Stack Overflow Developer Survey

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EXECUTIVE SUMMARY

During my analysis of the latest **Stack Overflow Developer Survey,** I identified key insides and trends in the global developer community.

Here, we got insides into:

- Which programming languages are most in demand?
- Which database technologies are currently most sought after?
- Which Integrated Development Environments (IDEs) are the most popular?

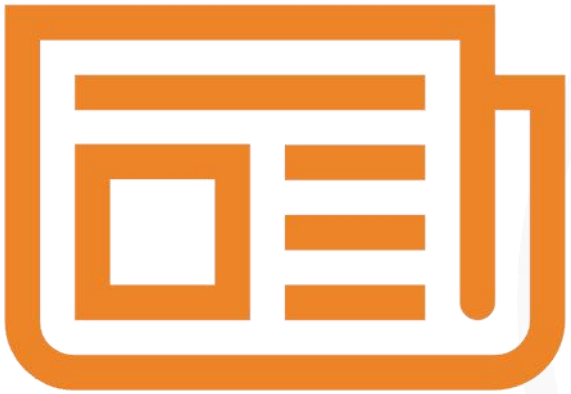
This report is relevant for the following categories of persons:

- Aspiring and current developers.
- HR managers and Stakeholders.
- Educators.

INTRODUCTION

- Stack Overflow conducts global surveys to capture insights into the developer community. This analysis is based on the latest survey data.
- The dataset offers important information about the current state of software development worldwide.
- The key objective of this survey is to summarize the key findings and trends from the survey dataset.
- The result of this analysis is targeted at:
  - HR Professionals, Recruiters, and Stakeholders.
  - Educators and students.
  - Current and Aspiring developers

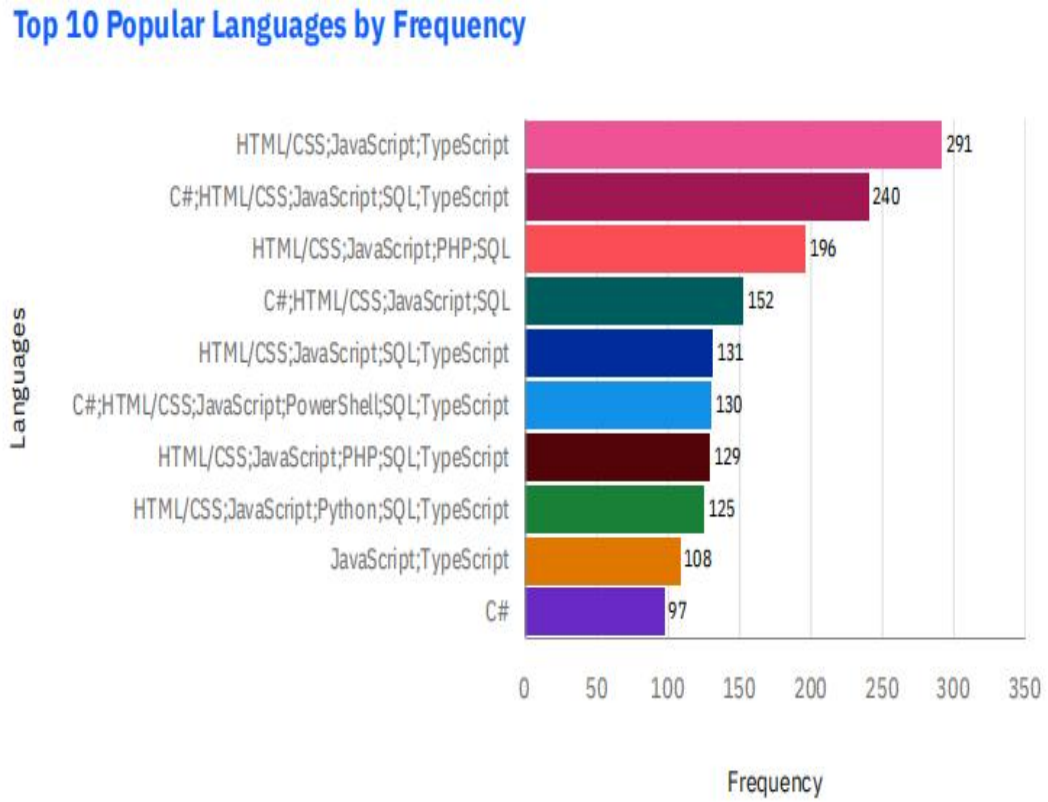
METHODOLOGY



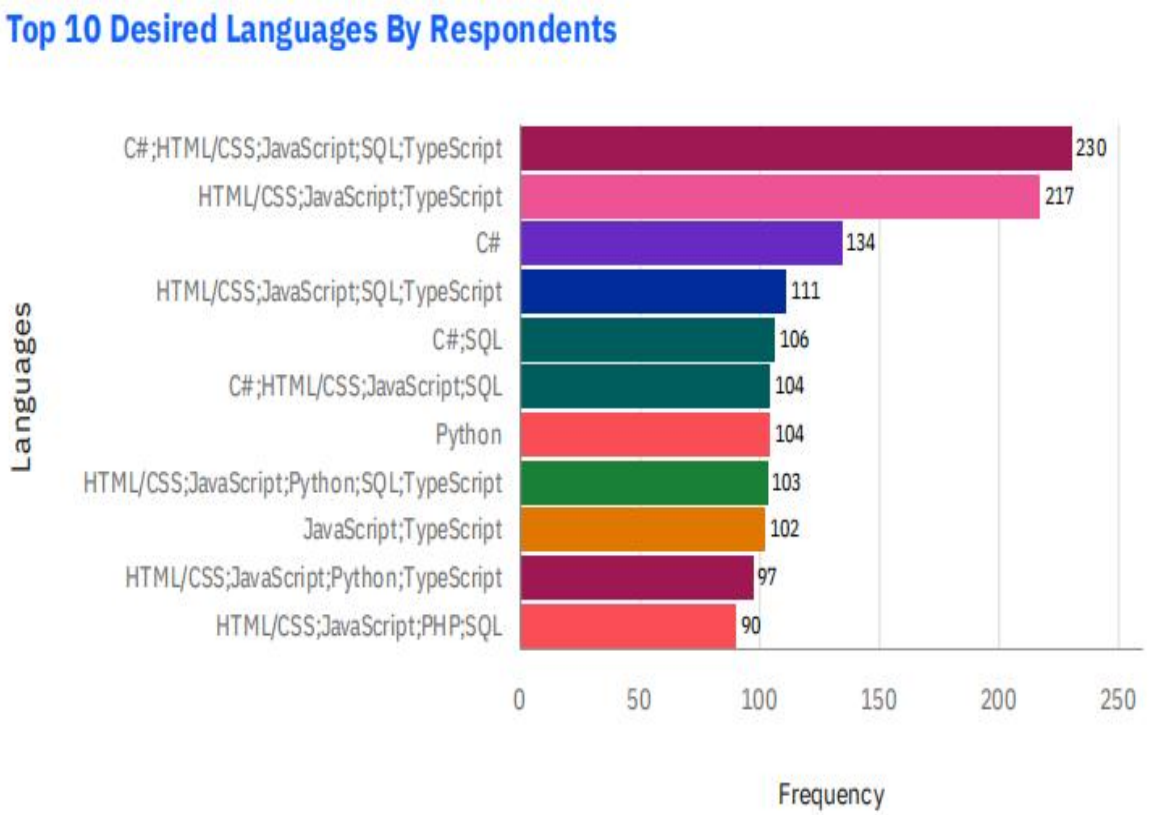
- **Data Source:** The data is available as part of the Stack Overflow Developer Survey.
  - Link to dataset https://stackoverflow.blog/2024/08/06/2024-developer-survey/
- **Data Wrangling:** A portion of the dataset was loaded and cleaned using SQL and Python's Pandas library.
- **Cleaning Procedure:** Removing Duplicates, Imputing Missing Data, and Normalizing Data
- **Exploratory Data Analysis (EDA)** and **data visualization** were conducted using various Python libraries and Cognos. Specifically, the following metrics were examined:
  - Popular technologies in use(e.g.: languages, databases, platforms, and web frames).
  - Technologies most desired for the future.
  - Demographics(i.e. country, age, and education).

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

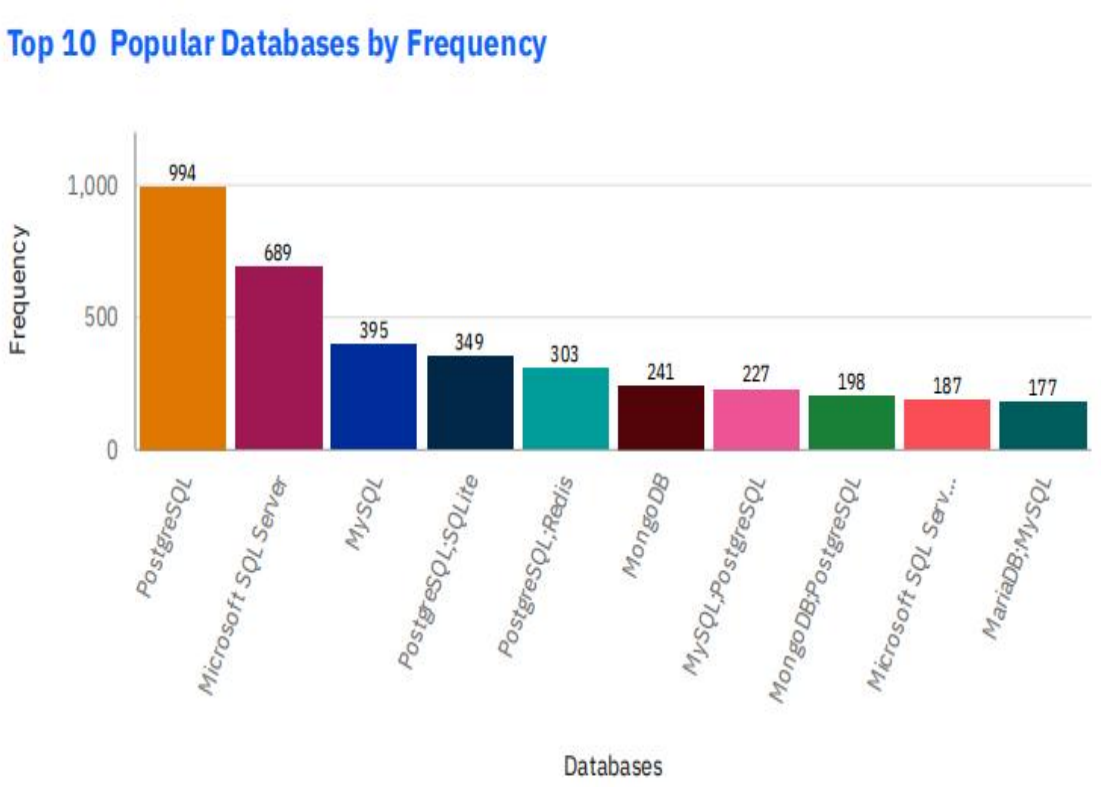
- HTML/CSS, JavaScript, and TypeScript were the most used languages during the time survey and remained very popular the following year.
- C# and Python are likely to see an increase in use in the future.
- PHP is likely to lose popularity in the future.

Implications

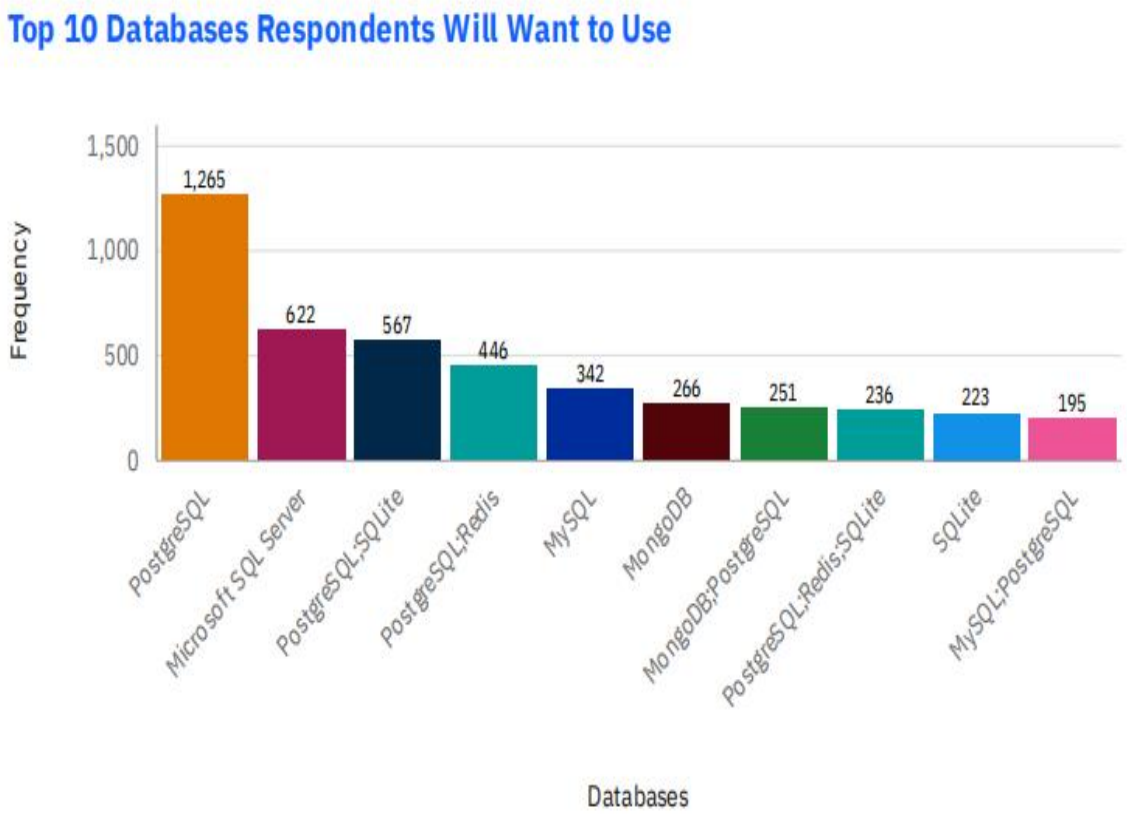
- Web development is still in high demand, and JavaScript, TypeScript, and HTML/CSS remain the dominant languages
- C# and Python's rising popularity likely reflects the growth of Data Science, Big Data, AI, and Machine learning.
- The drop in the use of PHP is likely just a direct result of more web developers preferring to use JavaScript, HTML/CSS, and so on.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL was very popular amongst database users and is likely to see an increase in popularity in the future.
- Microsoft SQL Server and MySQL are likely to see a slight decrease in use in the future.
- SQLite sees a massive increase in popularity.

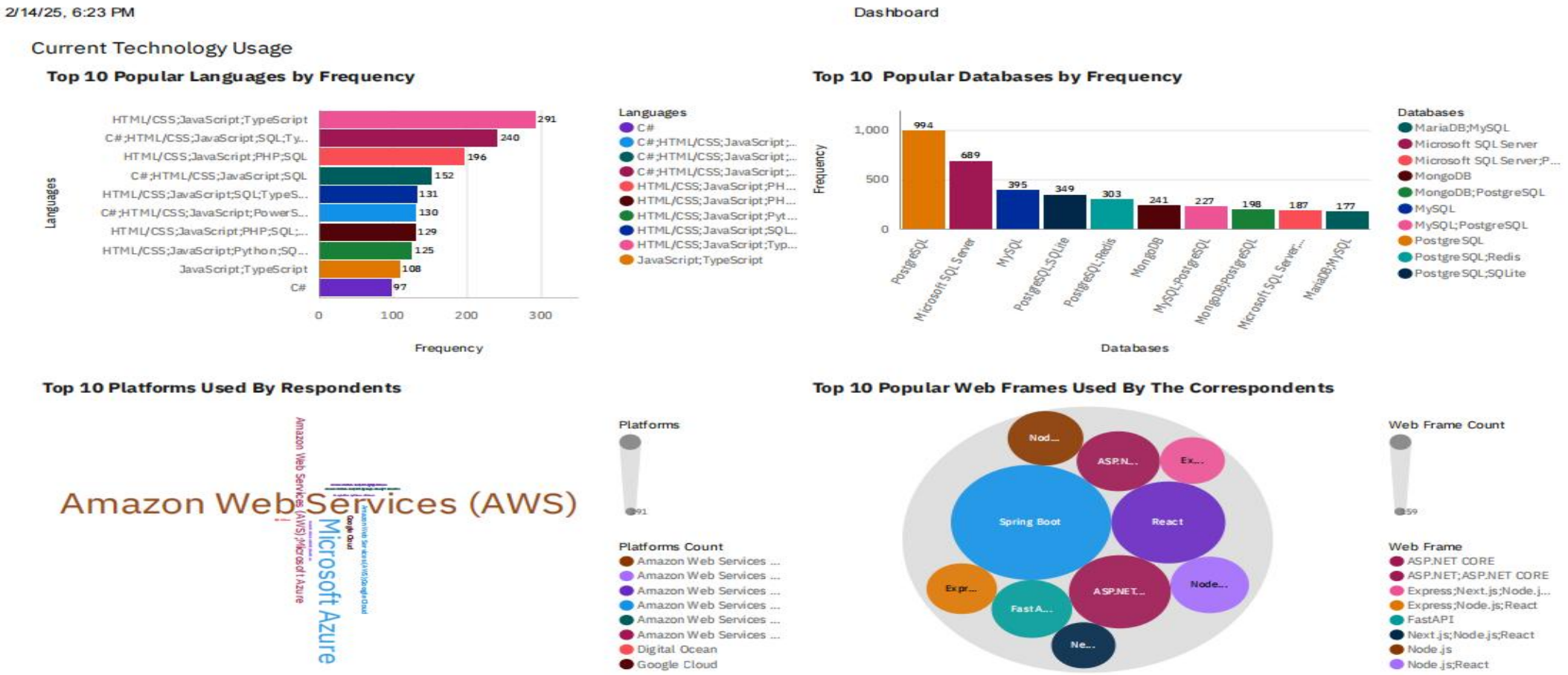
Implications

- More developers are choosing PostgreSQL for its advanced features, scalability, and strong open-source community.
- A slight decrease implies that users may be shifting towards more flexible or cost-effective alternatives.
- This indicates a rising demand for lightweight, serverless databases, likely driven by mobile applications and local storage needs.

DASHBOARD

The following slides illustrate the trends in various chart types suited for each category.

Current Technology Usage



Future Technology Trend

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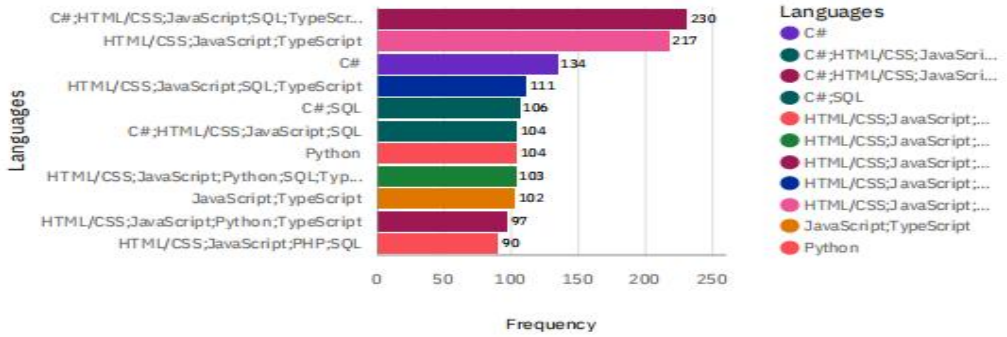
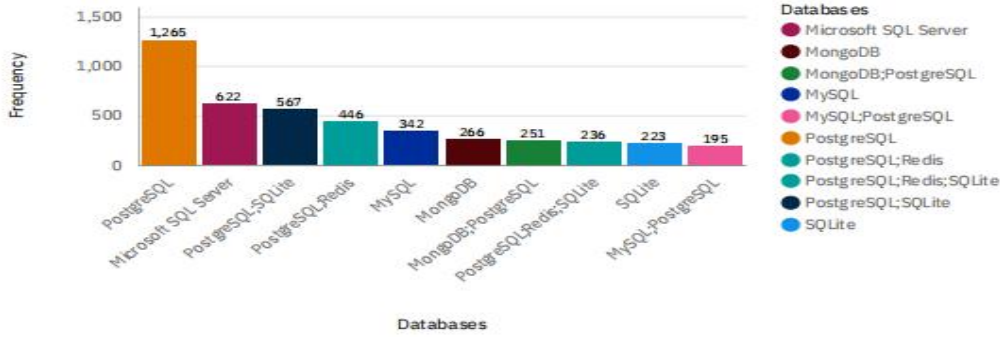
Dashboard

Future Technology Trend

Top 10 Desired Languages By Respondents

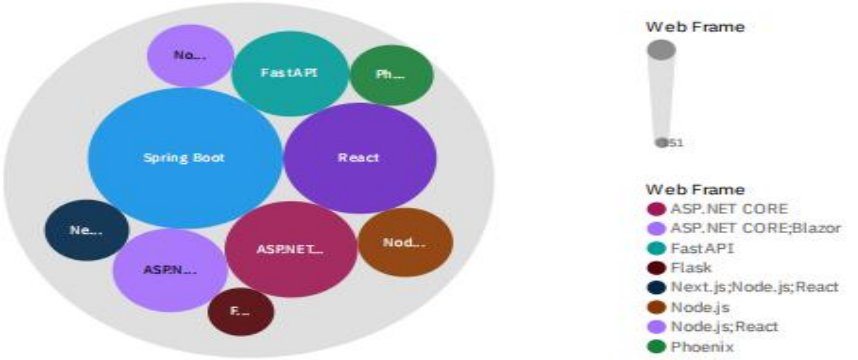


Top 10 Databases Respondents Will Want to Use



Top 10 Platforms ResPondents Desire to Use in The Future

Top 10 Web Frames Desired By The Respondents



Demographics

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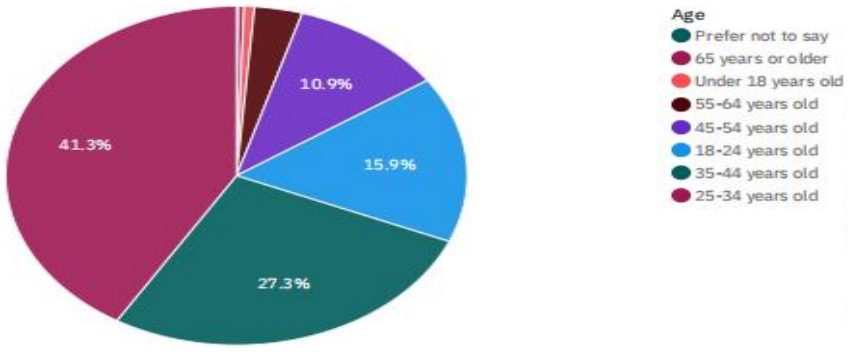
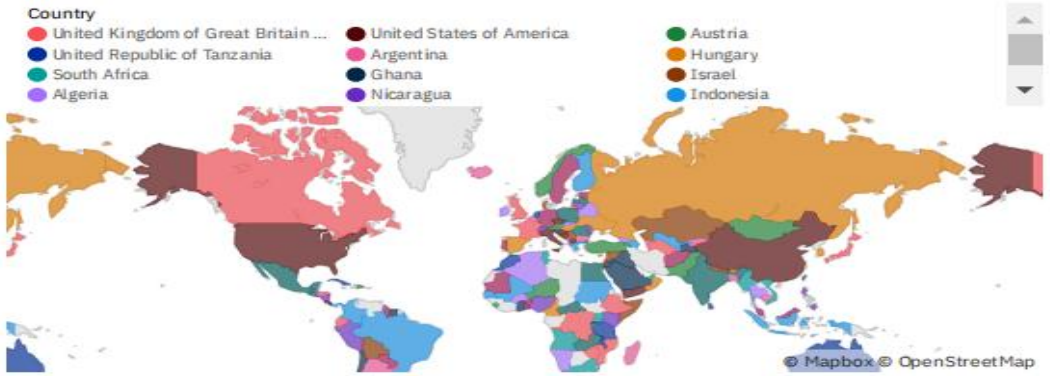
Dashboard

Demographics

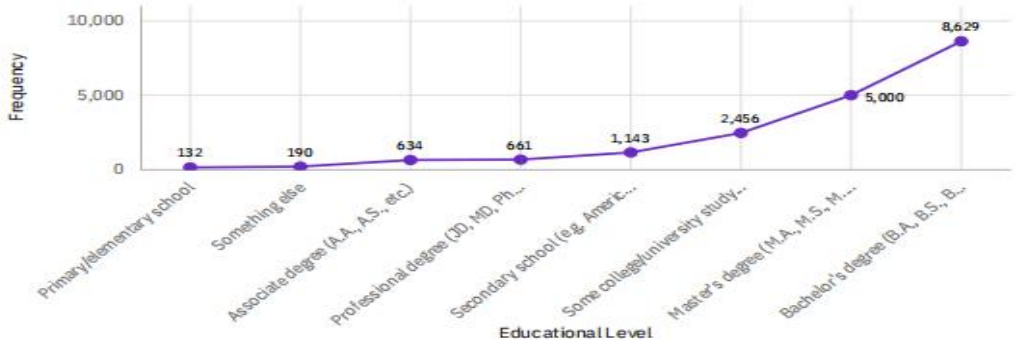
Age Distribution Of Respondents



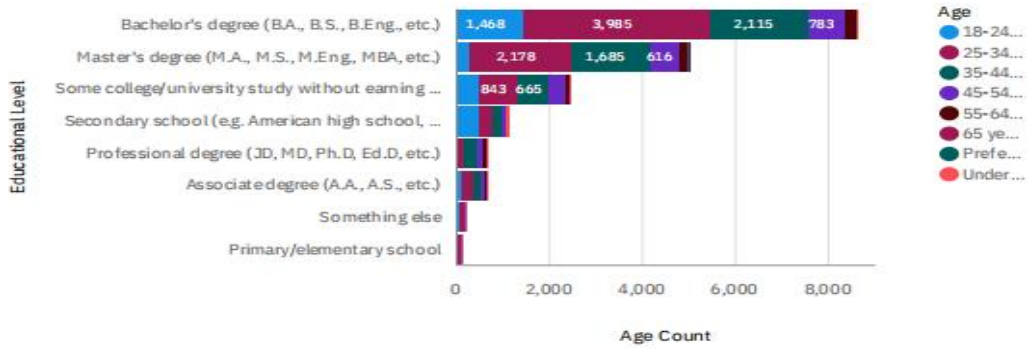
Correspondents By Country



The Distribution Of Respondents By Formal Educational Level



The Count OF Respondents Age Classified By Their Educational Level



DISCUSSION

- When considered together, the findings provide insights into the following questions:

- What types of developer technologies are in high demand?
- Which technologies should aspiring developers and data professionals focus on learning?
- Which technologies should educators prioritize in their teaching in the coming years?
- What does the distribution of annual compensation for developers look like?
- What is the demographic profile of developers?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Top technologies in use such as programming languages, Databases, Web Frames, and Platforms are likely to remain popular or see increased popularity in the future.
- The highest number of developers are between the ages of 25 to 34 years.
- The US has the most developers.

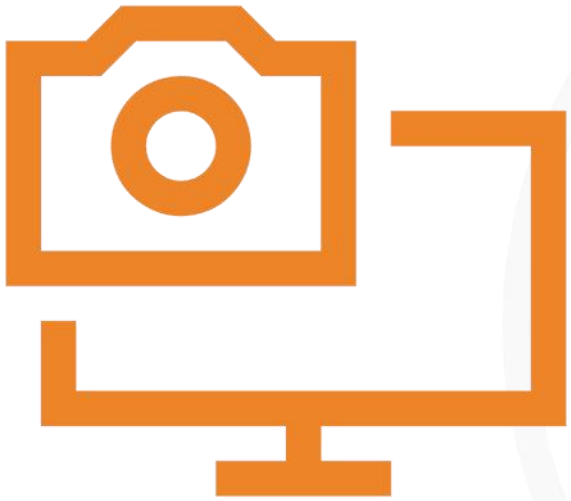
Implications

- Developers should master popular technologies to ensure long-term success and access to a larger job pool.
- Companies should focus on attracting and retaining developers aged 25 to 34 by offering career growth and work-life balance.
- The United States has the largest number of developers, creating intense competition for recruiters.

CONCLUSION

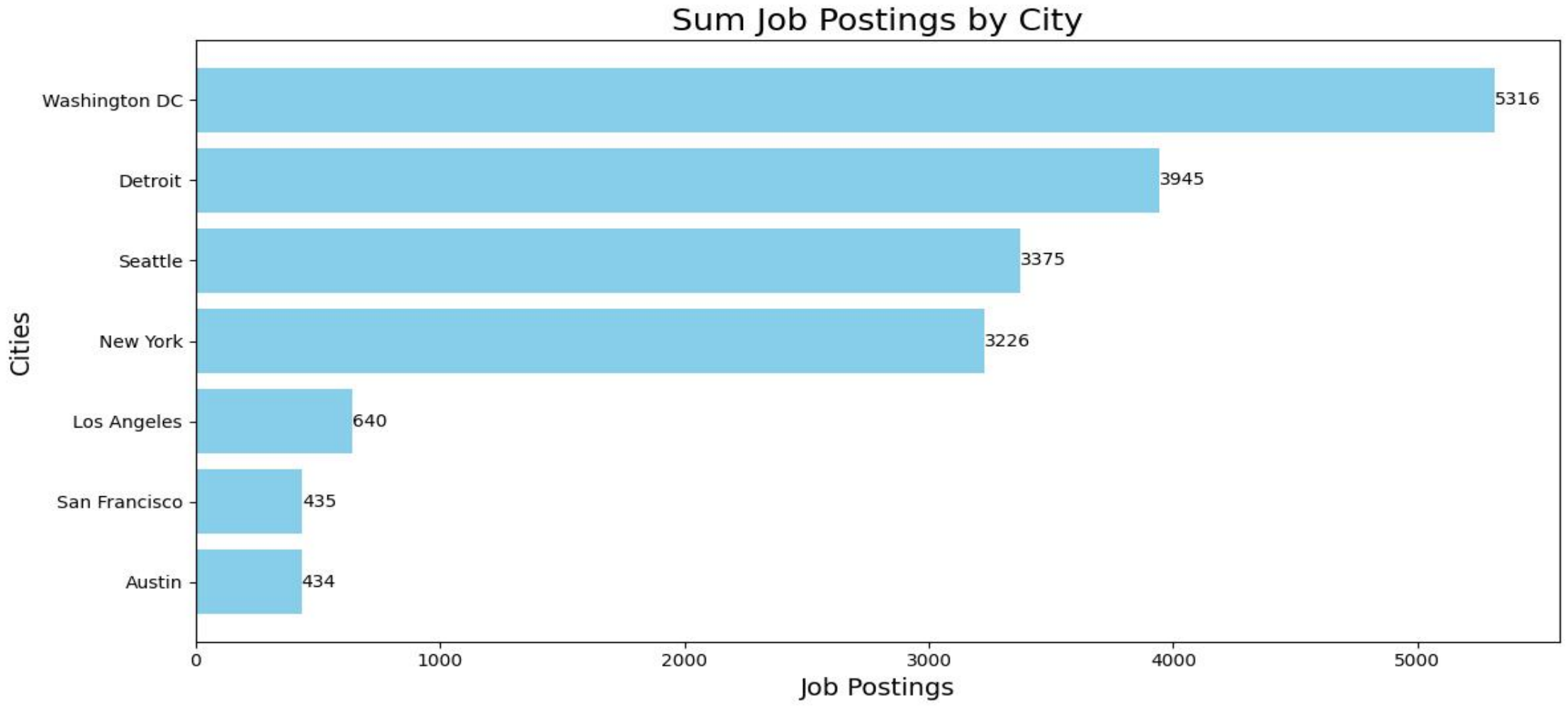
- **Technology Trends**: Established technologies are likely to remain popular, so businesses should focus on mastering them for long-term success.
- **Developer Demographics**: Target developers aged 25–34 by offering career growth, work-life balance, and development opportunities.
- **Regional Tech Influence**: US developers will drive global tech trends, but regional variations require businesses to adapt their strategies accordingly.

APPENDIX



- Here are some insightful charts that analyze job postings by city and highlight popular programming languages.

JOB POSTINGS



POPULAR LANGUAGES