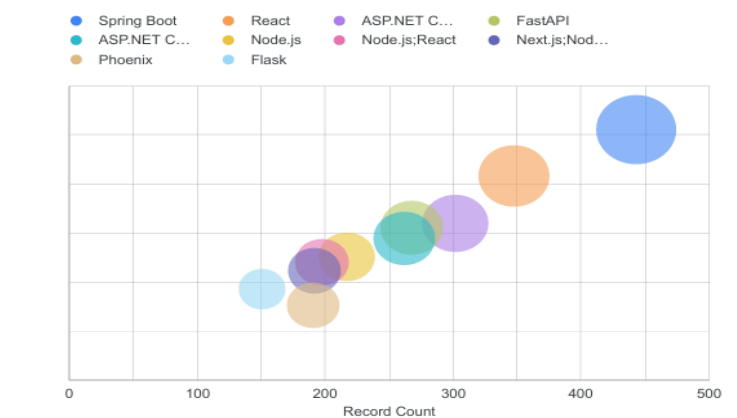
Top 10 Databases Respondents Want to Work With



Top 10 Platforms Respondents Want to Work With



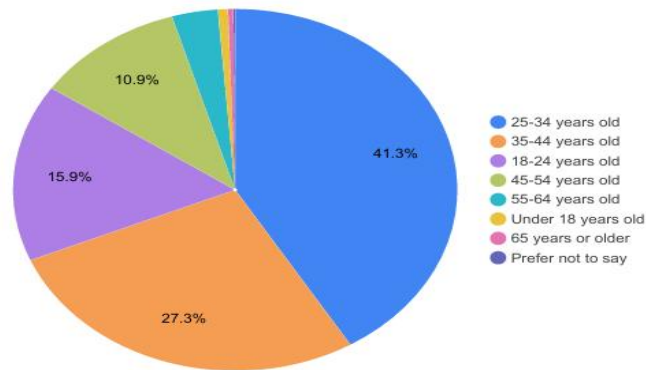
Top 10 Web Frameworks Respondents Want to Work With



DASHBOARD TAB 3

Demographics

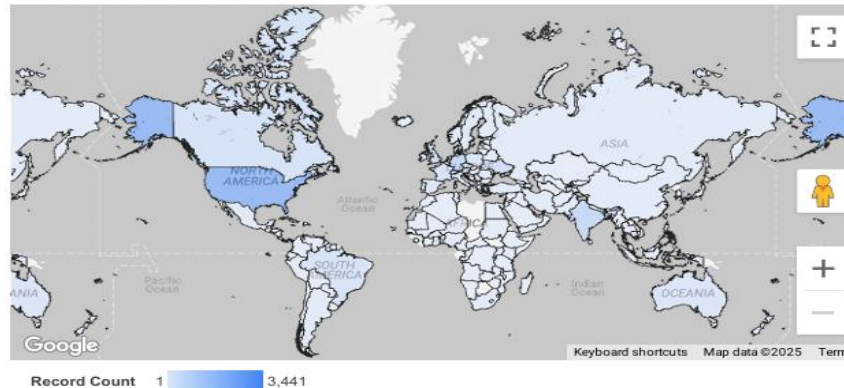
Respondent Distribution by Age



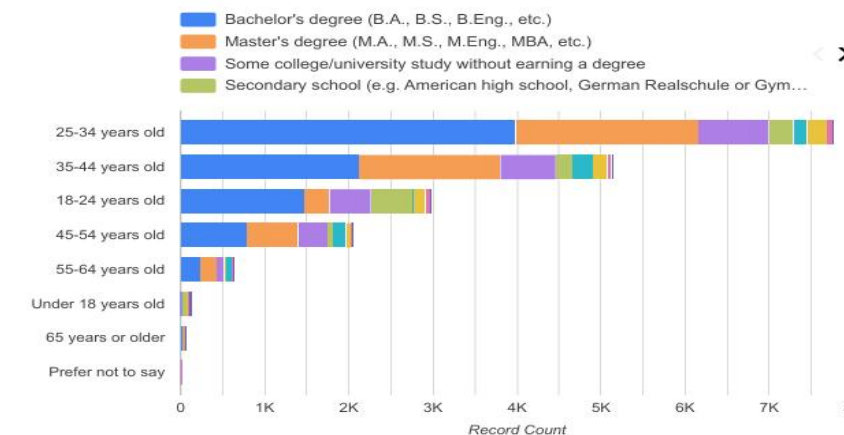
Respondent Distribution by Education Level



Respondent Count by Country



Respondent Count by Age, Classified by Education Level



Insights:

- Most respondents are 25-34 years old.
- Most respondents reside in the US.
- Respondents mostly have a bachelor's degree.
- Approx. half of the respondents who are 24-35 years old, have a Bachelor's Degree.



DISCUSSION



The popularity of databases appear to remain fairly static, with PostgreSQL being the most popular across all age groups of programmers.

Programming languages however do seem to fluctuate with SQL declining in popularity among younger programmers.

Salaries remain high for Python and JavaScript, which remain popular, but it is interesting that salaries are still high for C++ when it has low popularity.

Knowledge of Swift commands the highest salary and it doesn't appear amongst the top 10 most popular languages, both current and next year.

Could this be to encourage programmers to take up these languages in the future.

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript & Python are the most popular languages across all age groups.
- SQL is declining in popularity among the younger programmers.
- PostgreSQL remains the most popular database.
- Microsoft Azure and Amazon Web Services (AWS) are the most popular platforms.
- Spring Boot remains a popular framework of respondents.

Implications

- JavaScript and Python's continued popularity suggests that these languages will remain essential skills for developers across various age groups and industries.
- The decline in SQL's popularity among younger programmers may indicate a shift towards newer database technologies or alternative data management solutions.
- PostgreSQL's sustained popularity highlights its reliability and versatility, making it a preferred choice for many developers.
- The strong preference for Microsoft Azure and AWS underscores the importance of cloud computing skills in the current job market.
- The consistent popularity of Spring Boot suggests that it remains a valuable framework for building modern applications.



CONCLUSION

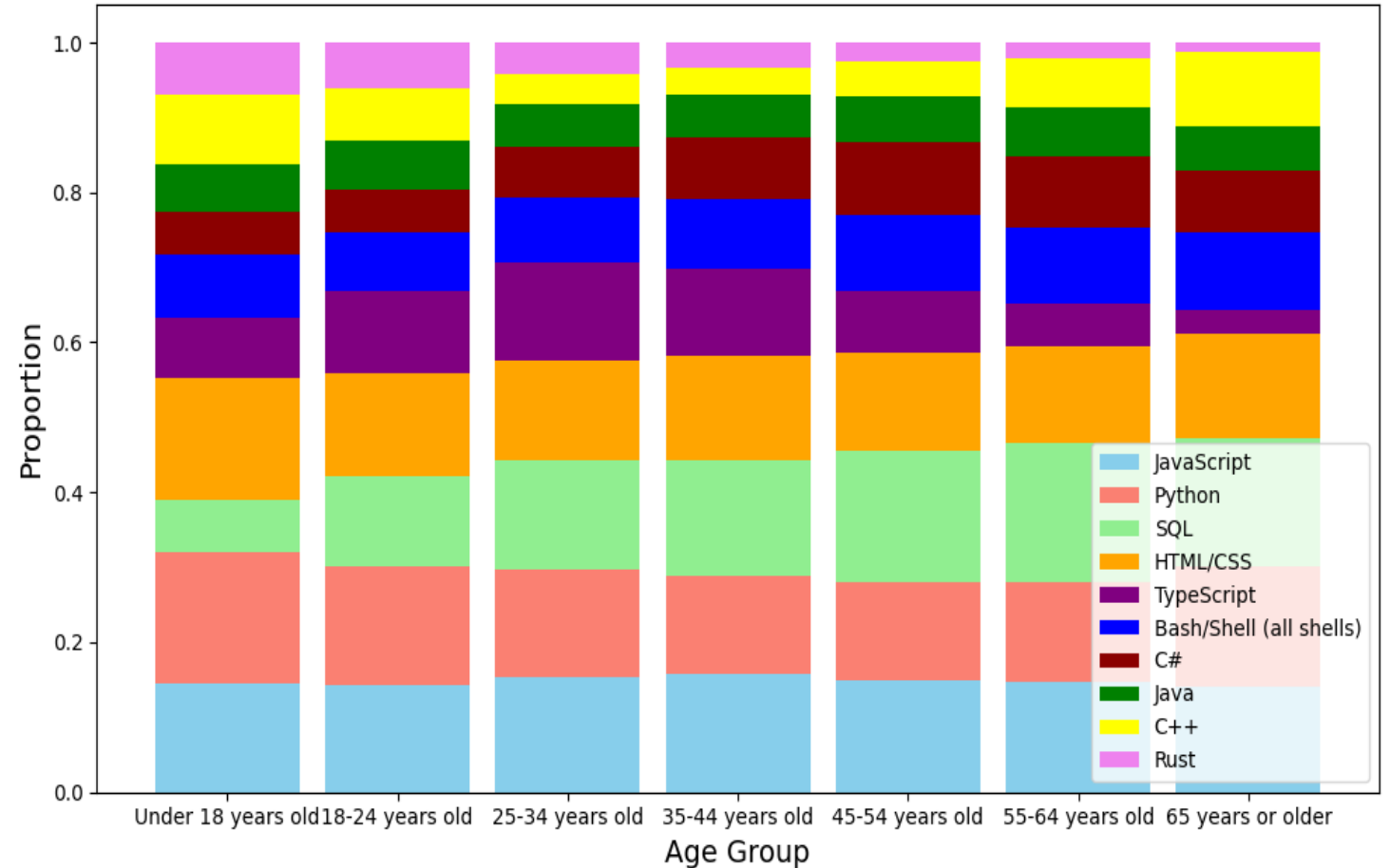


- The analysis of programming languages and database trends reveals significant shifts in the technological landscape.
- JavaScript and Python continue to dominate across all age groups, while SQL's decline among younger programmers suggests a move towards newer technologies. PostgreSQL's sustained popularity underscores its reliability, and the strong preference for cloud platforms like Microsoft Azure and AWS highlights the growing importance of cloud computing skills.
- These insights are crucial for guiding our strategic decisions and skill development initiatives. By staying informed about these trends, our organisation can remain competitive and adapt to the evolving demands of the tech industry.
- Looking ahead, it will be essential to monitor these trends and continue investing in the skills and technologies that will drive future success.

APPENDIX



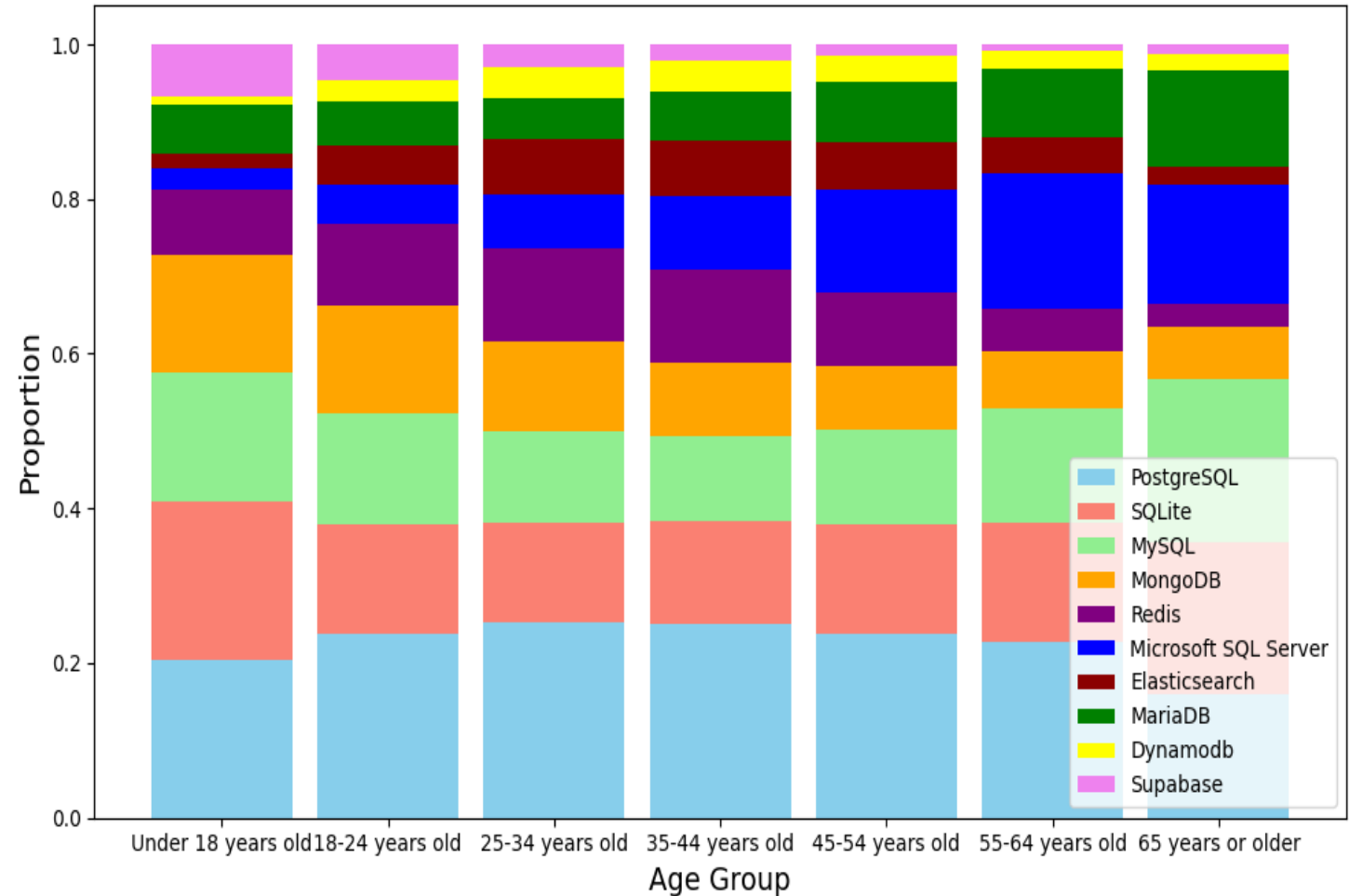
Preferred Programming Languages by Age Group



APPENDIX

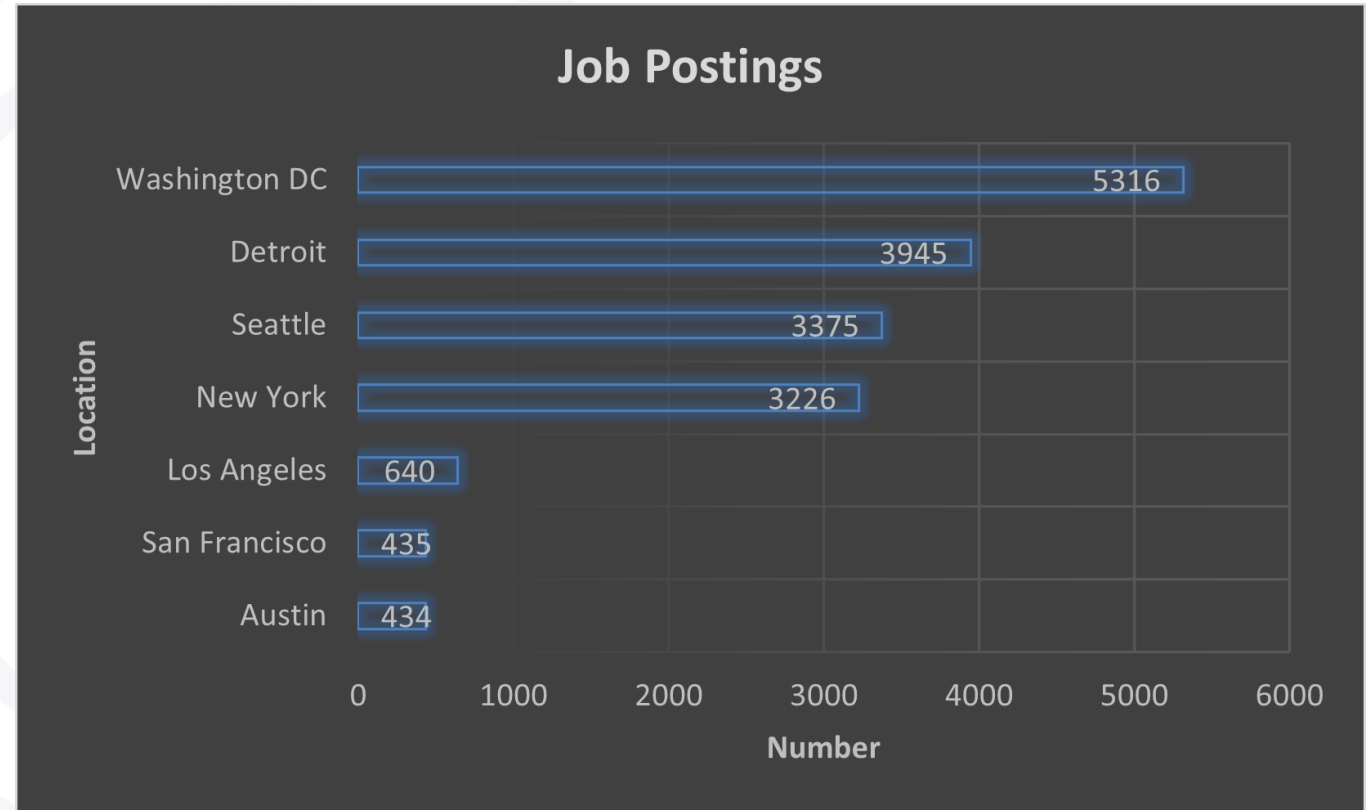


Preferred Databases by Age Group



JOB POSTINGS

- Bar chart showing the number of job postings by location in descending order of the number postings.



POPULAR LANGUAGES

- Bar chart showing the average annual salaries of people working with the most popular programming languages, in descending order of salary.

