

# EMERGING IT SKILLS AND TRENDS THROUGH DATA ANALYSIS

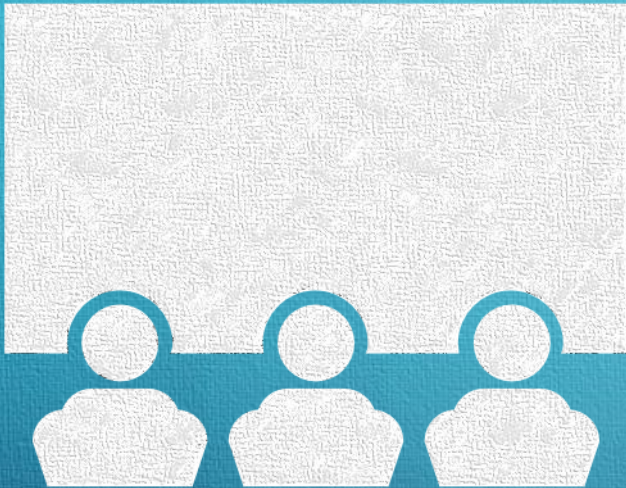
Hoo Yan Peng

30th October 2024



# OUTLINE

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



# EXECUTIVE SUMMARY

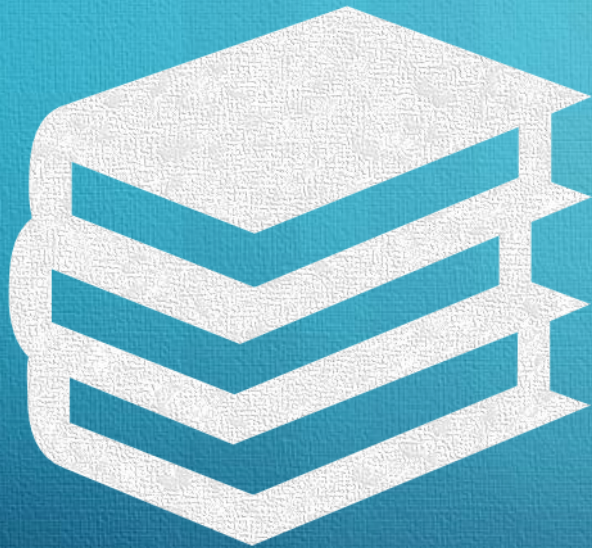


- **Objective:** Analyze data to identify emerging IT skills and trends.
- **Methodology:** Collected insights from diverse respondents across industries
- **Key Findings:**
  - **Language Trends:** JavaScript remains dominant; Python and TypeScript are on the rise.
  - **Database Preferences:** PostgreSQL and NoSQL are increasingly relevant.
  - **Platform Insights:** Docker and Kubernetes are gaining traction.
  - **Frameworks:** React.js and Vue.js are projected for future growth.
- **Demographics:** Predominantly male respondents; majority aged 25-30; significant representation from the US, India, and UK.
- **Education:** High percentage with bachelor's and master's degrees.
- **Implications:** Focus on upskilling in key areas to meet evolving market demands.



# INTRODUCTION

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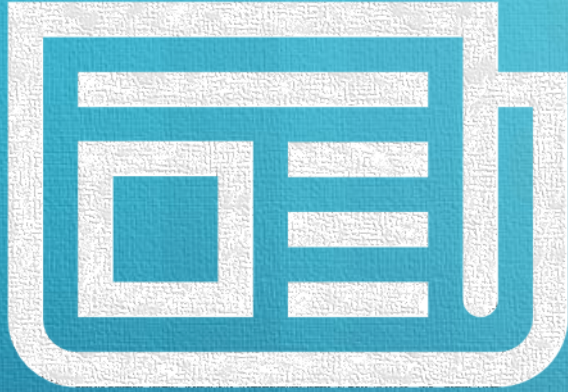


- Purpose of the Report
  - Analyze data to identify emerging skills
  - Support strategic planning for IT and business consulting
- Focus Areas
  - Top programming languages in demand
  - Key database skills
  - Popular Integrated Development Environments (IDEs)
- Importance of Skills Analysis
  - Adapt to changing technologies
  - Enhance competitiveness in the industry
  - Align workforce capabilities with market needs



# METHODOLOGY

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- Data Collection
  - APIs
  - Webscraping
- Data Wrangling
- Exploratory Data Analysis
  - Seaborn
  - Matplotlib
- Data Visualization
  - SQL queries
- Dashboard Creation
  - IBM Cognos Analytics



# RESULTS

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- **Language Trends:**

Dominance of JavaScript and rising interest in Python, with anticipated growth for PostgreSQL and TypeScript next year.

- **Database Preferences:**

Current usage and future interest in PostgreSQL and NoSQL

- **Platform Insights:**

Emerging platforms like Docker and Kubernetes.

- **Framework Findings:**

Key web frameworks, including React.js and Vue.js, projected for growth

- **Demographics:**

Predominantly male, majority aged 25-30, with significant representation from the US, India, and UK

- **Education Levels:**

Majority hold bachelor's and master's degrees

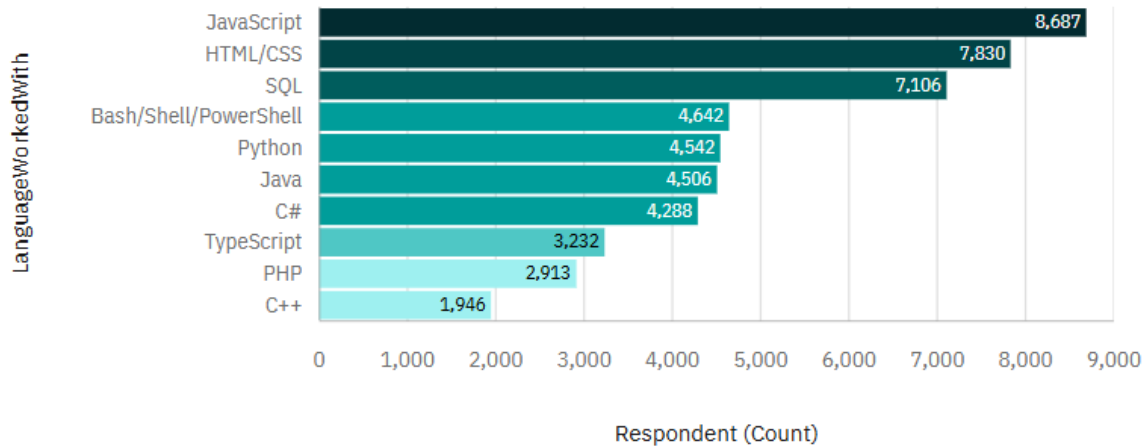
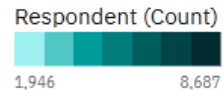


# PROGRAMMING LANGUAGE TRENDS

## Current Year

Top 10 LanguageWorkedWith

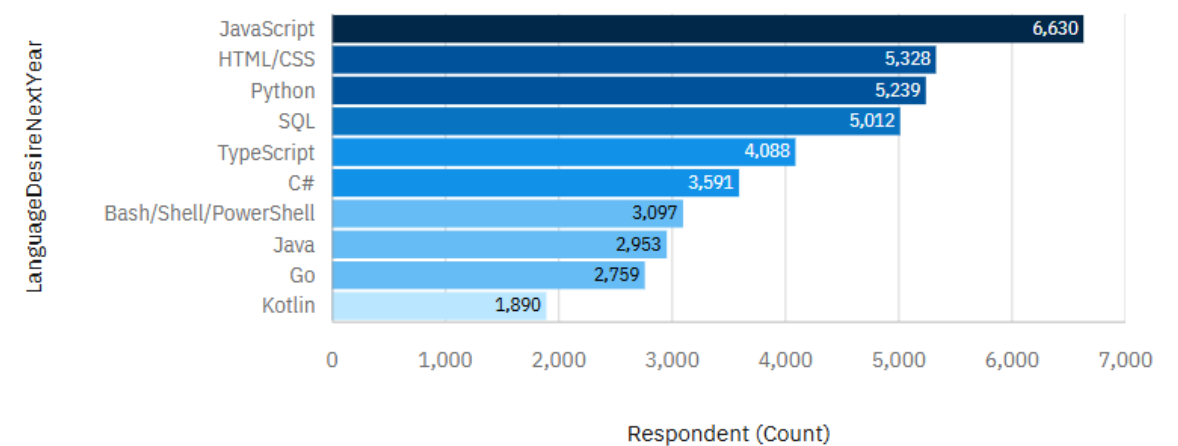
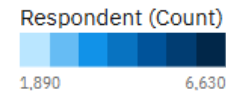
Respondent (Count)



## Next Year

Top 10 LanguageDesireNextYear

Respondent (Count)





# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

## Findings

- **JavaScript:**  
Continues to dominate usage
- **Python:**  
Demand is significantly increasing
- **TypeScript:**  
Rising in importance for web development
- **Go & Kotlin:**  
Gaining emerging interest

## Implications

- Prioritize **JavaScript** and **Python** in upskilling
- Incorporate **TypeScript** for front-end teams
- Stay updated on **Go** and **Kotlin** trends

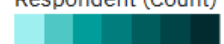


# DATABASE TRENDS

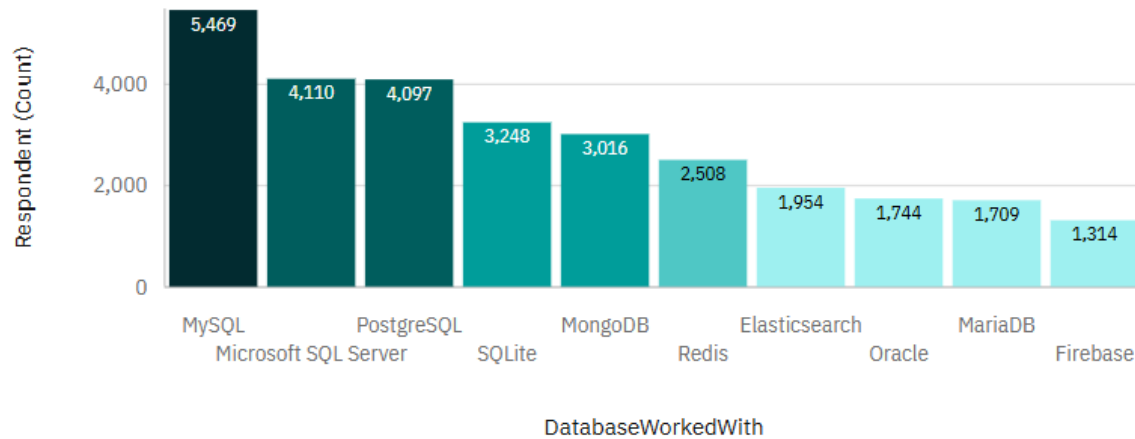
## Current Year

Top 10 DatabaseWorkedWith

Respondent (Count)



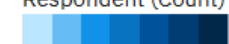
1,314 5,469



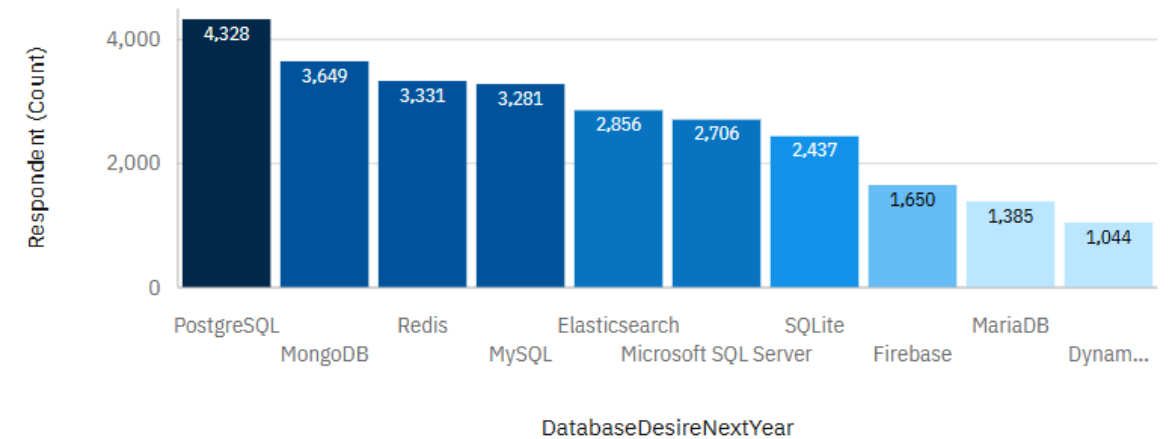
## Next Year

Top 10 DatabaseDesireNextYear

Respondent (Count)



1,044 4,328





# DATABASE TRENDS - FINDINGS & IMPLICATIONS

## Findings

- **PostgreSQL:**  
Rising interest for next year
- **NoSQL Growth:**  
Significant demand for **MongoDB** and **Redis**
- **Decline in Traditional Databases:**  
Reduced future interest in **MySQL** and **SQL Server**

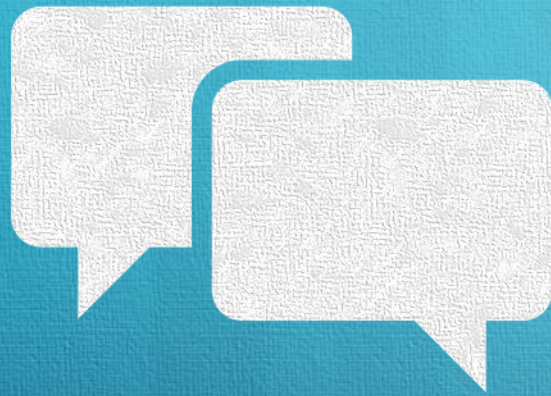
## Implications

- Prioritize **PostgreSQL** training in upskilling.
- Emphasize **MongoDB** and **Redis** skills
- Reassess the relevance of **traditional** databases.



# DASHBOARD

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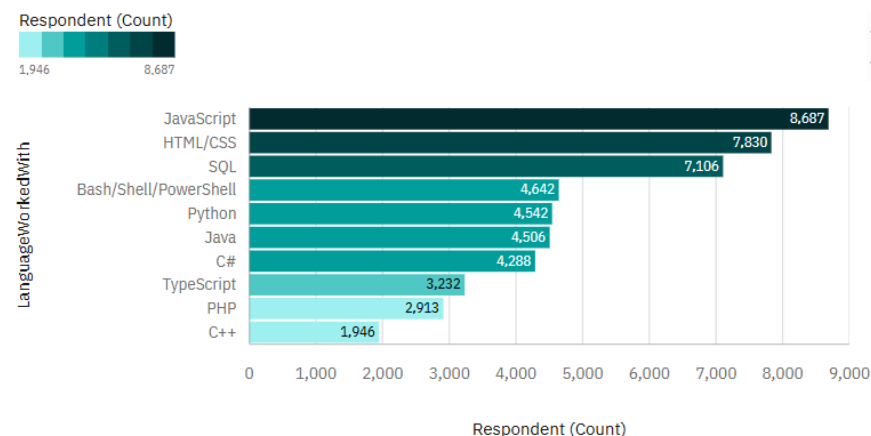


Cognos dashboard link: [Click here](#)

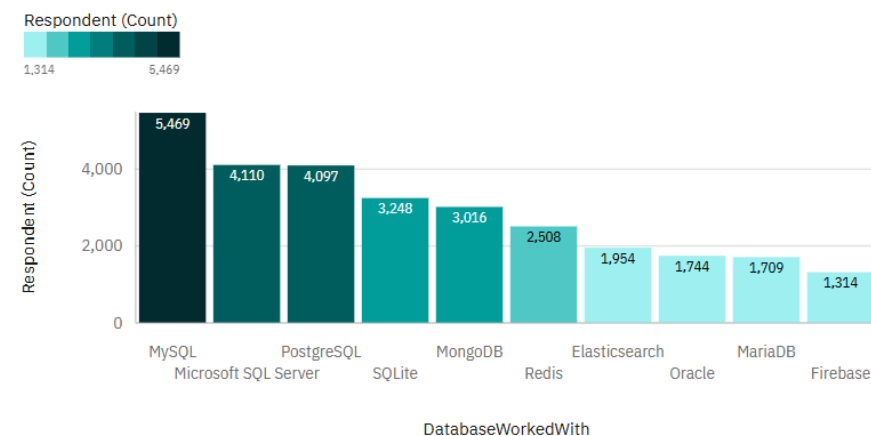


# CURRENT TECHNOLOGY USAGE

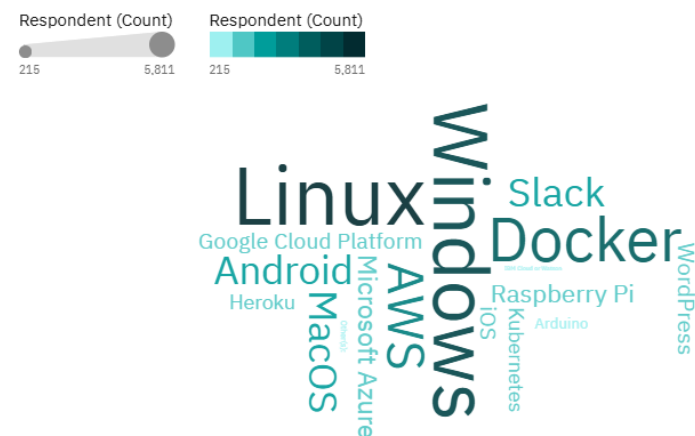
Top 10 LanguageWorkedWith



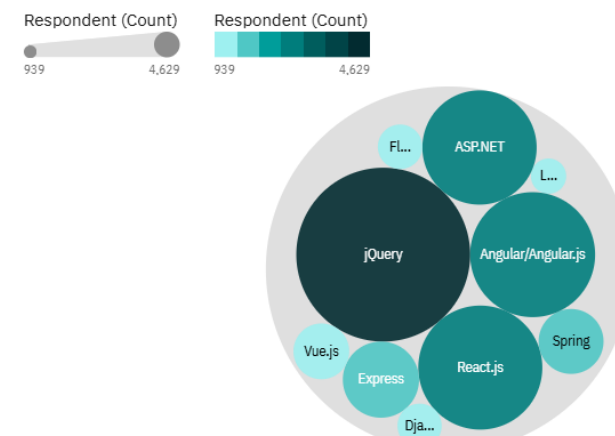
Top 10 DatabaseWorkedWith



PlatformWorkedWith



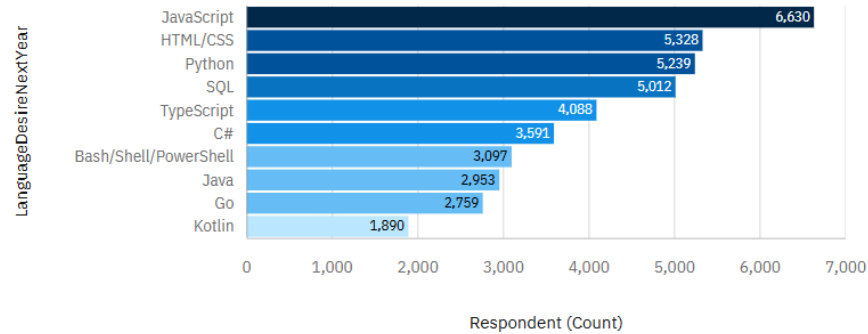
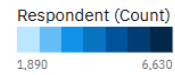
Top 10 WebFrameWorkedWith



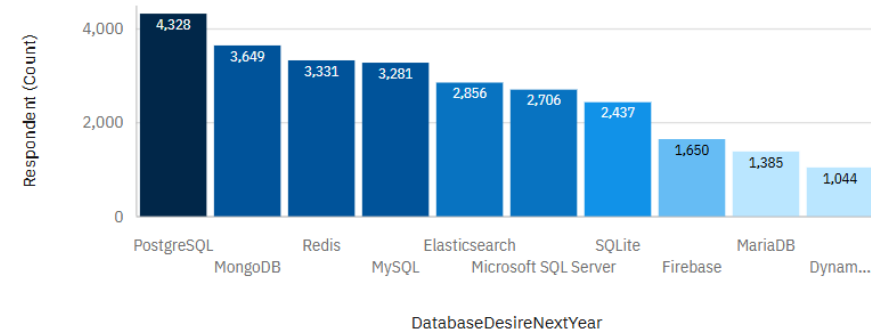
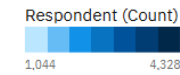


# FUTURE TECHNOLOGY TREND

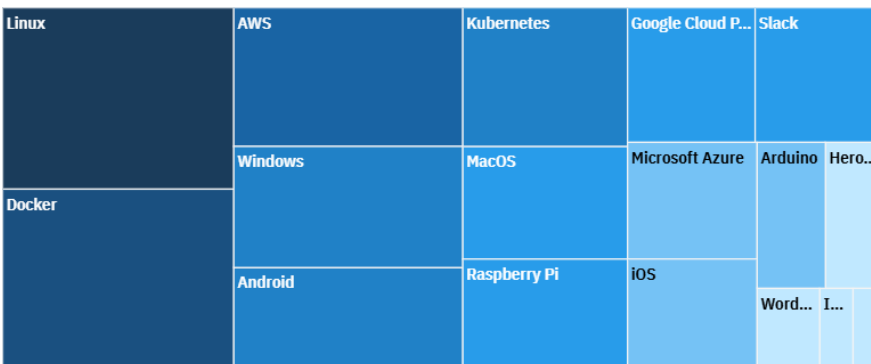
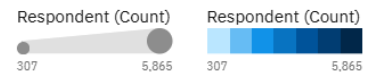
Top 10 LanguageDesireNextYear



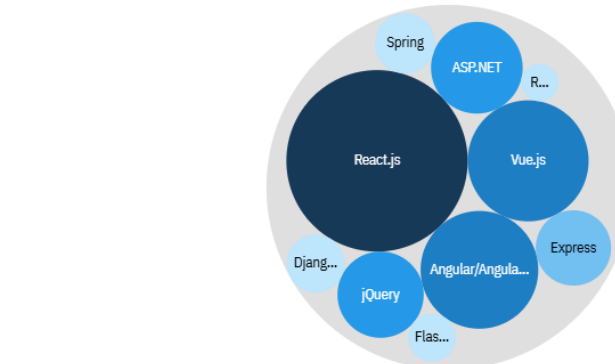
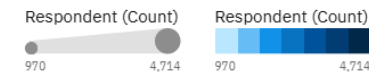
Top 10 DatabaseDesireNextYear



PlatformDesireNextYear



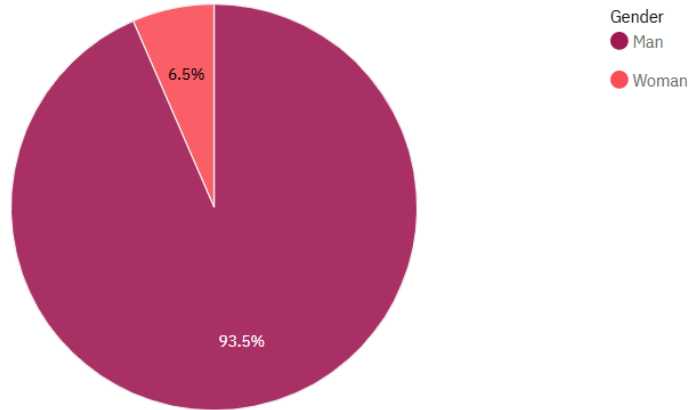
Top 10 WebFrameDesireNextYear



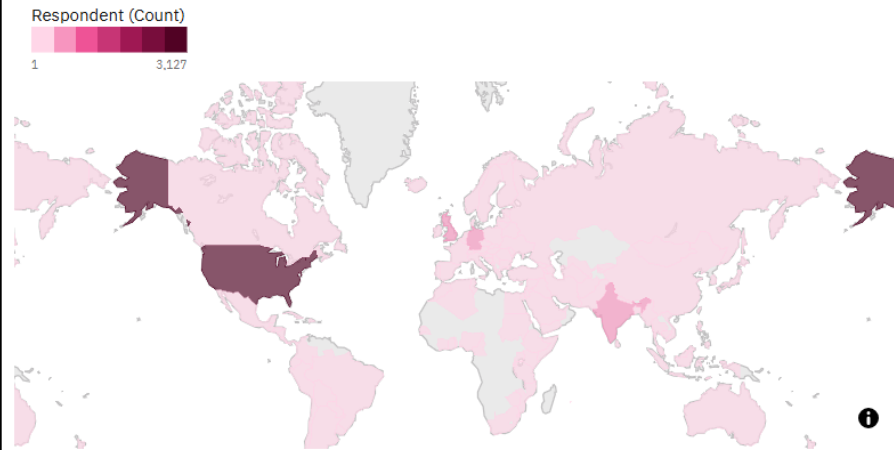


# DEMOGRAPHICS

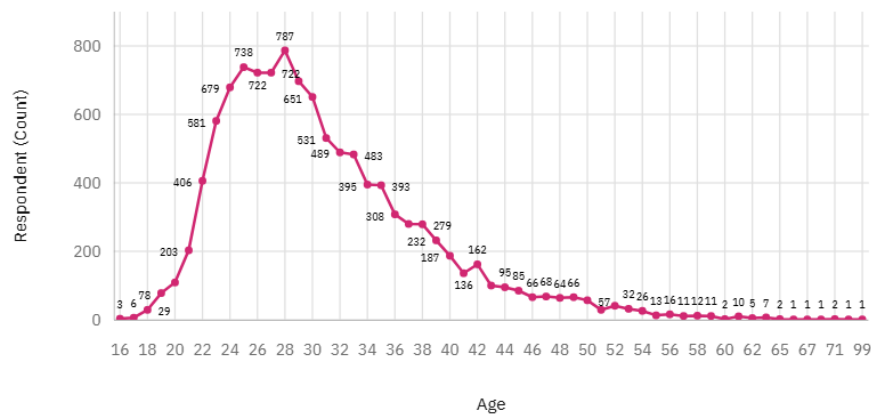
Respondent classified by Gender



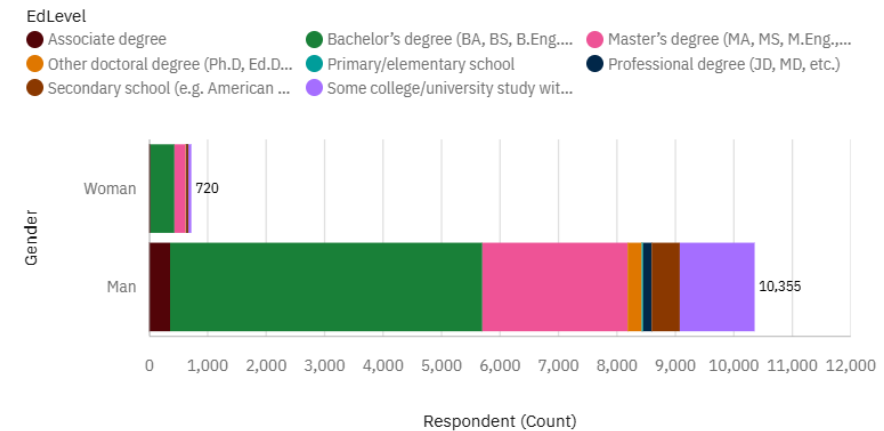
Respondent Count for Countries



Respondent Count by Age



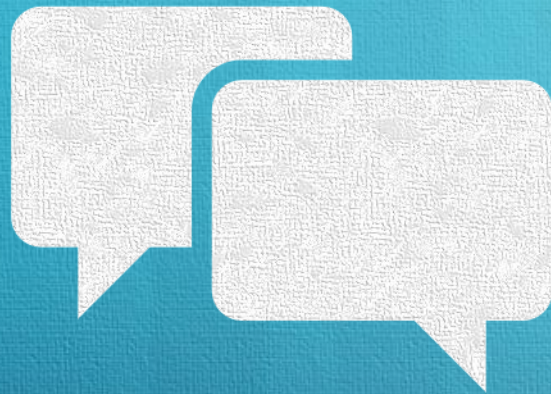
Count by Gender, classified by Formal Education Level.





# DISCUSSION

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- **Trend Analysis:**  
Shifts in programming language and framework preferences
- **Demographic Impact:**  
Predominantly male; majority aged 25-30
- **Skill Gaps:**  
Areas where skills lag behind market needs
- **Future Outlook:**  
Growth expected in Python and PostgreSQL; rising importance of Docker and Kubernetes
- **Training Recommendations:**  
Focus on targeted upskilling and diversity initiatives
- **Strategic Planning:**  
Align workforce skills with evolving market trends



# OVERALL FINDINGS & IMPLICATIONS

## Findings

- **Dominance of JavaScript:**  
Continues to lead in programming languages
- **Growing Demand for Python:**  
Significant rise reflects a market shift
- **PostgreSQL and NoSQL:**  
Increasing relevance in database technologies
- **Emergence of Docker and Kubernetes:**  
Key platforms gaining traction
- **Leading Frameworks:**  
React.js and Vue.js are essential for future web development
- **Demographics:**  
Predominantly male respondents; majority aged 25-30
- **Geographic Insights:**  
Majority from the US, India, and UK
- **Education Levels:**  
Majority hold bachelor's and master's degrees

## Implications

- **Upskilling Focus:**  
Prioritize JavaScript and Python in training initiatives
- **Database Training:**  
Emphasize PostgreSQL, MongoDB, and Redis skills
- **Platform Development:**  
Incorporate Docker and Kubernetes into training programs
- **Web Development Emphasis:**  
Focus on React.js and Vue.js for development teams
- **Support Diversity:**  
Develop strategies to increase female participation in tech
- **Global Tailoring:**  
Adapt training programs for leading countries
- **Leverage Education:**  
Utilize high education levels for advanced skill development



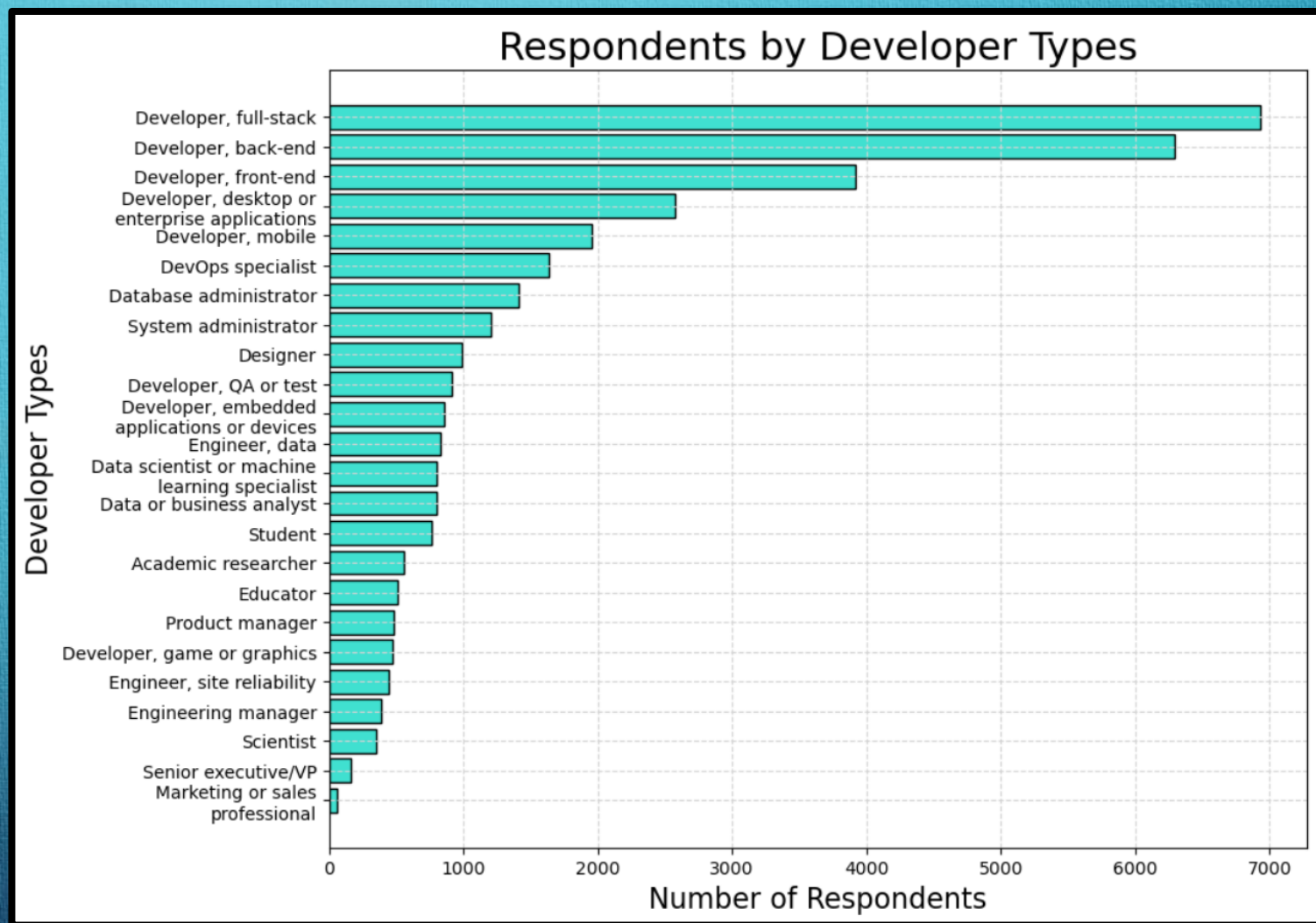
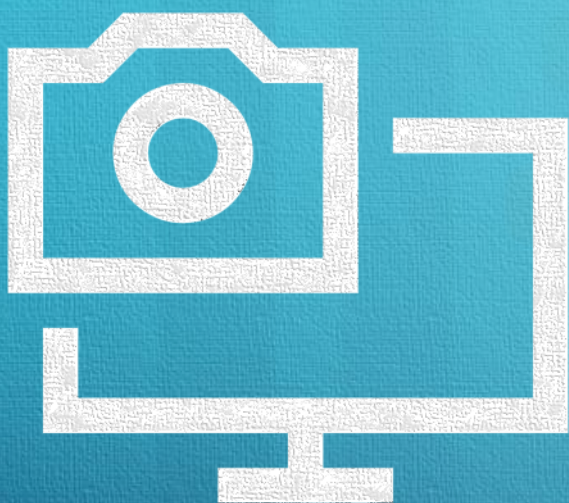
# CONCLUSION



- **Evolving Skill:**  
Demand for programming languages, frameworks, and platforms is shifting
- **Key Focus Areas:**  
JavaScript, Python, PostgreSQL, and modern frameworks are essential
- **Strategic Training:**  
Prioritize upskilling in technologies like Docker, Kubernetes, React.js, and Vue.js
- **Diversity and Inclusion:**  
Address the gender gap and support increased female participation in tech
- **Ongoing Analysis:**  
Regularly monitor trends to adapt effectively
- **Future Readiness:**  
Invest in skills today for tomorrow's challenges



# APPENDIX

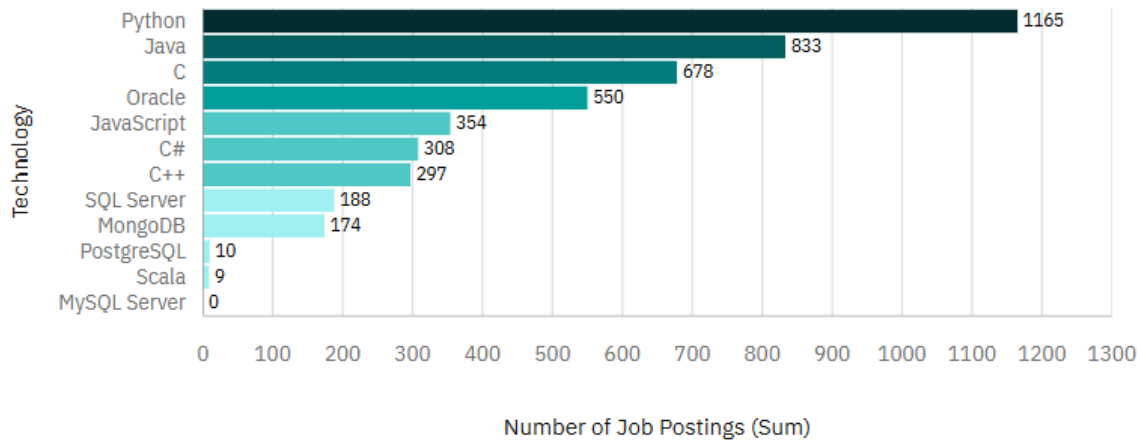
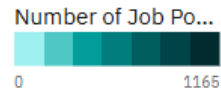




# JOB POSTINGS

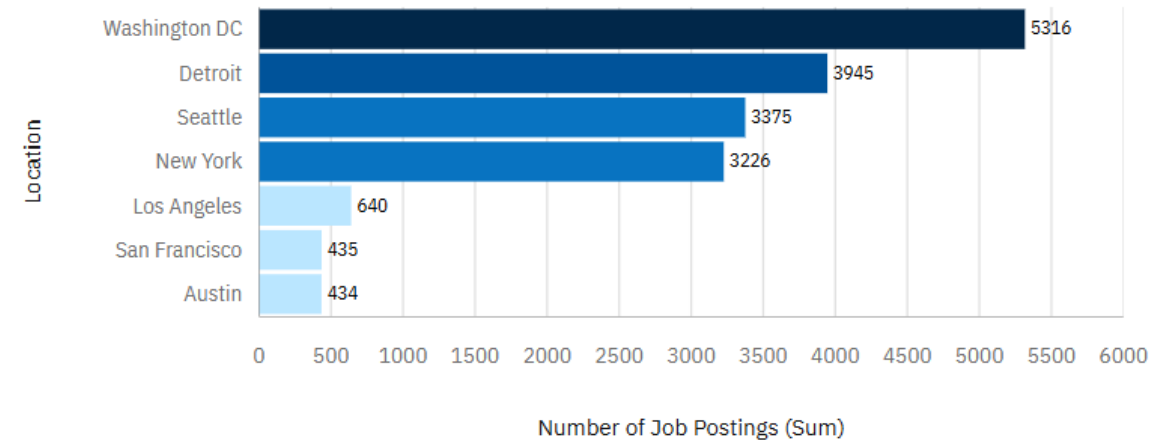
## by Technology

Number of Job Postings in US by Technology



## by Location

Number of Job Postings in US by Location





# POPULAR LANGUAGES

