PPTX IBM CAPSTONE PROJECT PRESENTATION

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OUTLINE

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- Methodology

- Results
  - Visualization – Charts
  - Dashboard

- Discussion
  - Findings & Implications

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EXECUTIVE SUMMARY

- Tech Usage & Trends
  - JavaScript, SQL, Python are top languages
  - MySQL, SQL Server, PostgreSQL are top databases
  - Linux, Docker, AWS are top platforms
  - Interest in Go, Kotlin, TypeScript is rising

- Demographics
  - 93.5% male, 6.5% female
  - Most have Bachelor's or Master's degrees
  - Majority aged 24-35

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INTRODUCTION

- Introduction Key Points:
  - The report analyzes technology usage based on survey data.
  - It outlines prevalent technologies and future interests.
  - Demographics of the respondents are detailed.
  - Aims to inform stakeholders in various industries.
  - Offers insights for educators, employers, and tech enthusiasts.
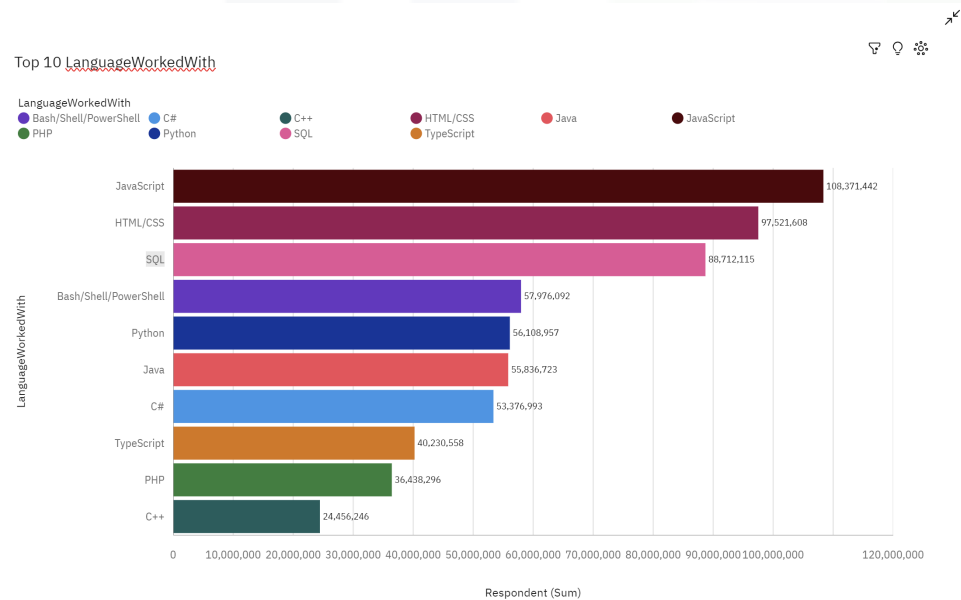
METHODOLOGY

- Data Sources:
  - Survey data from technology professionals.
  - Database records for language and platform usage.
  - Demographic data from respondent profiles.
- Data Collection:
  - Online surveys completed by professionals in the tech industry.
  - Analysis of technology usage patterns from platform analytics.
  - Aggregation of demographic information through self-reported surveys.
- Analysis:
  - Normalization of technology terms to ensure consistency.
  - Categorization of data by technology type (languages, databases, platforms).
  - Statistical analysis of demographic data for trends and patterns.
- Data Visualization:
  - Utilization of dashboard tools to represent data graphically.
  - Interactive charts to show preferences and trends in technology.
  - Mapping of respondent locations to illustrate geographic distribution.

RESULTS

- The top programming languages currently used are JavaScript, HTML/CSS, SQL, Bash/Shell/PowerShell, and Python, in that order.

- The most utilized databases are MySQL, Microsoft SQL Server, PostgreSQL, with MongoDB and SQLite also widely used.

- Popular platforms among the respondents are Linux, Docker, and AWS.

- For the next year, the programming languages that survey respondents are most interested in are JavaScript, Python, Go, TypeScript, and Kotlin.

- The desired databases for the next year show a strong interest in PostgreSQL, MongoDB, and Redis.

- The platform preferences for the upcoming year lean towards AWS, Docker, and Kubernetes.

- Demographically, the survey participants are predominantly male (93.5%) and most have Bachelor's degrees, with the majority being between the ages of 24-35.

- This data suggests a strong continuity in technology usage with a significant lean towards open-source technologies and a clear indication of gender imbalance in the tech industry.
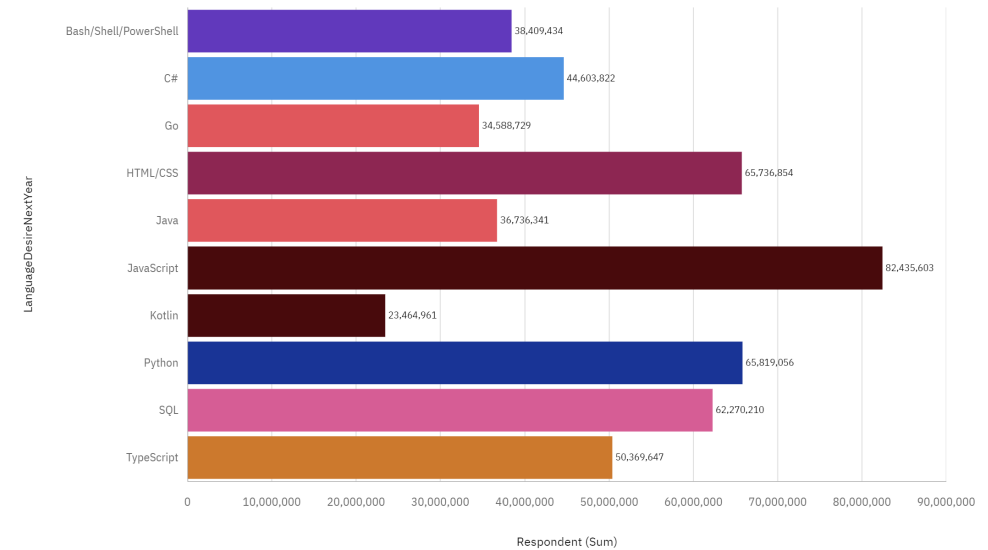
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PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 LanguageWorkedWith

LanguageWorkedWith
- Bash/Shell/PowerShell
- C#
- C++
- HTML/CSS
- Java
- JavaScript
- PHP
- Python
- SQL
- TypeScript

LanguageWorkedWith	Respondent (Sum)
JavaScript	108,371,442
HTML/CSS	97,521,608
SQL	88,712,115
Bash/Shell/PowerShell	57,976,092
Python	56,108,957
Java	55,836,723
C#	53,376,993
TypeScript	40,230,558
PHP	36,438,296
C++	24,456,246

Next Year

Top 10 Language Desire Next Year

LanguageDesireNextYear	Respondent (Sum)
Bash/Shell/PowerShell	38,409,434
C#	44,603,822
Go	34,588,729
HTML/CSS	65,736,854
Java	36,736,341
JavaScript	82,435,603
Kotlin	23,464,961
Python	65,819,056
SQL	62,270,210
TypeScript	50,369,647

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript remains the most used and desired programming language.
- HTML/CSS, SQL, Bash/Shell/PowerShell, and Python also top the current usage list.
- There is a noticeable shift in interest towards languages like Go, Kotlin, and TypeScript for the coming year.
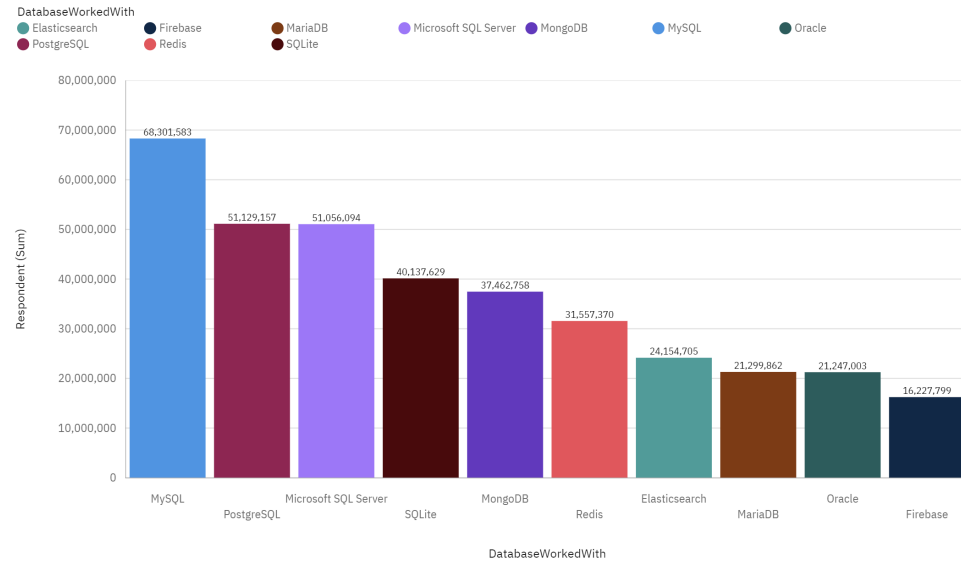- Despite new languages emerging, established languages like JavaScript and Python continue to be in demand.

Implications

- The sustained popularity of JavaScript and Python suggests they will remain essential skills for developers.
- The rising interest in Go, Kotlin, and TypeScript could influence educational curriculums and job market demands.
- Organizations may need to invest in training for upcoming languages to stay competitive.
- Tooling, resources, and community support for emerging languages could see increased investment.

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DATABASE TRENDS

Current Year

Top 10 DatabaseWorkedWith

DatabaseWorkedWith
● Elasticsearch ● Firebase ● MariaDB ● Microsoft SQL Server ● MongoDB ● MySQL ● Oracle
● PostgreSQL ● Redis ● SQLite

Next Year

Top 10 Database Desire Next Year
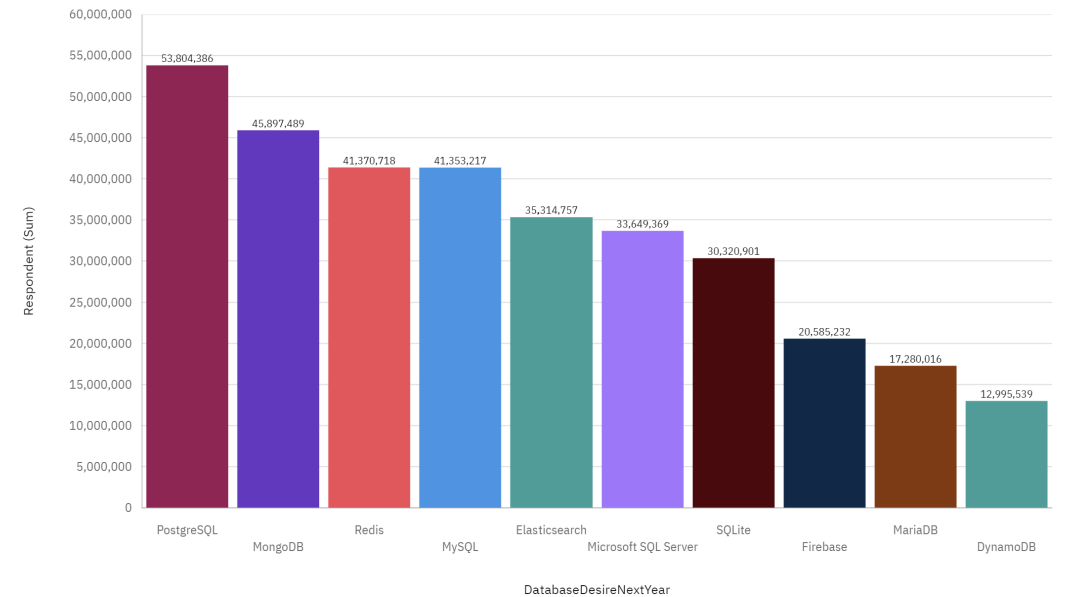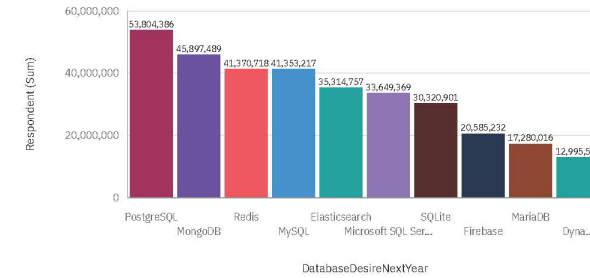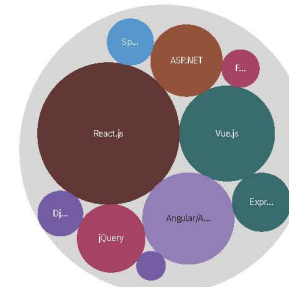
DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Finding 1

- Finding 2

- Finding 3

Implications
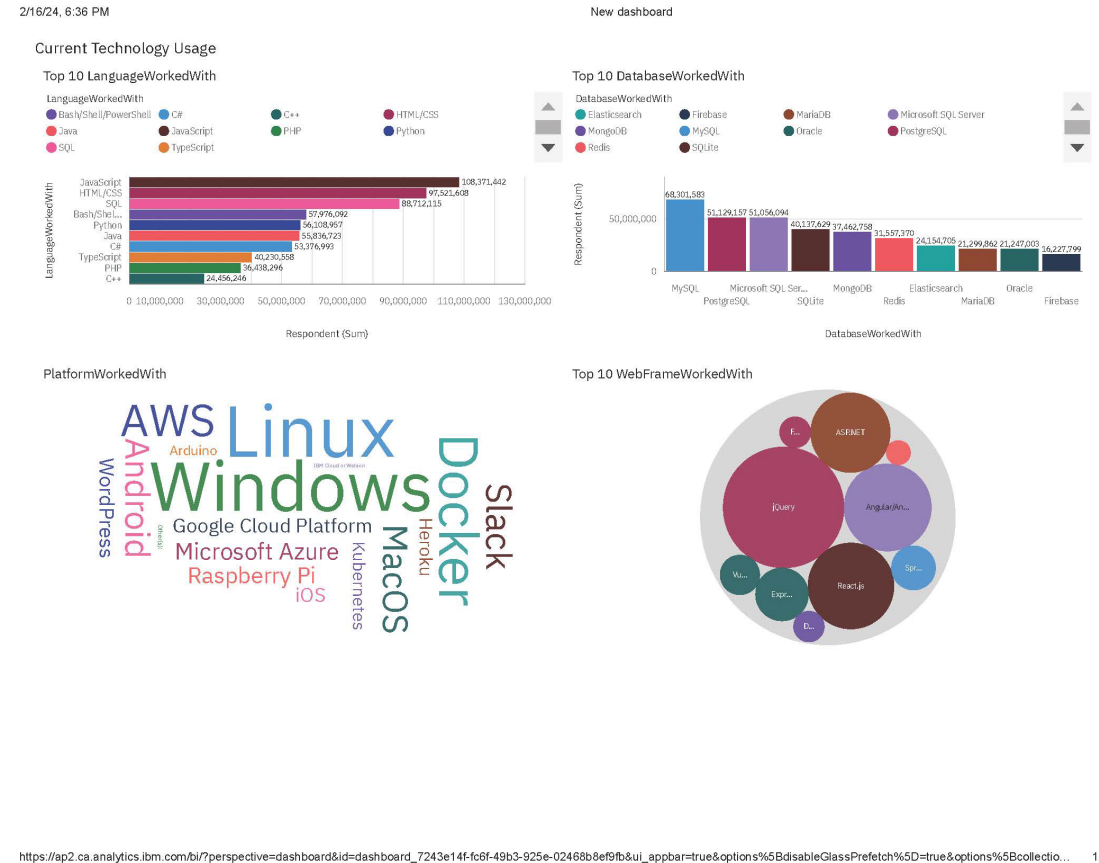
- Implication 1

- Implication 2

- Implication 3

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DASHBOARD

https://github.com/psungg/IBM-Data-Analytics/blob/main/IBM_Data_Analyst_Capstone_Project/Week05/Dashboard_Assignment.pdf
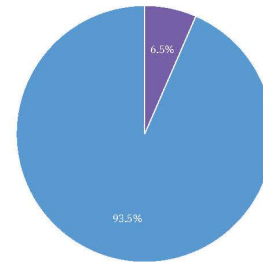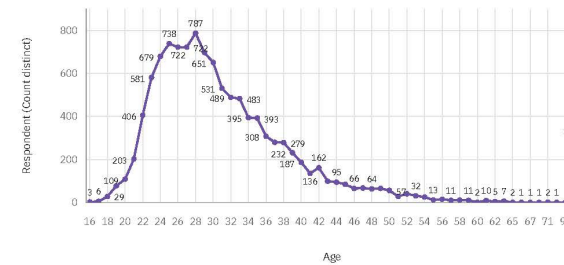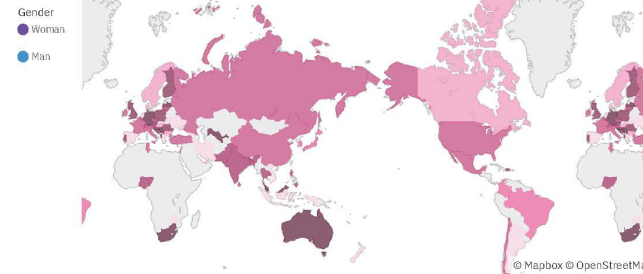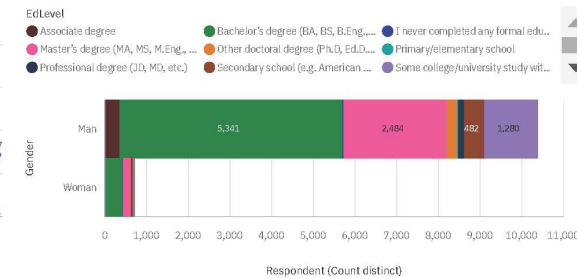
DASHBOARD TAB 1

DASHBOARD TAB 2

DASHBOARD TAB 3

DISCUSSION

- The data shows a strong continuity in the usage of established programming languages like JavaScript, Python, and SQL, while also revealing a growing interest in languages such as Go, Kotlin, and TypeScript. This indicates a dual trend where the industry values both stability and innovation.

- In database technologies, there is a clear shift towards systems that offer more flexibility, scalability, and performance, such as PostgreSQL, MongoDB, and Redis. This reflects the increasing demand for technologies capable of supporting complex, high-volume data operations.

- The demographic data highlights a significant gender imbalance in the tech industry, with male respondents vastly outnumbering female respondents. This underscores the need for ongoing efforts to encourage diversity and inclusivity within the field.

- The findings imply that while the tech industry continues to rely on proven technologies, there is also an openness to adopting new tools that can better address current challenges. This suggests a dynamic sector that is constantly evolving to meet the needs of a changing world.

- The implications for education and workforce development are significant, indicating a need for curricula that cover both foundational technologies and emerging trends. Additionally, there is a call for initiatives that can address gender disparities and promote a more diverse tech community.

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OVERALL FINDINGS & IMPLICATIONS

- Findings:

  - JavaScript, Python, and SQL dominate current programming language usage, with Go, Kotlin, and TypeScript marked as rising stars for the future.
  - PostgreSQL, MongoDB, and Redis are preferred databases for the upcoming year, showing a shift towards open-source and versatile data management systems.
  - Linux, Docker, and AWS lead platform usage, highlighting the importance of open-source and cloud computing environments.
  - The tech industry shows a notable gender imbalance, with male respondents significantly outnumbering female respondents.
  - Education levels among respondents vary, with a significant portion holding Bachelor's and Master's degrees.

- Implications:

  - The sustained popularity of languages like JavaScript and Python underscores the importance of foundational tech skills in education and workforce development.
  - Emerging interest in languages and databases suggests that the tech industry is moving towards more flexible, efficient, and scalable solutions to meet evolving needs.
  - The dominance of Linux, Docker, and AWS emphasizes the critical role of cloud services and containerization in current and future tech infrastructures.
  - The gender disparity in tech calls for continued efforts towards inclusivity and diversity, aiming to create a more balanced and equitable industry.
  - The educational background of respondents reflects a demand for advanced degrees in the tech field, indicating the value of continued education and specialization.

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CONCLUSION

- The technology landscape is continually evolving, with a sustained interest in proven programming languages like JavaScript and Python, alongside a growing curiosity for languages like Go and Kotlin. This demonstrates the industry's balance between reliability and innovation.

- Database preferences are shifting towards more flexible, scalable options like PostgreSQL and MongoDB, reflecting the growing demands for handling complex data and cloud-based applications.

- The tech industry continues to face challenges in diversity, particularly in gender representation, underscoring the need for initiatives that encourage inclusivity.

- The findings suggest that for both current and future technology trends, there's a clear inclination towards open-source technologies and cloud computing, indicative of a broader trend towards more adaptable, efficient technological solutions.

APPENDIX

- Bar Charts: Displaying the top 10 programming languages, databases, and platforms worked with currently and desired for the next year. These charts help in understanding the popularity and demand trends.

- Pie Charts: Showing the gender distribution among the respondents, providing insights into demographic aspects of the tech community.

- Maps: Highlighting the geographical distribution of survey respondents, offering a visual representation of the global reach and diversity of the technology sector.

- Line Graphs: Potentially illustrating trends over time, such as the growth or decline in the usage of specific technologies.

JOB POSTINGS

In Module 1 you have collected the job posting data using Job API in a file named "job-postings.xlsx". Present that data using a bar chart here. Order the bar chart in the descending order of the number of job postings.

POPULAR LANGUAGES

In Module 1 you have collected the job postings data using web scraping in a file named "popular-languages.csv". Present that data using a bar chart here. Order the bar chart in the descending order of salary.