



# CAPSTONE PROJECT

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# OUTLINE

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- Executive Summary
- Introduction
- Methodology
- Results
  - Visualization – Charts
  - Dashboard
- Discussion
  - Findings & Implications
- Conclusion
- Appendix

# EXECUTIVE SUMMARY

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- Trends in programming languages and databases
- Survey on demographic trends
- Disparities in technology access among nations
- Discrepancies in job opportunities based on gender

# INTRODUCTION

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**Overview:** Analyzing trends in Software Development

**Objective:**

- Identify skill requirements that will be beneficial for the future
- Identify the most sought-after programming languages
- Highlight the in-demand database skills
- Explore prevalent Integrated Development Environments (IDEs)

**Target Audience:** Human Resources and IT  
Department Heads

# METHODOLOGY

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- Data Collection Sources
  - Stack Overflow Developer 2019 Survey
  - GitHub Job Postings
  - Programming Languages Annual Salary
- Data Exploration
- Data Cleaning
- Data Visualization
- Presentation

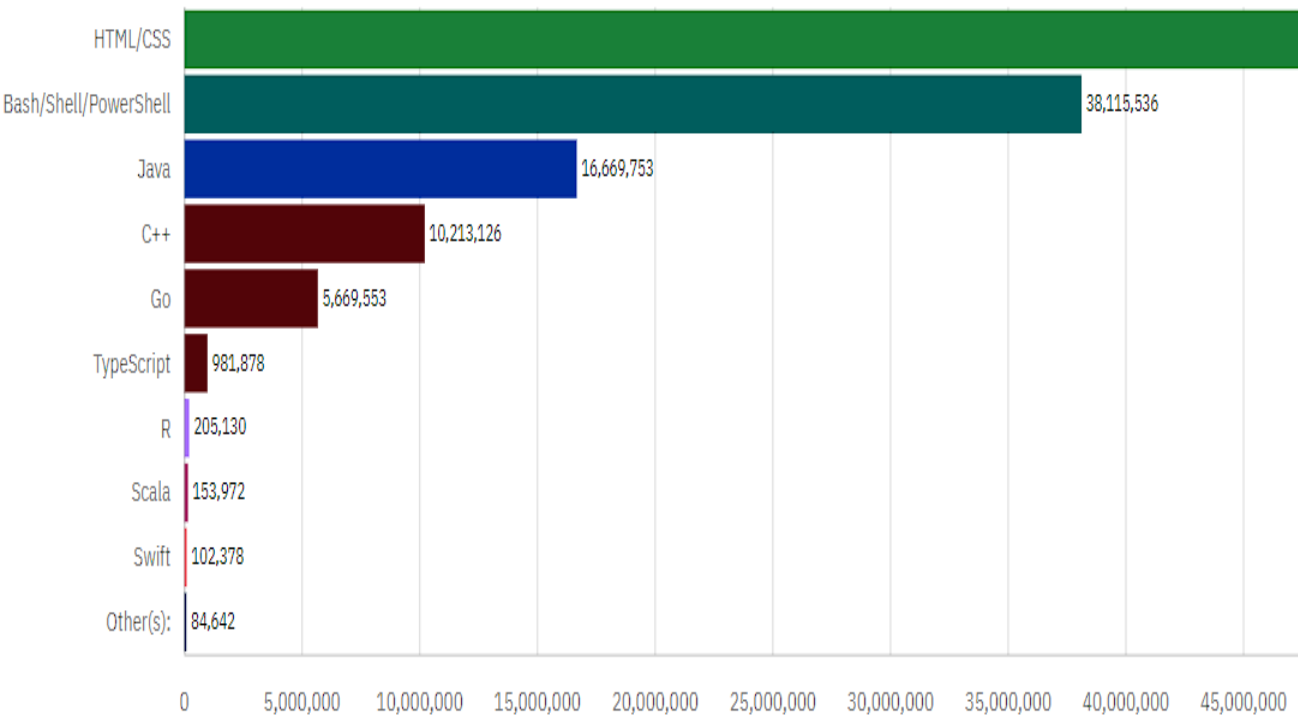
# RESULTS

|     | Respondent... | LanguageWorkedWith    | LanguageDesireNextYear | DatabaseWorkedWith | DatabaseDesireNextYear |
|-----|---------------|-----------------------|------------------------|--------------------|------------------------|
| 1.  | 25142         | R                     |                        |                    |                        |
| 2.  | 25142         | Python                |                        |                    |                        |
| 3.  | 25142         | C                     | C                      |                    |                        |
| 4.  | 25142         | Go                    | Python                 |                    |                        |
| 5.  | 25142         | C++                   | C++                    |                    |                        |
| 6.  | 25142         | HTML/CSS              | R                      |                    |                        |
| 7.  | 25142         | PHP                   |                        |                    |                        |
| 8.  | 25142         | Bash/Shell/PowerShell | Bash/Shell/PowerShell  | PostgreSQL         | PostgreSQL             |
| 9.  | 25141         | C#                    | F#                     |                    | Microsoft SQL Server   |
| 10. | 25141         | JavaScript            |                        |                    |                        |
| 11. | 25141         | TypeScript            |                        |                    |                        |
| 12. | 25141         | HTML/CSS              |                        |                    | Redis                  |
| 13. | 25141         | Java                  |                        |                    |                        |
| 14. | 25141         | Python                |                        |                    |                        |
| 15. | 25141         | SQL                   |                        |                    |                        |

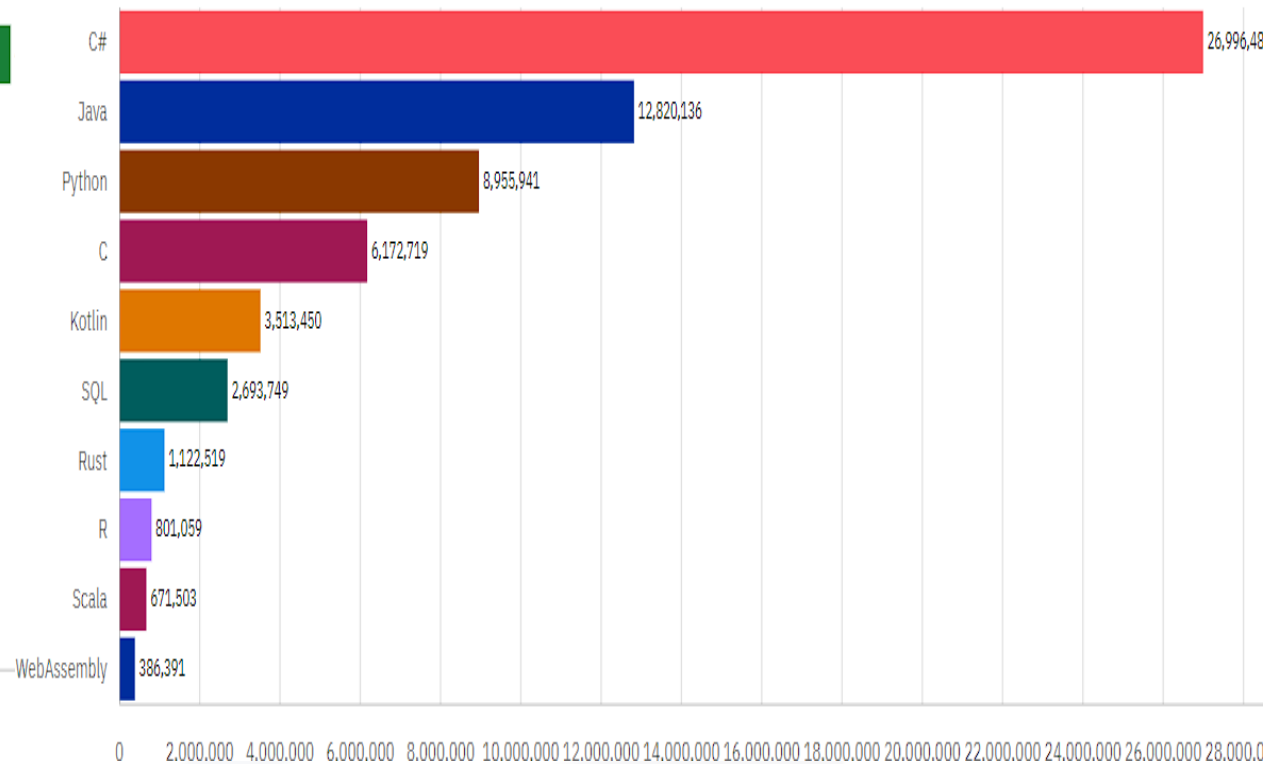
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# PROGRAMMING LANGUAGE TRENDS

Top 10 Languages Worked With



Top 10 Languages Desired Next Yea



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- This year, JavaScript, HTML/CSS, and SQL are the top 3 languages.
- Python and Typescript are gaining popularity for the upcoming year.
- PowerShell sees a decline in the next year.

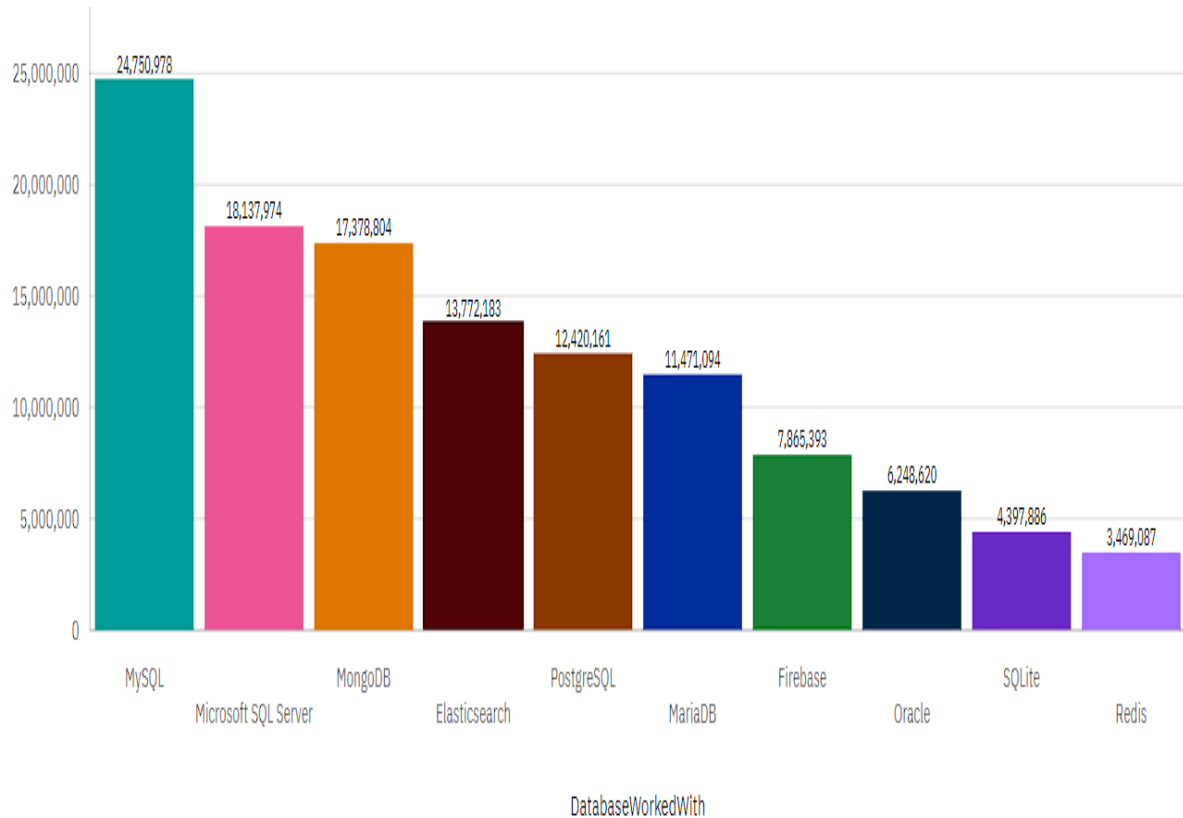
## Implications

- There is continued high demand for web development skills.
- Companies emphasize SQL in their Big Data technology.
- With increasing demand for AI and ML, Python stands out as the optimal choice.

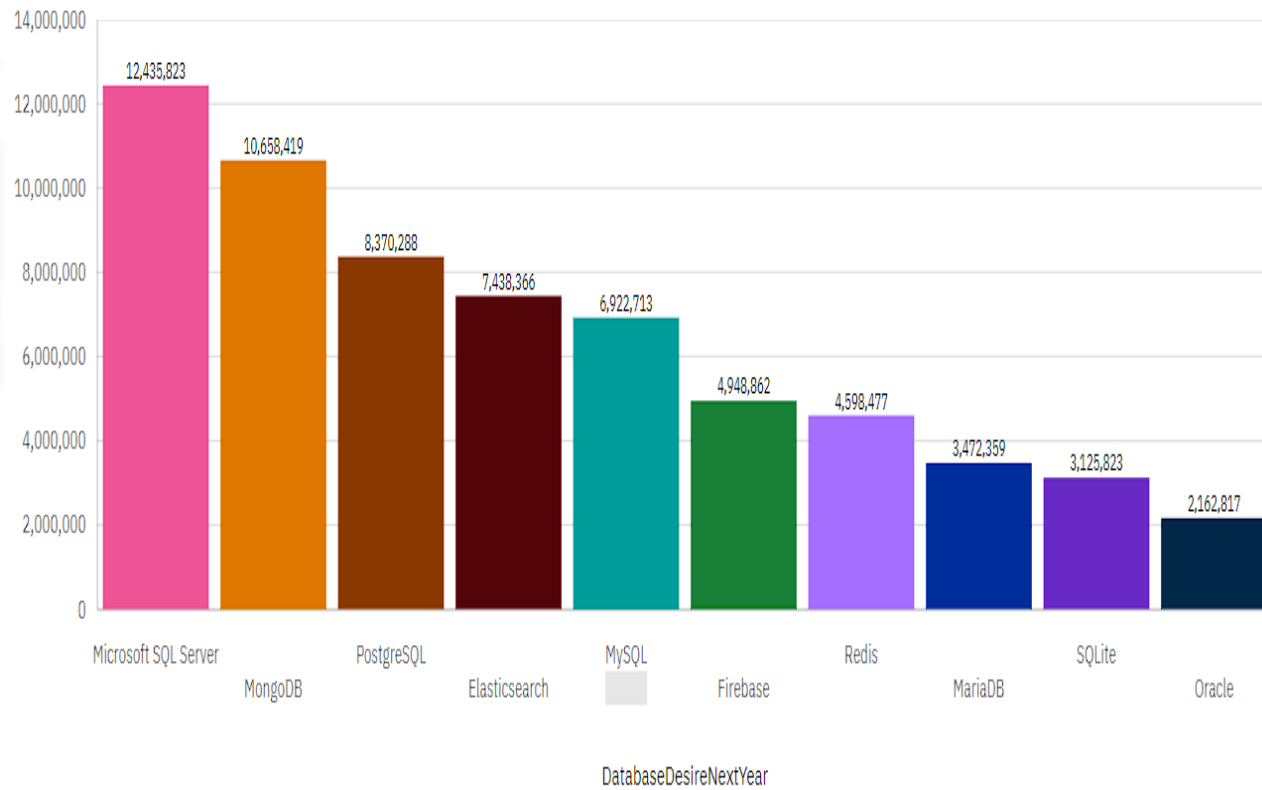


# DATABASE TRENDS

Current Year



Next Year



# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- MySQL takes the lead in popularity.
- Microsoft SQL follows closely behind.
- MongoDB and Redis are gaining traction as emerging favorites.
- Elasticsearch emerges as a newcomer.

## Implications

- Companies continue to favor open-source databases.
- NoSQL databases are poised to make a significant impact, particularly for storing non-relational data.
- Redis supports abstract data types.
- Elasticsearch provides pre-tuned search capabilities for websites, apps, or e-commerce stores.

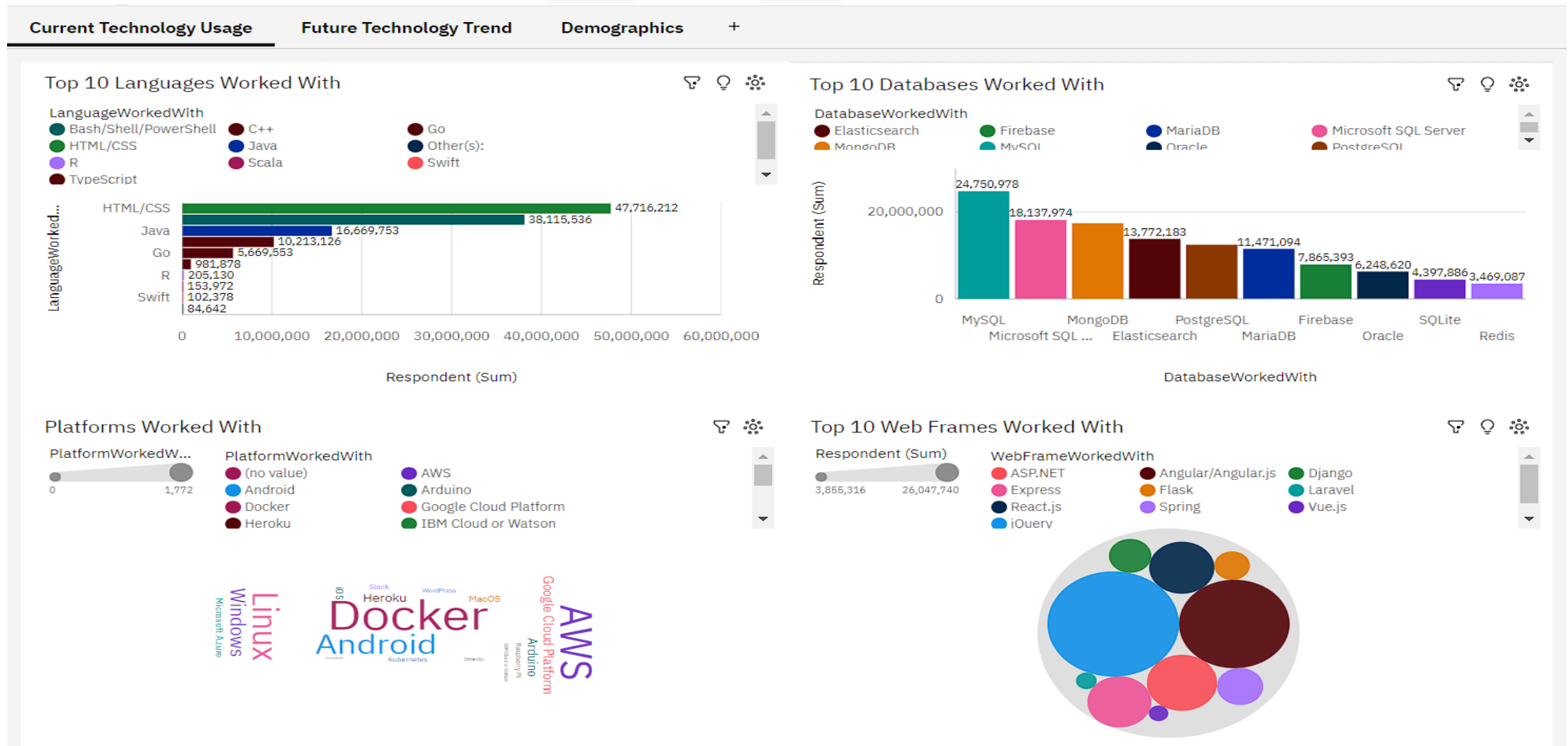
# DASHBOARD

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# DASHBOARD TAB 1



# DASHBOARD TAB 2



# DASHBOARD TAB 3

Current Technology Usage

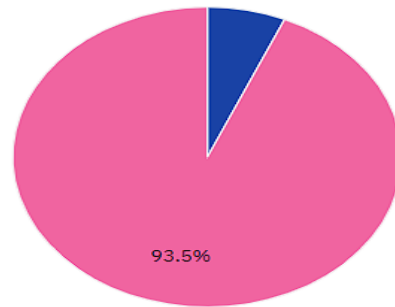
Future Technology Trend

**Demographics**

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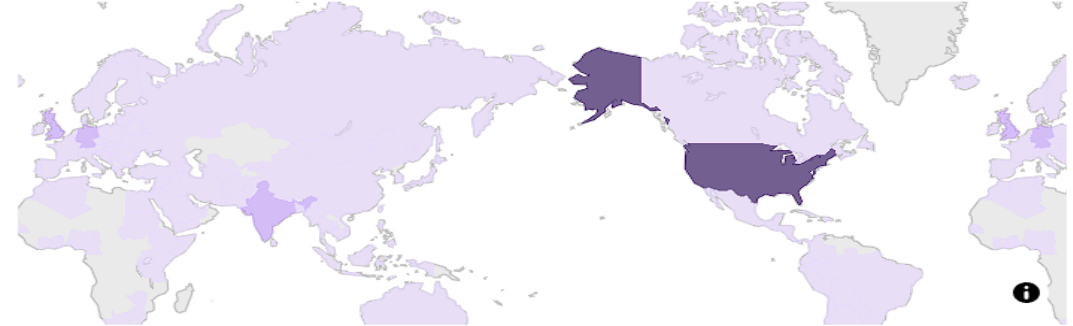
Respondent Distribution by Gender

Gender  
● Woman ● Man

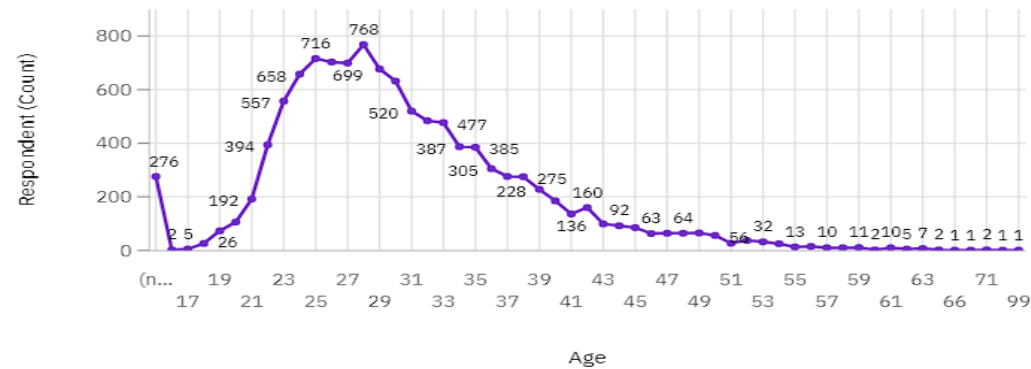


Respondent Count by Country

Respondent (Count)  
1 3,049

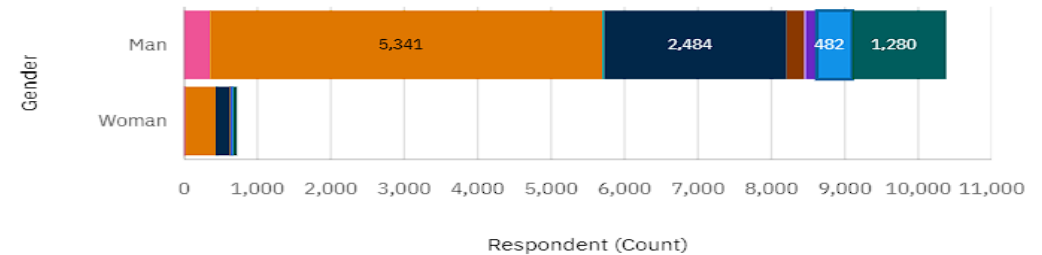


Respondent Count by Age



Respondent Count by Gender and Education Level

EdLevel  
● Associate degree ● ...  
● ... ● Primary/elementary school  
● Professional degree (JD, MD, etc.) ● ...



# DISCUSSION

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- Current and Future Technology Trends
- Providing Training and Reskilling Opportunities for Workers
- Increasing Female Participation in the Technology Sector
- Addressing Technology Gaps in Developing Countries
- Eliminating Employment Discrimination Based on Age and Education

# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Technology evolves rapidly on an annual basis.
- Emphasis is placed on specific countries, such as the USA and India.
- There exists a gender disparity in technology-related occupations.
- Platforms like Docker and AWS are experiencing growth.

## Implications

- Companies must adapt and be flexible in response to swift technological changes.
- It is essential to disseminate technology to countries lagging behind.
- Consideration of the impact on job hiring practices.
- Anticipation of a future shift towards quicker application deployments and increased reliance on cloud services.



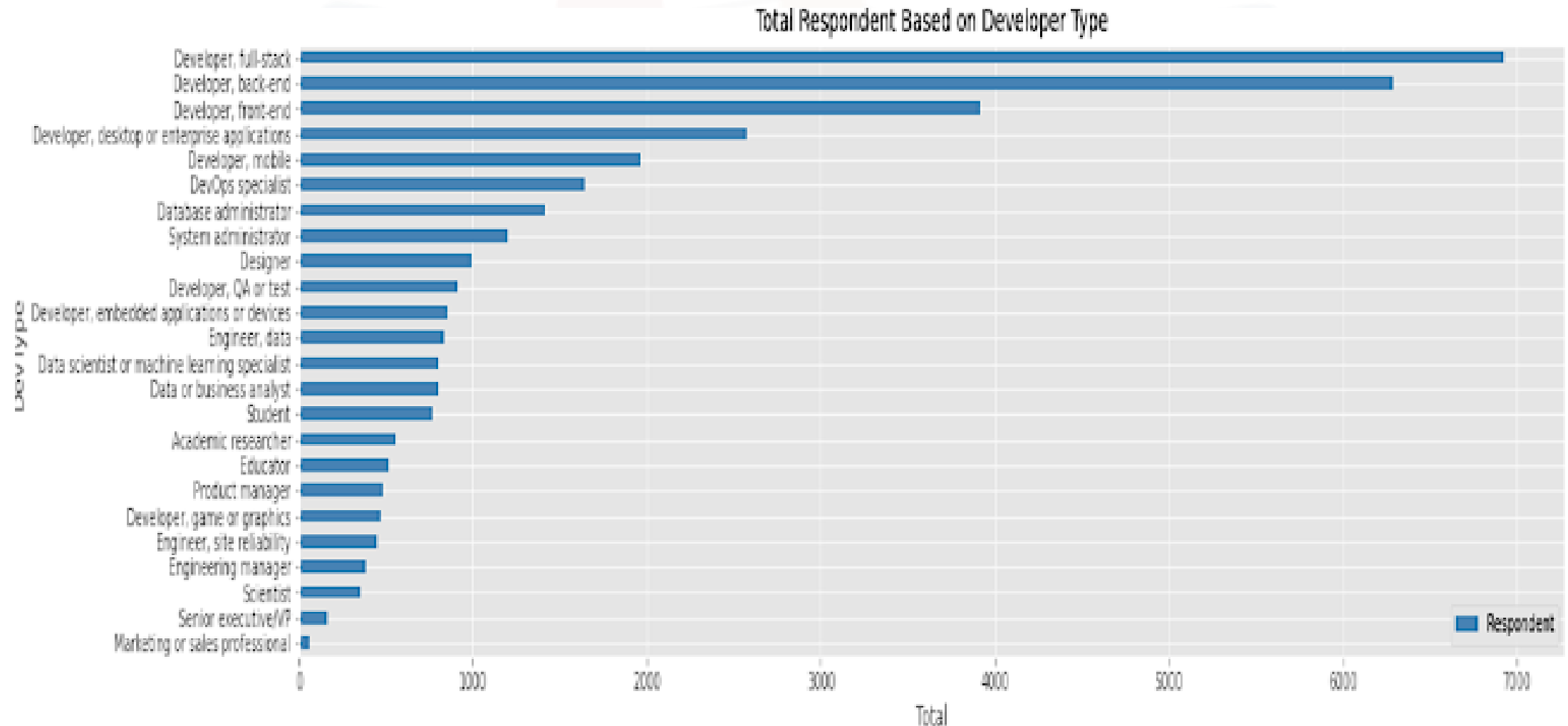
# CONCLUSION

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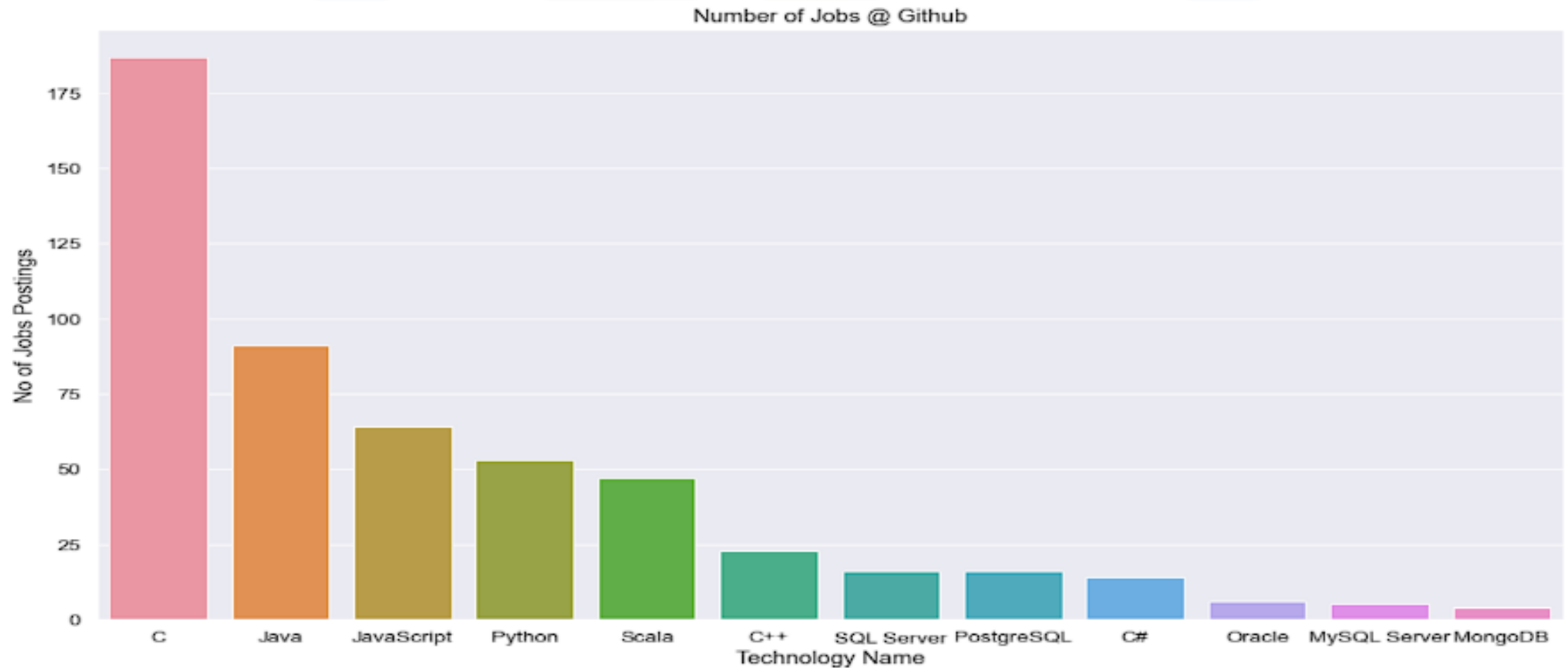


- Present and upcoming technology trends in programming languages, databases, and platforms
- An overview of demographics
- Recommended courses of action, in the future, integrate machine learning for predicting trends and salaries

# APPENDIX



# JOB POSTINGS



# POPULAR LANGUAGES

