Emerging IT Skills

Ashvini Patil

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OUTLINE

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

EXECUTIVE SUMMARY

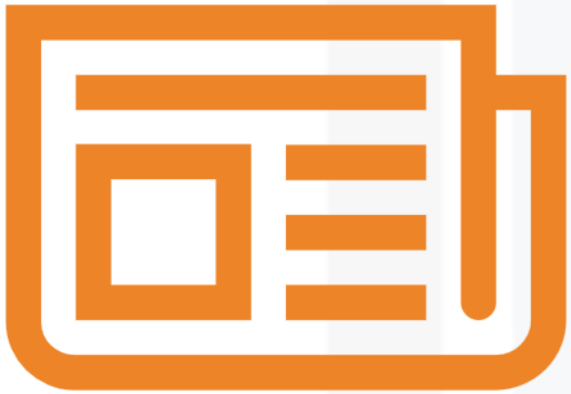
This analysis provides insights into the current and future trends in programming languages, databases, platforms, and web frameworks based on data from job postings, surveys, and training portals.

- **Key Findings**:
  - JavaScript, SQL, and Python are the most used languages, with Python gaining momentum for future learning.
  - MySQL is the top database, but PostgreSQL and MongoDB are growing in demand.
  - Windows and Linux dominate, while Docker and AWS are gaining attention for scalable solutions.
  - React.js leads future interest in web frameworks, followed by Vue.js and Angular/Angular.js.
- **Demographics**:
  - 93.5% male respondents, mostly aged 28-34 with Bachelor’s degrees. Majority are from the U.S., followed by India and the UK.
- **Implications**:
  - Prioritize Python, cloud platforms, and modern databases for workforce development.
  - Invest in React.js and other modern web frameworks to stay competitive.
  - Increase diversity initiatives to close the gender gap.

INTRODUCTION

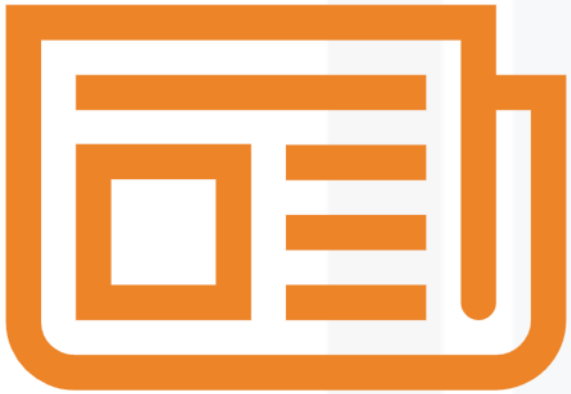
- A global IT and business consulting services firm, renowned for providing cutting-edge IT solutions and expert consulting services.
- As technologies evolve, identifying future skill requirements is crucial to maintaining a competitive edge. This initiative aims to analyze data to highlight the top in-demand IT skills for this year.
- As a Data Analyst, I have been tasked with collecting, analyzing, and interpreting data from sources like job postings, training portals, and surveys.
- The focus of this analysis includes:
  - Identifying the top programming languages in demand.
  - Highlighting the top database skills.
  - Determining the most popular Web Frame and Platform.
- To provide insights into emerging skills that will help the organization stay ahead in the ever-changing tech landscape.

METHODOLOGY



- **Data Collection**
  - Gathered data from various sources such as job postings, training portals, and industry surveys to ensure a broad representation of programming trends.
  - Employed web scraping techniques and accessed APIs to extract real-time data in formats like .csv and Excel sheets.
- **Data Wrangling**
  - Cleaned and transformed the data using various wrangling techniques to ensure its readiness for analysis, focusing on consistency and accuracy.
- **Statistical Analysis**
  - Conducted descriptive statistics to summarize key trends in programming language usage and learning preferences.
  - Used box plots to identify and remove outliers, ensuring that the analysis was not skewed by extreme values and improving the overall data quality.

METHODOLOGY



- **Data Visualization & Dashboard Creation**
  - Visualized key insights using IBM Cognos Analytics, creating three dashboards:
    - **Current Technology Usage**: Showcased the most widely used programming languages and tools.
    - **Future Technology Trends**: Highlighted emerging skills and technologies based on user interest and learning preferences.
    - **Demographics**: Presented data on user demographics, helping to contextualize the findings.

RESULTS

- **Current Technology Usage**
  - Languages**:**
    - JavaScript, HTML/CSS, SQL, Python leading.
    - JavaScript tops with 8,687 respondents.
  - Databases**:**
    - MySQL most used (5,469 respondents), followed by Microsoft SQL Server and PostgreSQL.
  - Platforms**:**
    - Windows and Linux dominant, with Docker, AWS gaining ground.
  - Web Frames**:**
    - jQuery is top most followed by Angular/Angular.js and React.js most used Web Frames.

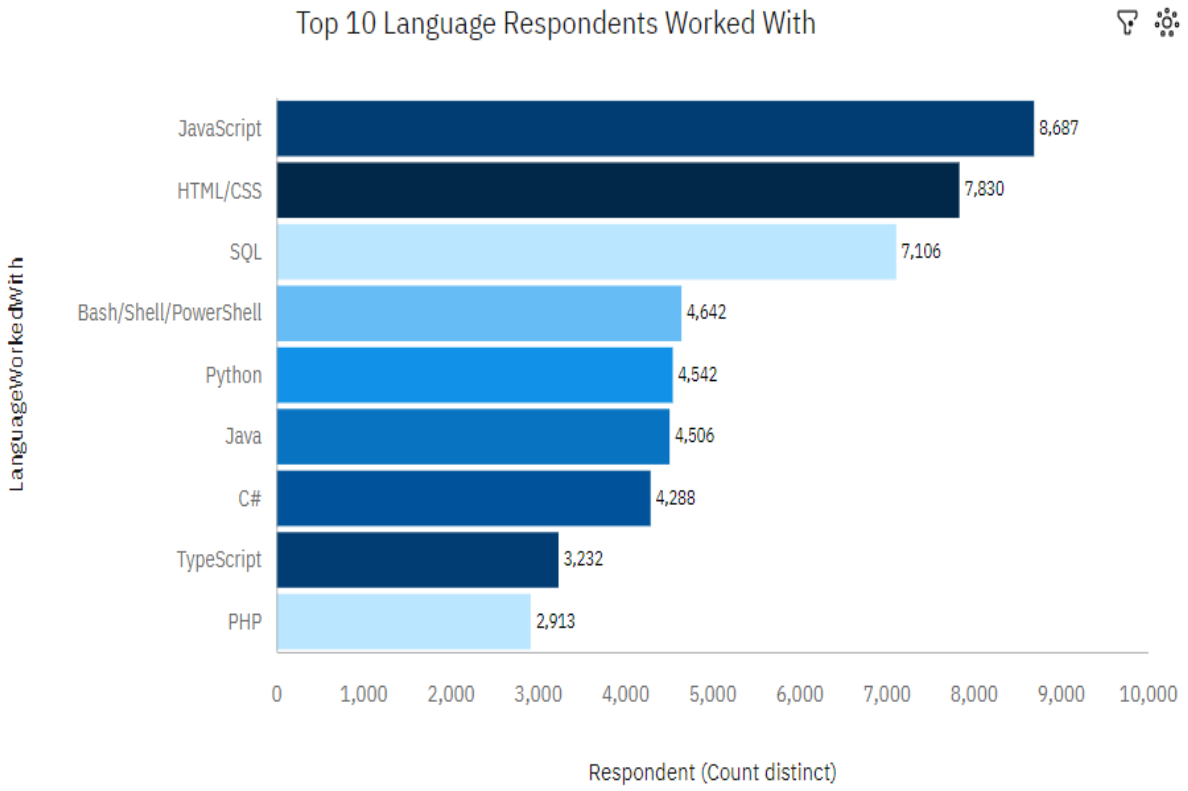
- **Future Technology Trends**
  - Languages in Demand:
    - Python, JavaScript, and SQL remain relevant.
    - Python has 5,239 respondents eager to learn it next year.
  - Database Interest:
    - PostgreSQL and MongoDB top the list of desired databases.
  - Platform Trends:
    - Linux , Docker and AWS lead future interest.
  - Web Frames**:**
    - React.js is in top on list to learn followed by Vue.js and Angular/Angular.js.

RESULTS

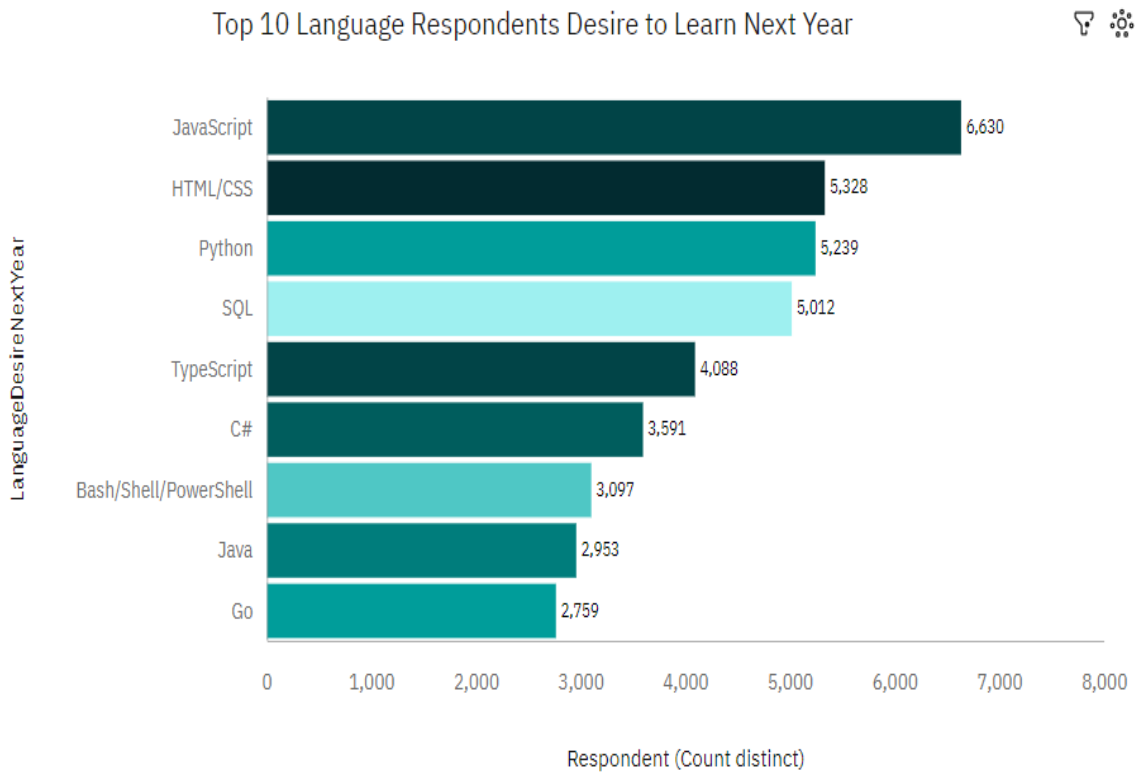
- **Demographics Overview**
  - Gender**:**
    - 93.5% respondents identify as male and other are female.
  - Age Distribution:
    - Peaks around ages 28–34 with over 700 respondents.
  - Education Level:
    - Majority hold a Bachelor’s degree (5,341 respondents).
  - Country:
    - Majority of respondents from United States (11398) followed by India and United Kingdom.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



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SKILLS NETWORK

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

•JavaScript remains the most widely used programming language with over 8,687 respondents currently working with it.

•HTML/CSS and SQL also rank high in current usage, with 7,830 and 7,106 users, respectively.

•Python, though not as widely used as JavaScript, is the third most desired language to learn, with over 5,200 respondents showing interest.

Implications

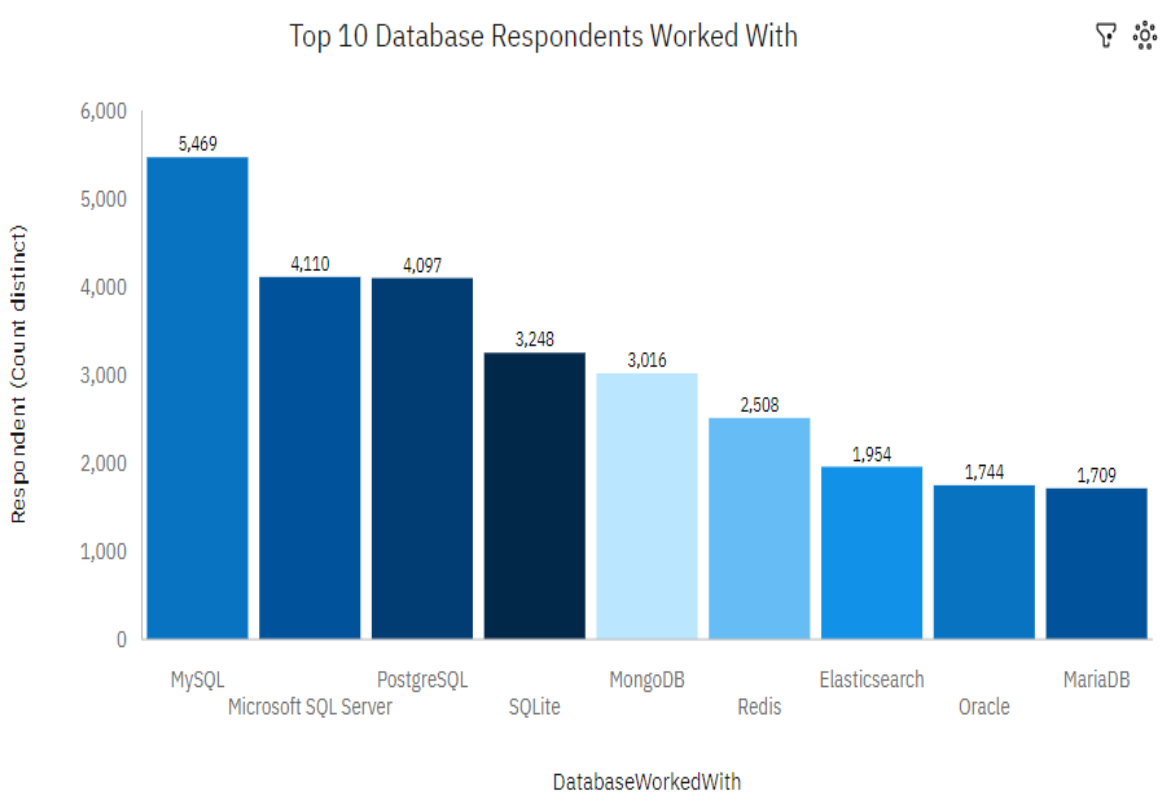
•Continued demand for JavaScript suggests its essential role in web development and full-stack solutions, indicating a stable job market for professionals with JavaScript expertise.

•The strong interest in learning Python indicates its growing relevance, likely driven by its dominance in data science, machine learning, and automation. Organizations should focus on fostering Python expertise.

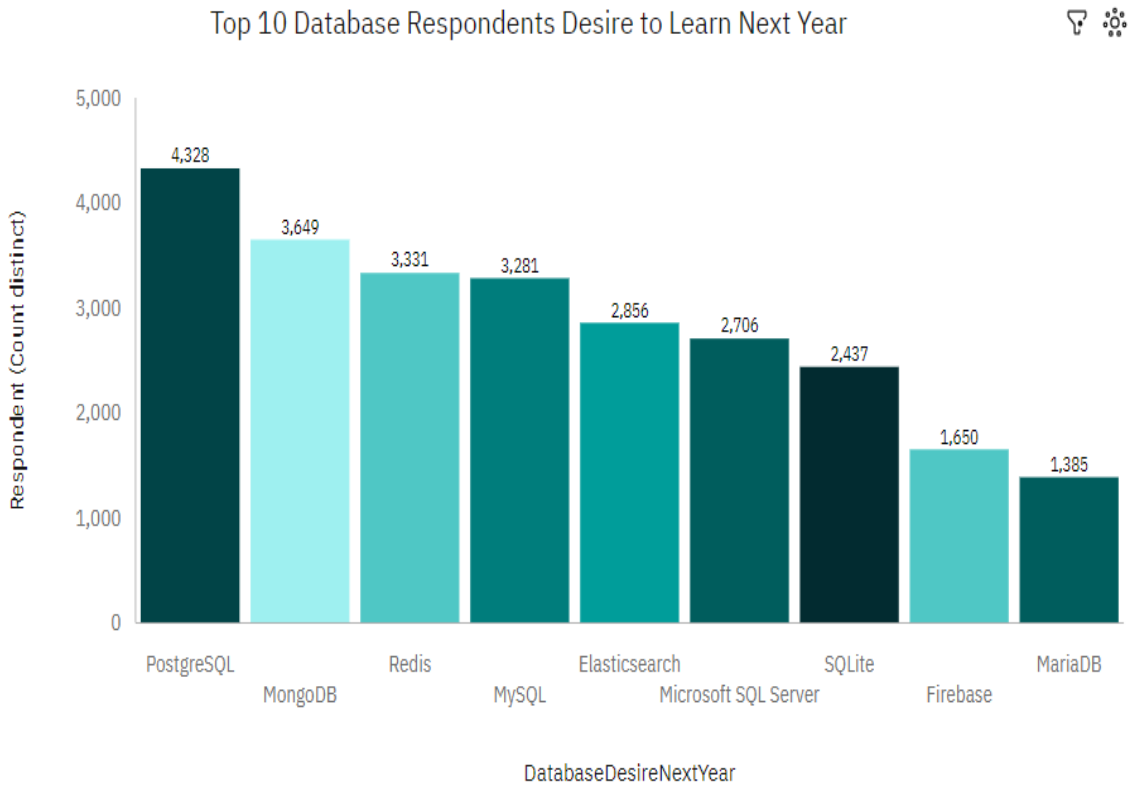
•SQL's high usage and desire for learning suggest that database management remains a critical skill across industries, emphasizing the need for training and development in database-related competencies.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

• PostgreSQL is the most desired database to learn next year, with 4,328 respondents showing interest.

• MySQL and MS SQL remains the most widely used database, with 5,469 and 4,110 respondents working with it.

•MongoDB shows a balanced presence in both interest and usage, ranking 2nd in desire to learn and 5th in usage.

Implications

•Developers are increasingly interested in PostgreSQL, indicating a trend toward its advanced features and open-source appeal.

•MySQL continues to dominate the database space, suggesting that it remains a core technology in legacy and modern systems.

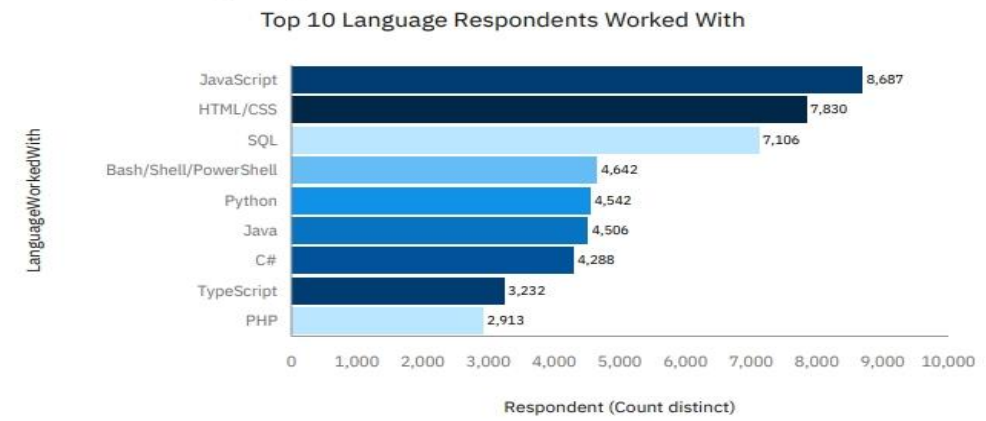
•Technologies MongoDB and Redis appear in both lists, signaling that NoSQL databases are becoming essential in various tech stacks.

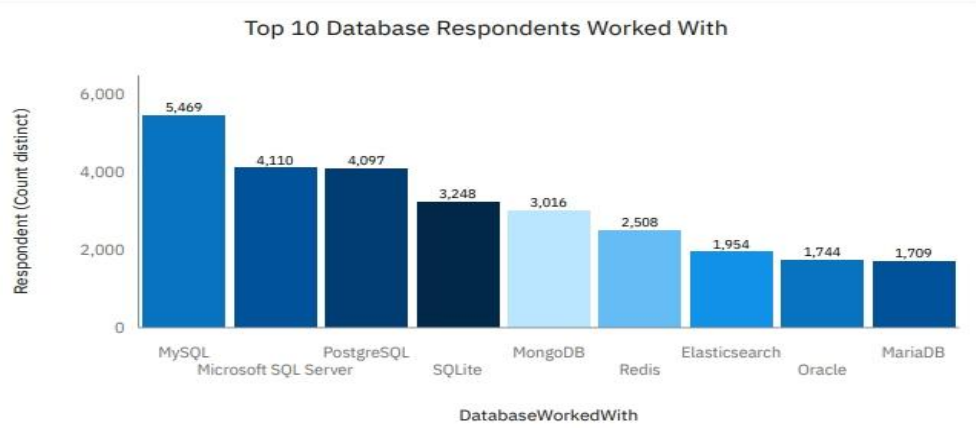
DASHBOARD

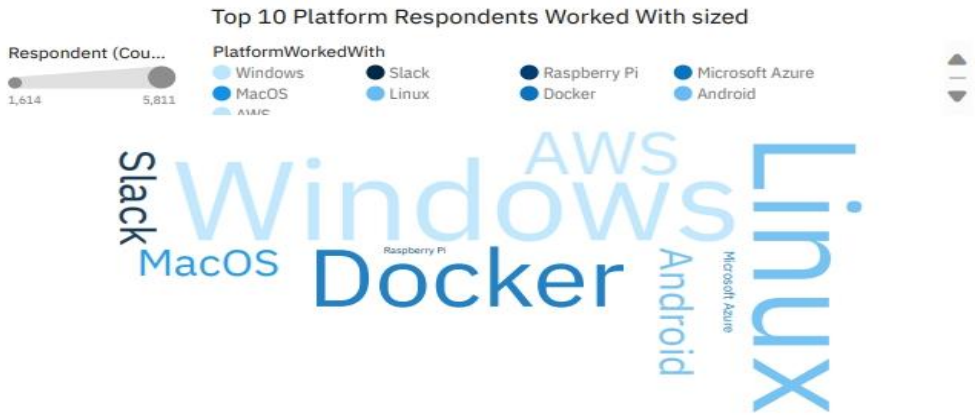
- Github link for Dashboard

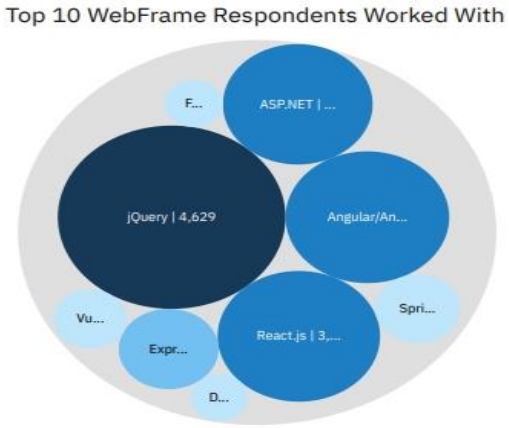
DASHBOARD TAB 1

Current Technology Usage





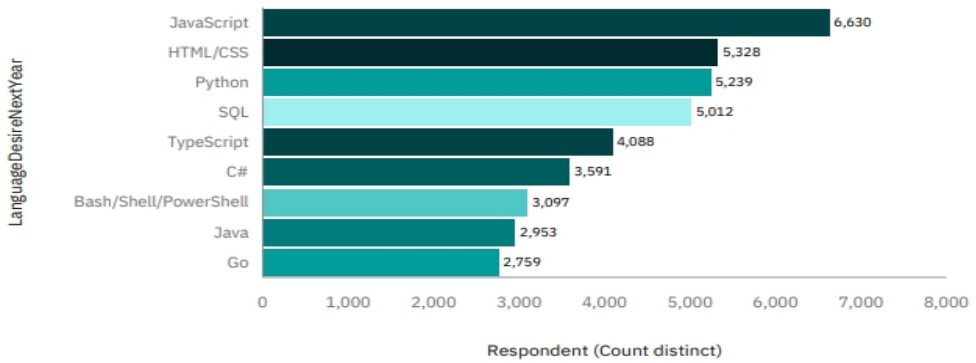




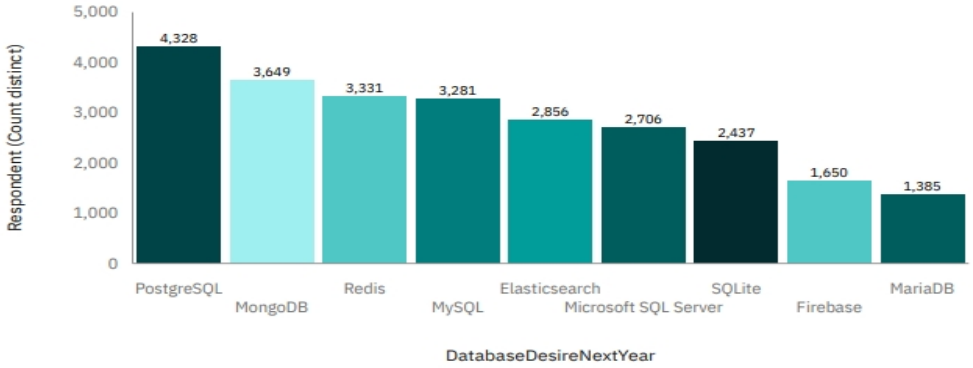
DASHBOARD TAB 2

Future Technology Trend

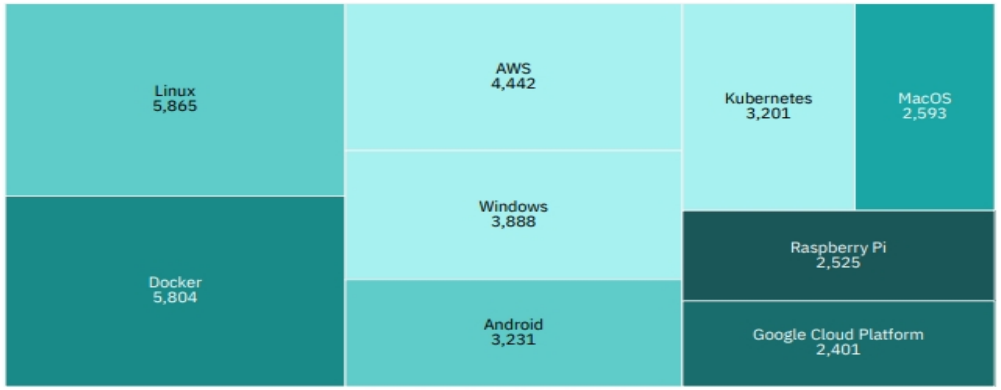
Top 10 Language Respondents Desire to Learn Next Year



Top 10 Database Respondents Desire to Learn Next Year



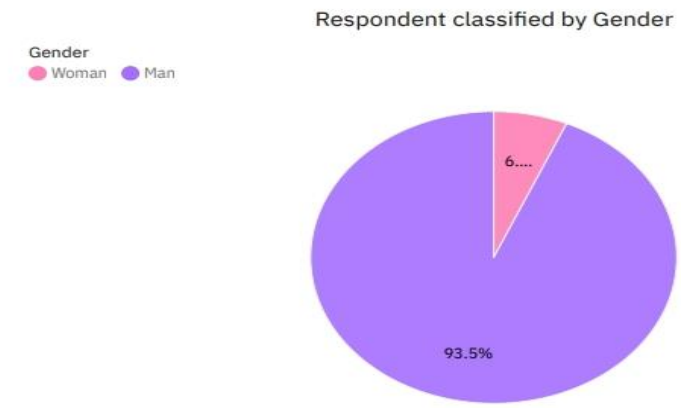
Top 10 Platform Respondents Desire to Learn Next Year

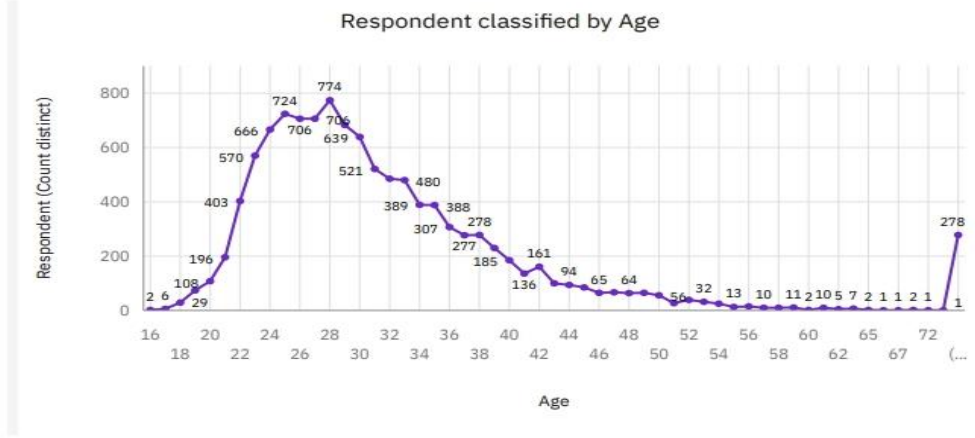


Top 10 WebFrame Respondents Desire to Learn Next Year

DASHBOARD TAB 3

Demographics





DISCUSSION

- **Context:**
  Analyzed tech industry trends to understand current usage, future needs, and demographic insights.

- **Insights:**
- JavaScript, SQL, and HTML/CSS widely used; Python growing in popularity for future learning.
- MySQL leads, with PostgreSQL and MongoDB desired for future use.
- Windows and Linux dominate; Docker and AWS adoption rising, reflecting a shift to cloud and containers.
- jQuery widely used, but React.js is the top choice for future learning.

- **Implications:**
- Upskilling in Python, Docker, and AWS can prepare teams for evolving tech needs.
- Balancing established and emerging skills can enhance adaptability and growth.

OVERALL FINDINGS & IMPLICATIONS

Finding

•JavaScript continues to dominate as the most widely used language, with growing usage of Python and SQL in both current usage and future learning demand.

•MySQL is the most used database, but PostgreSQL and MongoDB are gaining momentum as the most desired databases to learn.

•There is strong interest in cloud-based platforms and containerization technologies like Docker and AWS, showing a shift toward modern infrastructure.

•Web frameworks such as jQuery, Angular/Angular.js, and React.js are currently widely used, but React.js is the most desired framework for future learning, followed closely by Vue.js and Angular/Angular.js, signaling a shift in modern web development.

Implication

•The enduring popularity of JavaScript and rising interest in Python indicates that organizations should prioritize these languages when building teams and technology stacks.

•The growth in demand for PostgreSQL and MongoDB suggests that organizations should invest in training to help employees master these databases to support future projects.

•As Docker and AWS continue to gain popularity, businesses should consider increasing their adoption of containerization and cloud platforms to stay competitive in infrastructure development.

•The rising interest in React.js and Vue.js points to a trend toward more flexible and performance-driven front-end development. Organizations looking to remain competitive in the web development space should consider adopting or transitioning to these frameworks.

CONCLUSION

Key Insights:

- The analysis confirms that JavaScript, Python, and SQL are the backbone of current and future development needs, with Python seeing significant interest for future learning.
- There is a shift toward modern platforms and tools like Docker, AWS, PostgreSQL, and MongoDB, signaling a move towards more scalable and cloud-native solutions.
- Demographic trends highlight a need for greater diversity and inclusion efforts in the tech industry, particularly in terms of gender representation.
- Web frameworks like React.js and Vue.js are gaining popularity, indicating a trend toward more modern, efficient front-end development approaches.

CONCLUSION

Recommendations:

- Companies should focus on skilling employees in Python, cloud platforms, modern databases, and frameworks such as React.js and Vue.js to meet future demands.
- Organizations must foster diversity by promoting more inclusive hiring and training practices to bridge the gender gap in tech.
- A proactive approach toward adopting modern databases and cloud infrastructure will keep businesses agile and ready for emerging technological trends.

APPENDIX

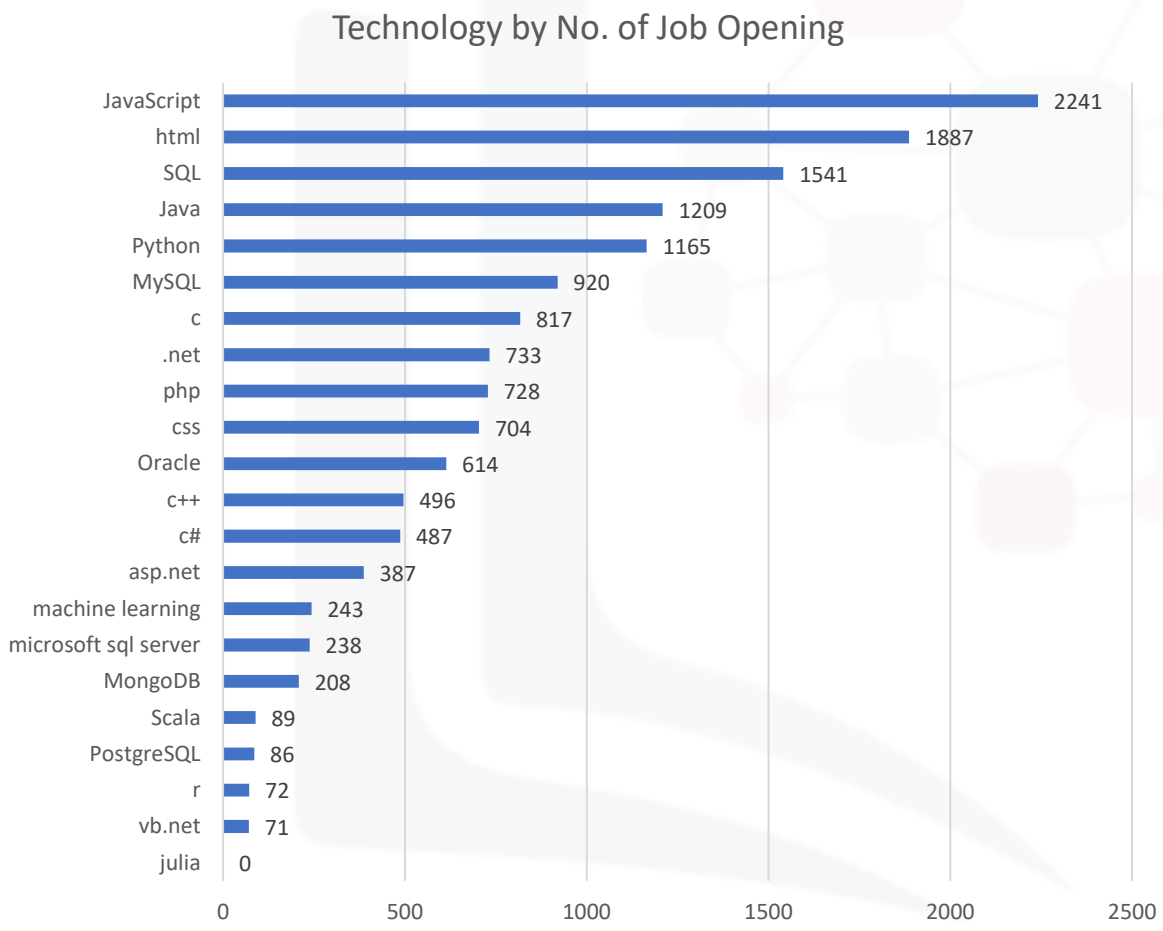
- **Insights from Additional Findings**

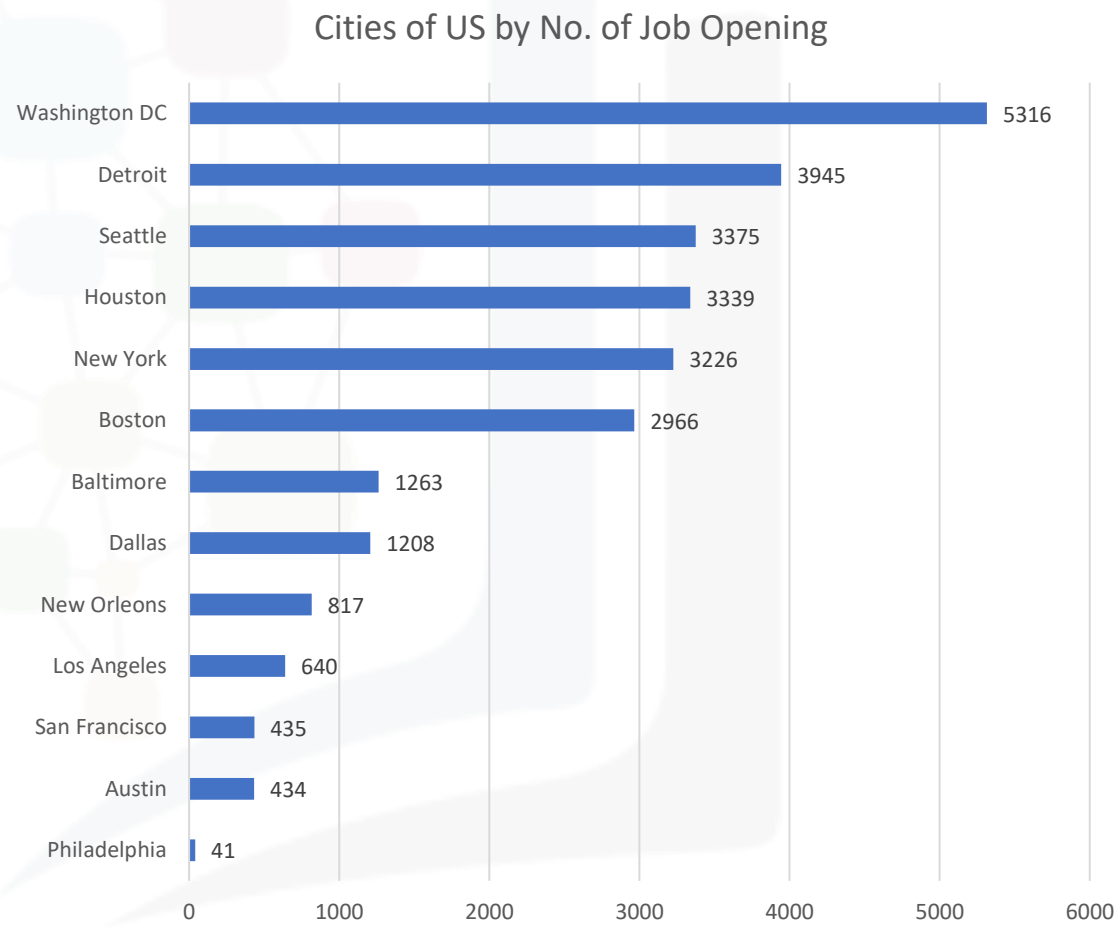
- **Top Technologies by Job Openings:**
  - High demand for JavaScript (2,241), HTML (1,887), SQL (1,541) and Python (1,165).
  - Database skills like MySQL and Oracle remain important in the job market.

- **Job Openings by City in US:**
  - Highest demand in Washington, D.C. (5,316), Detroit (3,945), and Seattle (3,375).
  - Major metro areas like New York and Houston also show strong job opportunities.

- **Language by Average Salaries:**
  - Top salaries for Swift ($130K), Python ($114K), and C++ ($113K).
  - Lower averages for SQL and PHP, highlighting varying pay based on tech stack.

JOB POSTINGS





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SKILLS NETWORK

POPULAR LANGUAGES