

# 2024 Stack Overflow Developer Survey

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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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- **JavaScript** remains the most commonly used language, followed by **Python** and **SQL**.
- **Rust** continues to be the most **loved** language, while **JavaScript** and **Python** have the most users.
  - **React.js** and **Node.js** dominate the web development space.
  - **FastAPI** and **Spring Boot** are gaining traction in backend development.
  - **Docker** and **Kubernetes** remain critical tools for DevOps professionals.
- A significant number of developers are **self-taught** or have learned through **bootcamps**.
- Developers working in **fully remote roles** report the highest job satisfaction.
- **Work-life balance** is a key factor in choosing an employer, with many prioritizing flexible hours.



# INTRODUCTION

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In this project, we analyze the key trends and patterns from the survey to understand:

- ☐ The most popular and in-demand programming languages and technologies.
- ☐ The impact of AI and automation on developer workflows. Job market insights, including salary trends and work preferences.
- ☐ The evolving landscape of cloud computing, DevOps, and cybersecurity.
- ☐ How developers learn new skills and adapt to industry changes.



# METHODOLOGY

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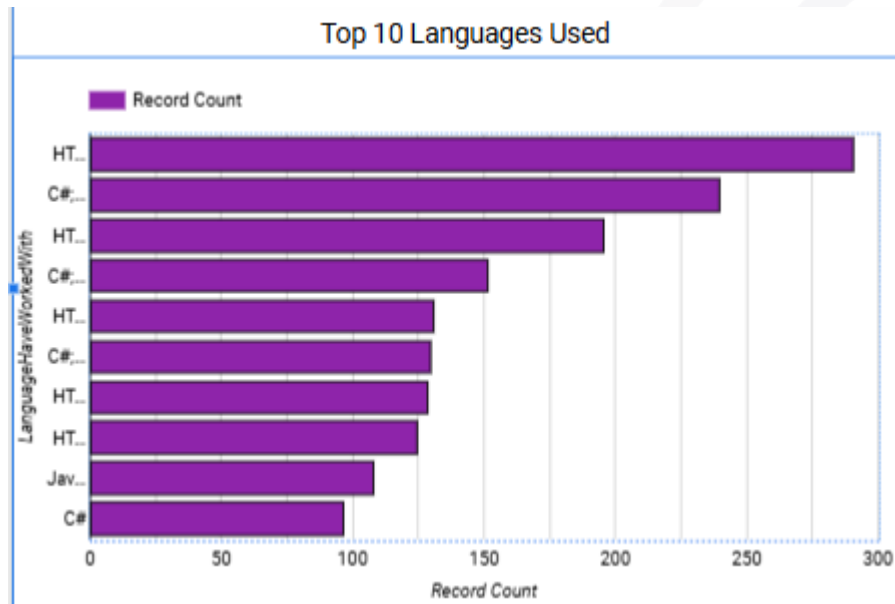


- Data Collection
- Data Cleaning and Pre processing
- Exploratory Data Analysis (EDA)
- Data Visualization & Insights
- **Tools & Technologies Used**
- **Python** (Pandas, NumPy, Matplotlib, Seaborn, Plotly) for data analysis & visualization.
- **SQL** for querying and filtering structured responses.
- **Looker Studio/Tableau** for interactive reporting.
- **Excel/Google Sheets** for initial data validation and summaries.

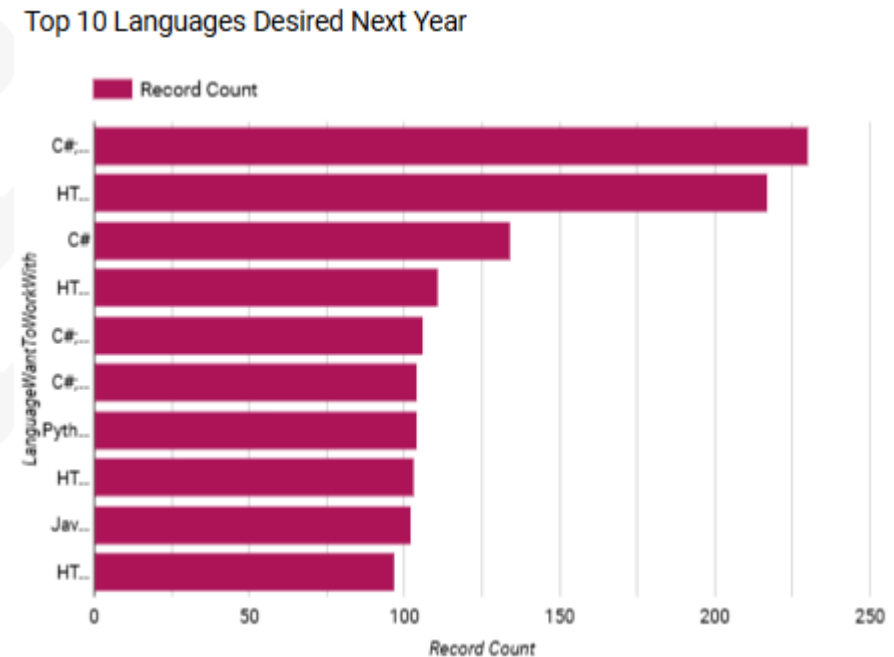


# PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- HTML/CSS/JS/typescript is most used now
- C# will be most preferred in future
- Python is also preferred

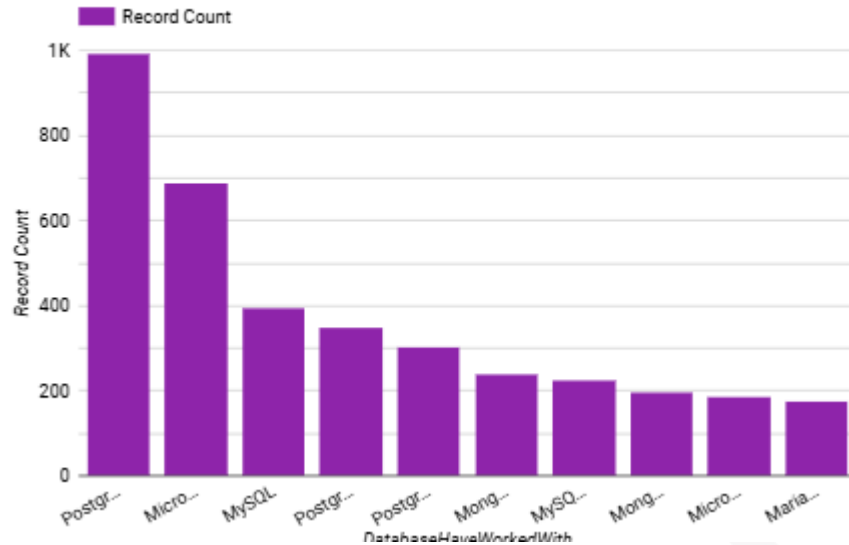
## Implications

- Front-end Development is in Trend
- Might become the new trend
- Python will be evergreen

# DATABASE TRENDS

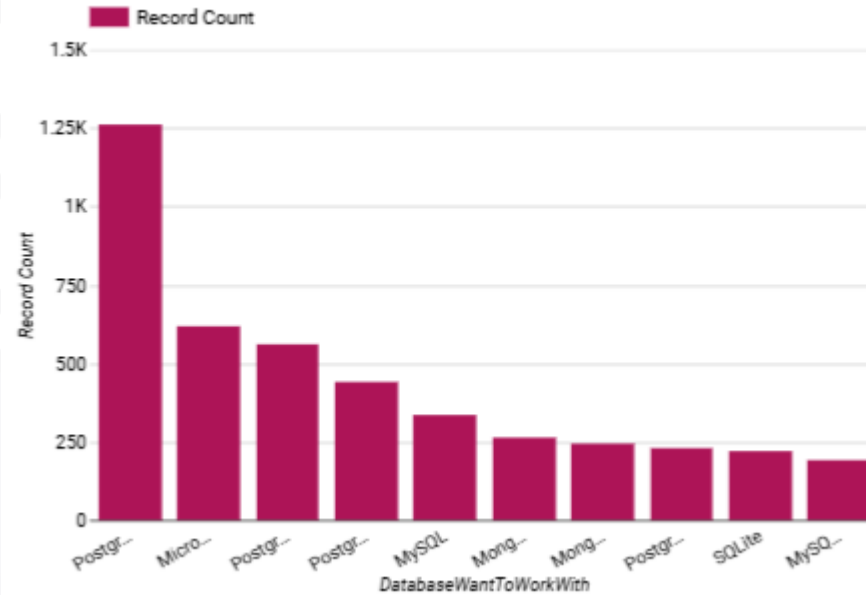
## Current Year

Top 10 Databases Used



## Next Year

Top 10 Databases Desired Next Year





# DATABASE TRENDS - FINDINGS & IMPLICATIONS

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## Findings

- PostgreSQL is used by max people
- The trend in both years looks similar
- Also, PostgreSQL is wanted to be learned in the next year

## Implications

- PostgreSQL is the present Ruling DB
- MySQL is evergreen
- PostGre is the future?

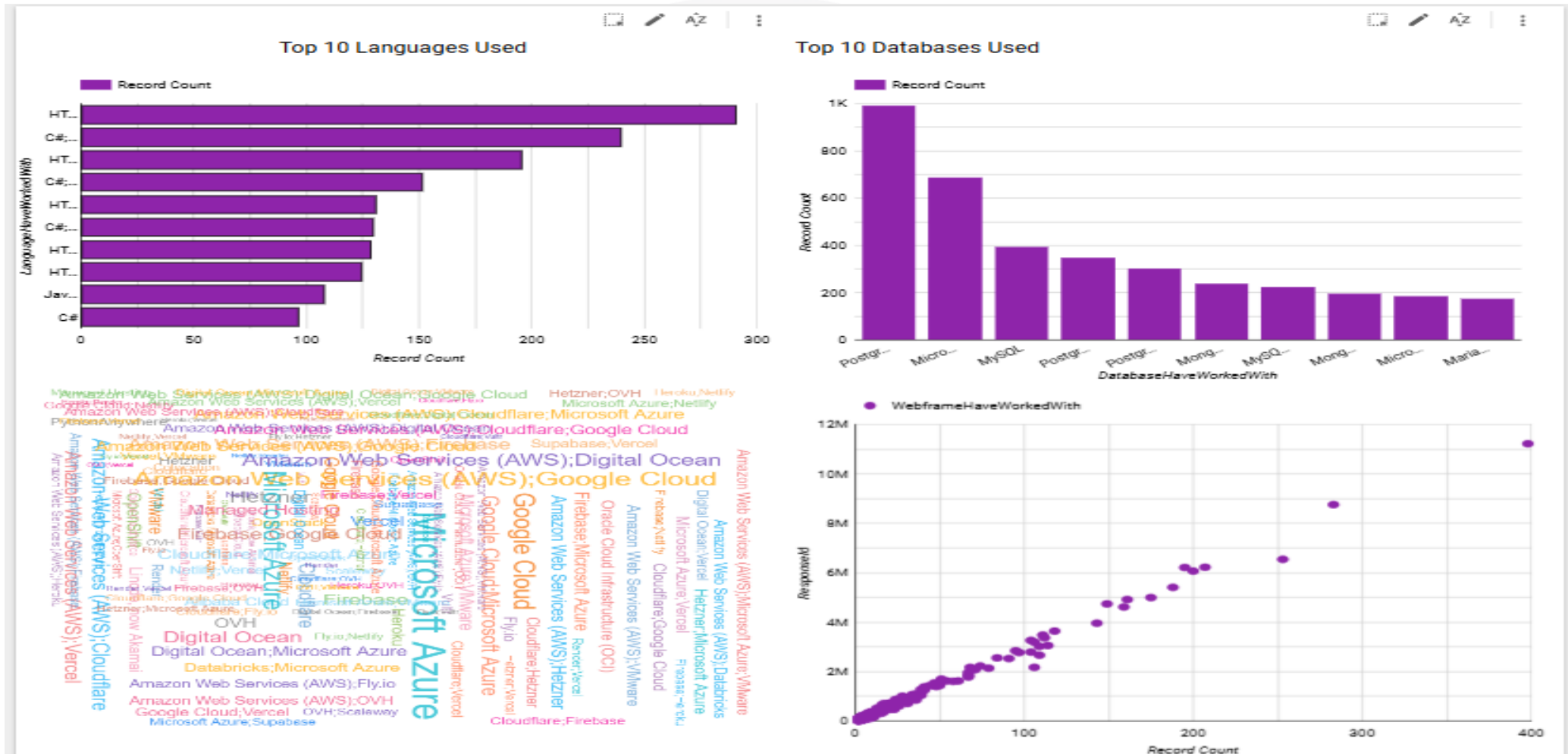


# DASHBOARD

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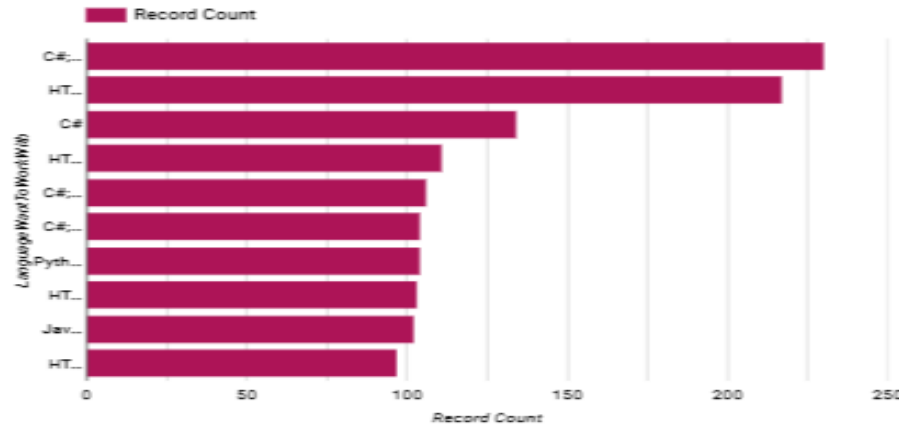


# Current Technology Usage

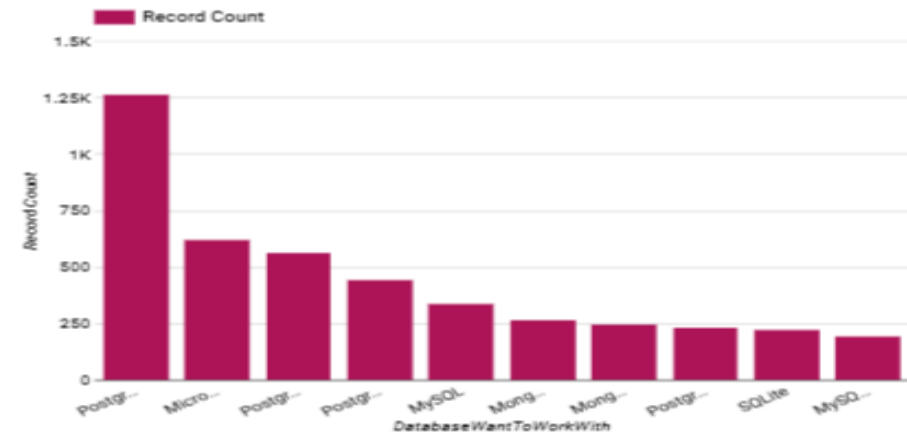


# Future Technology Trends

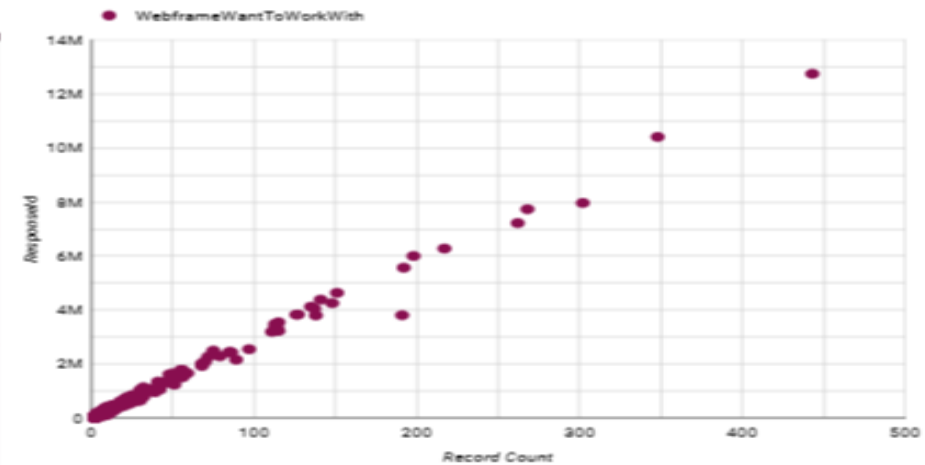
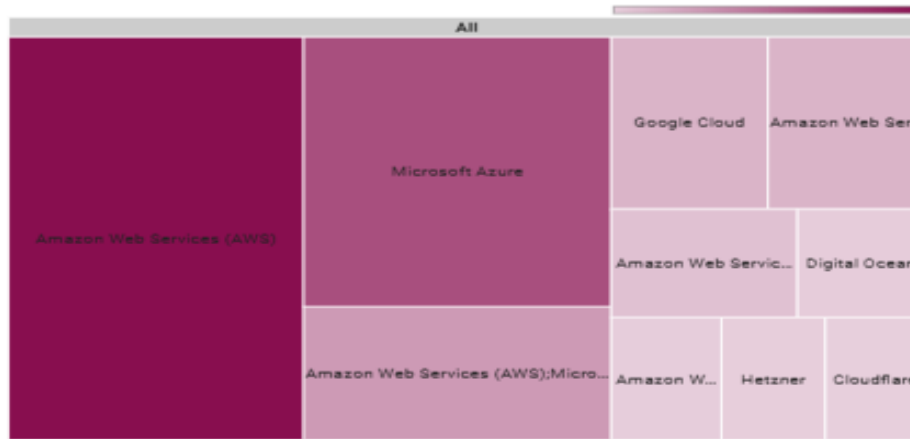
Top 10 Languages Desired Next Year



Top 10 Databases Desired Next Year

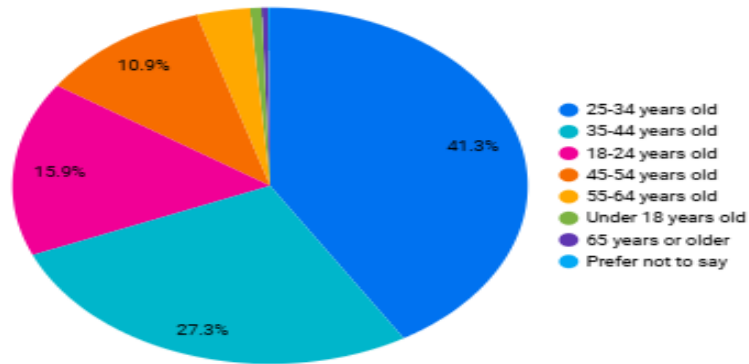


Top 10 Desired Platforms

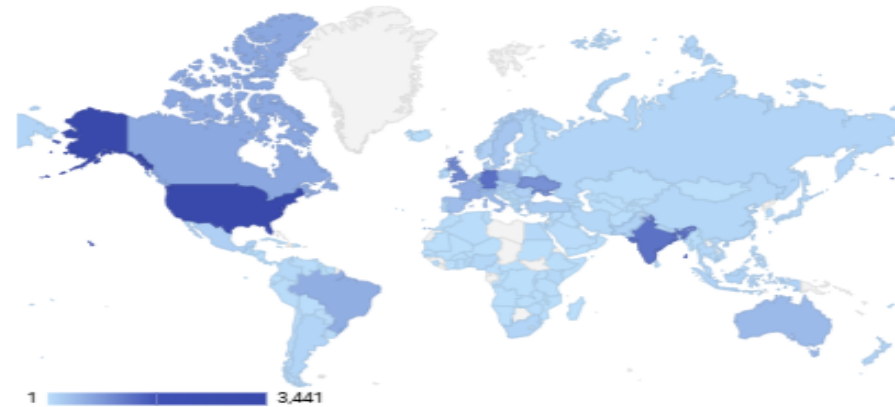


# Demographics

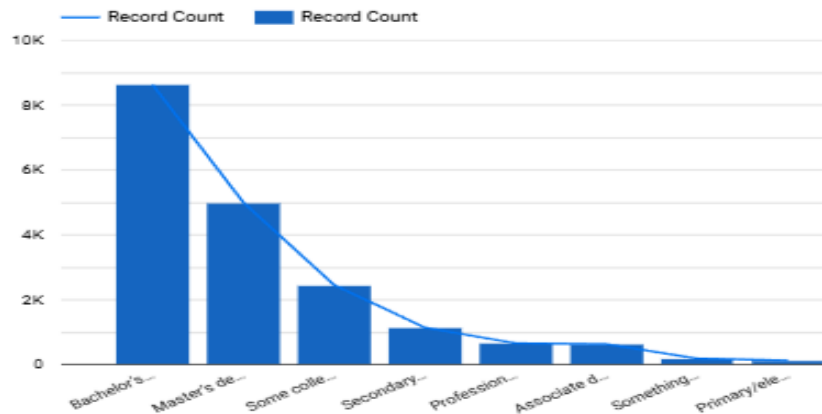
Respondents by Age



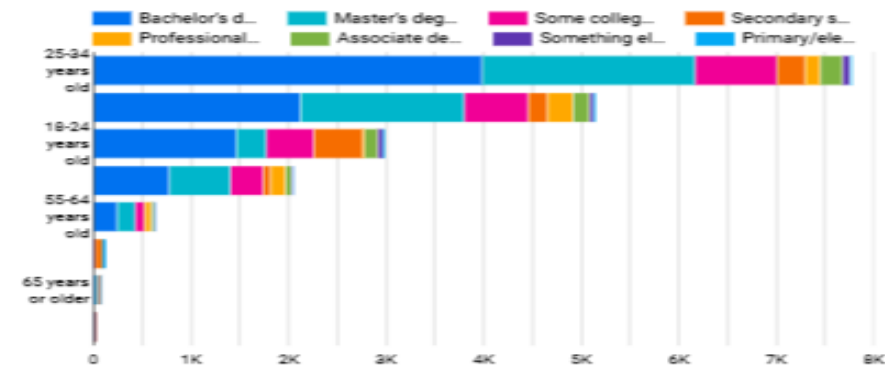
Respondent Count by Country



Respondent Distribution by Education Level



Respondent Count by Age, Classified by Education Level



# DISCUSSION

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# OVERALL FINDINGS & IMPLICATIONS

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## Findings

- Cloud and DevOps Engineers, Machine Learning Engineers, and Cybersecurity Specialists are among the highest-paid roles.
- Platforms like **Coursera, Udemy, freeCodeCamp, and YouTube** are the top choices for learning.
- The demand for **AI, cloud, and cybersecurity professionals** is rising

## Implications

- Professionals aiming for high-paying roles should focus on cloud computing, AI, and DevOps while obtaining relevant certifications.
- Employers are valuing **practical skills over formal degrees**, making **self-learning and portfolio projects** crucial for job seekers.
- education providers should **expand training programs** in these fields.



# CONCLUSION

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- By following this structured methodology, we ensure that the analysis of the **2024 Stack Overflow Developer Survey** is reliable, data-driven, and offers valuable insights into the current state of the global developer community.
- The **2024 Stack Overflow Developer Survey** highlights the **growing impact of AI, cloud computing, and self-learning in the tech industry**.
- Developers must **adapt to new tools and technologies**, while companies need to **prioritize flexibility and innovation** to attract and retain top talent.
- Companies should **embrace AI-assisted coding** to improve developer productivity.



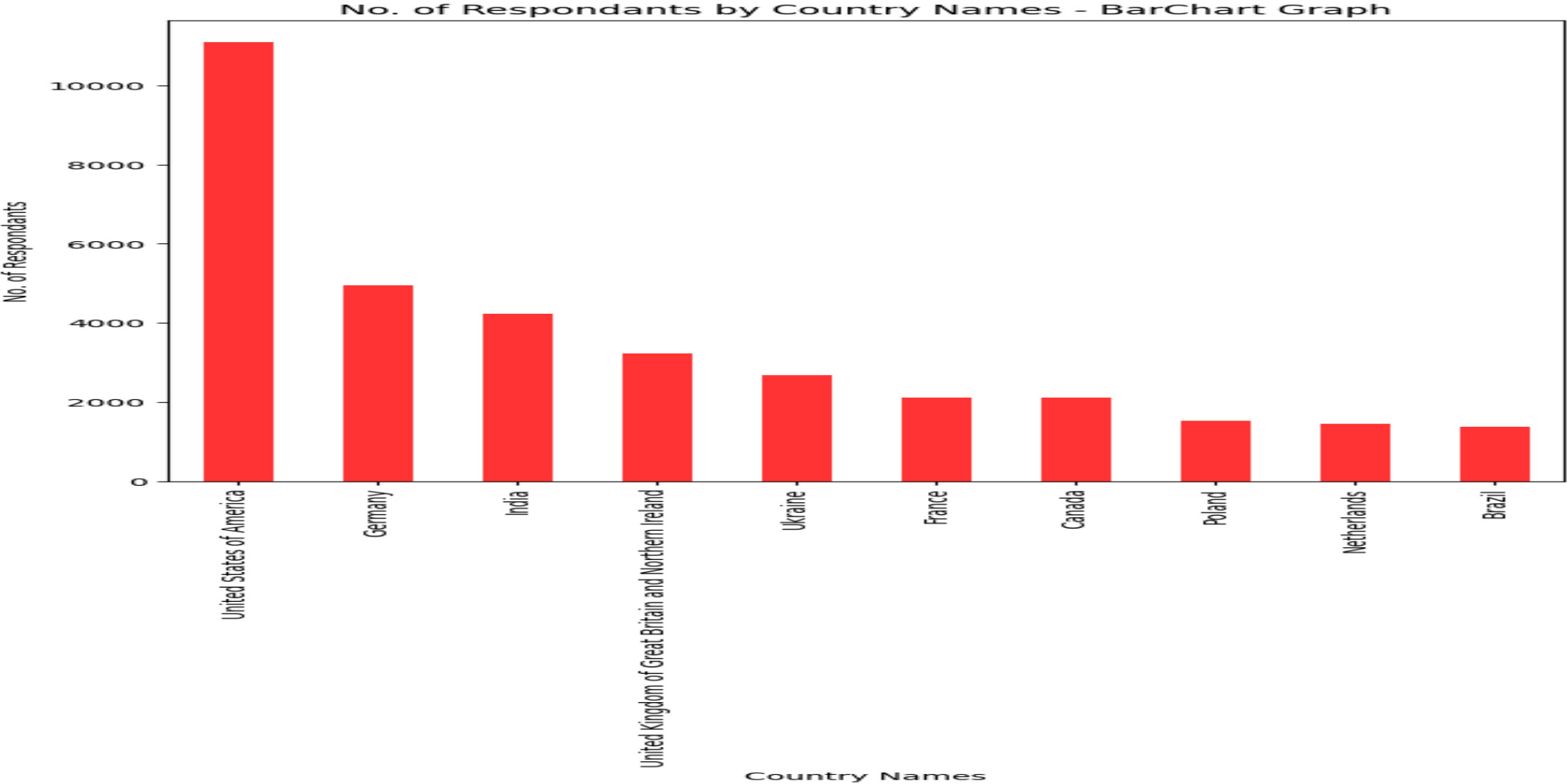


# APPENDIX

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# Respondants



# Technology Adoption by Employment Type

