Navigating the IT Skills Landscape: A Data-Driven Analysis

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OUTLINE

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EXECUTIVE SUMMARY

- Hired as Data Analyst by a Global IT and Business Consulting Firm.
- Purpose: Identify Future Skill Requirements.
- Data Collection Sources: Job Postings, Training Portals, Surveys.
- Key Questions:
  - Top Programming Languages in Demand.
  - Top Database Skills in Demand.
  - Popular Integrated Development Environments (IDEs).

INTRODUCTION

- **Objective**:
  - Analyzing Stack Overflow Developer Survey 2019 data
  - Creating an informative dashboard
- **Dashboard Structure**:
  - Three Tabs:
    - **1. Current Technology Usage**:
      - Top 10 Languages
      - Top 10 Databases
      - Platforms
      - Top 10 WebFrames
    - **2. Future Technology Trends**:
      - Top 10 Desired Languages for the Next Year
      - Top 10 Desired Databases for the Next Year
      - Desired Platforms for the Next Year
      - Top 10 Desired WebFrames for the Next Year
    - **3. Demographics**:
      - Respondent Gender Classification
      - Respondent Count by Countries
      - Respondent Count by Age
      - Respondent Count by Gender and Education Level
- **Purpose**:
  - Gain insights into current technology usage
  - Identify future technology trends
  - Explore respondent demographics

METHODOLOGY

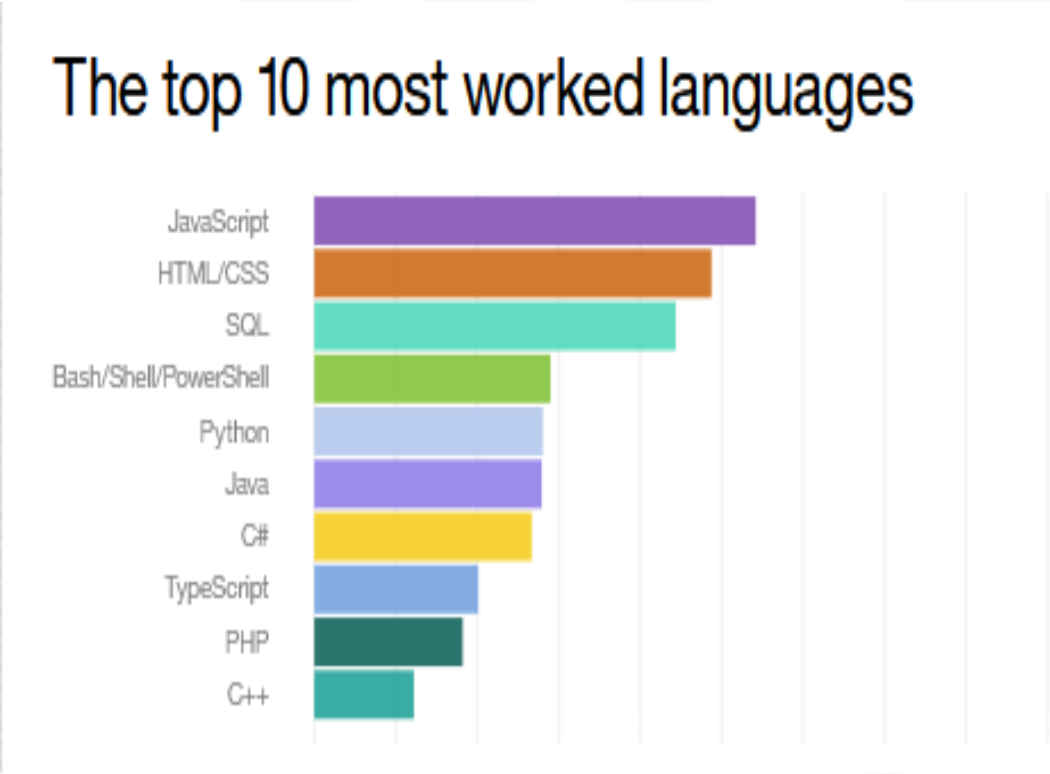
- Data Collection
  - Collecting Data Using APIs and Webscraping.
  - Exploring Data from Various Sources.
- Data Wrangling
  - Finding and determining Missing Values.
  - Finding and removing Duplicates.
  - Normalizing Data.
- Exploratory Data Analysis
  - Analyzing Data Distribution
  - Identifying Outliers
  - Exploring Data Correlations
- Data Visualization
- Dashboard Creation
  - Creating interactive Dashboards using IBM Cognos Analytics:
    - Current Technology Usage, Future Technology Usage and Demographics tabs.

RESULTS

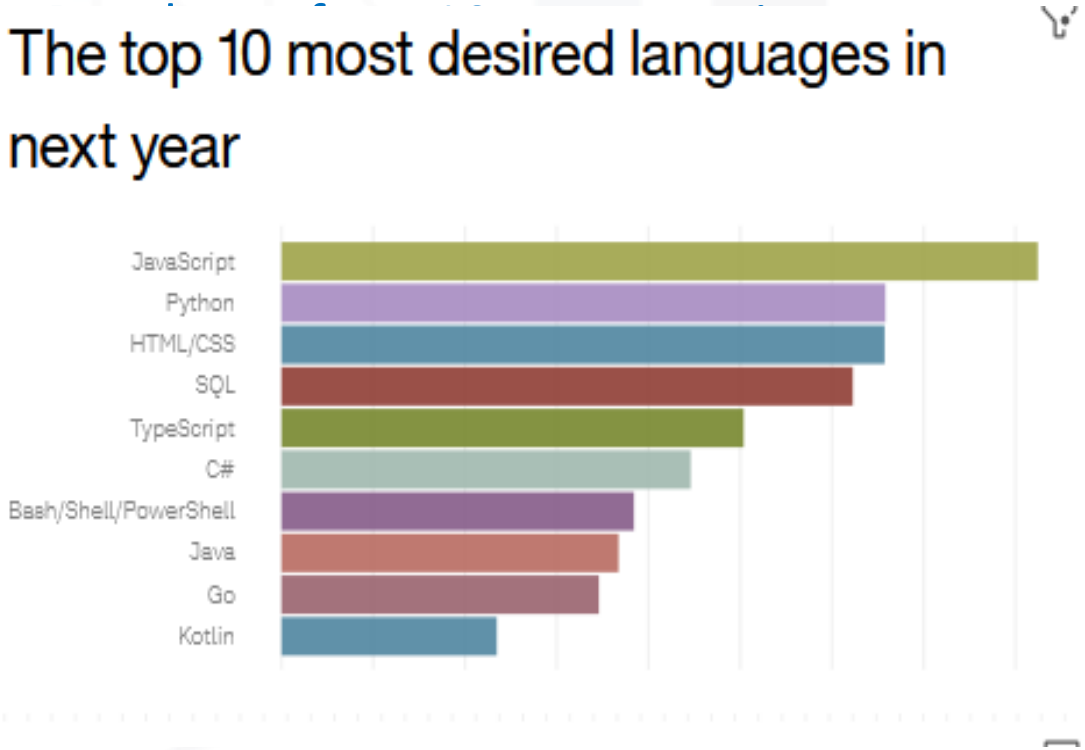
- Datasets
  - Technology Survey Data
    - Respondents: Approximately 75,000
    - Purpose: Gathering insights on present and future data technology interests.
    - Analysis Tools: Utilized visualization tools such as bar graphs, column graphs, tree maps, and hierarchy trees.
    - Objective: Identify top trending present and future technology trends.
  - Demographics Survey Data
    - Respondents: Approximately 11,000.
    - Content: Respondents provided information on demographics, including country, age, education level, ethnicity, gender, and more.
    - Objective: Explore and visualize respondent demographics.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

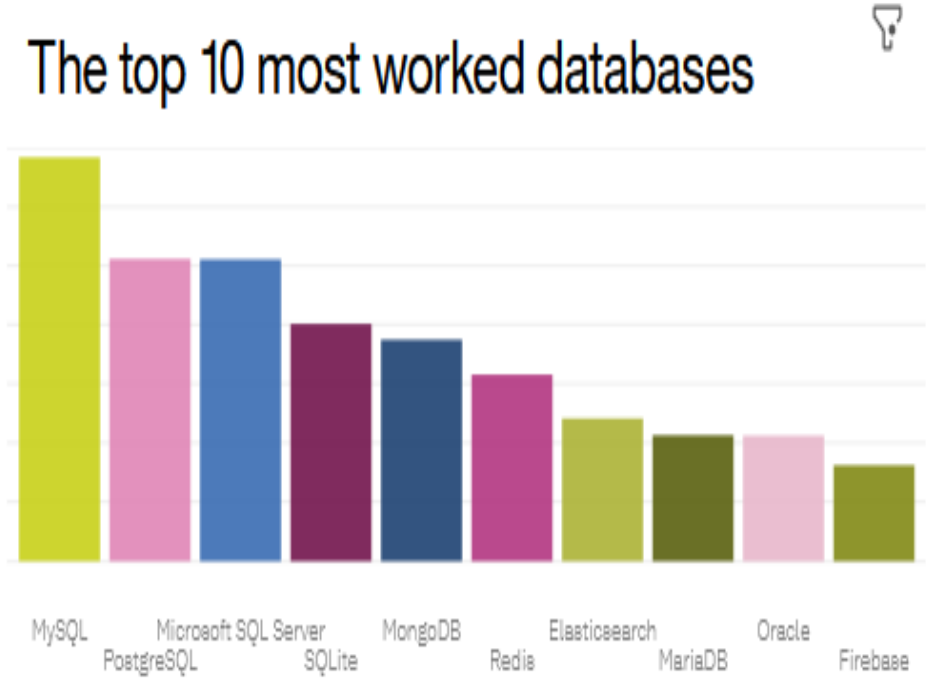
- JavaScript and HTML have been the preferred languages and are expected to continue dominating in the future as well.
- Following JavaScript and HTML, SQL, Bash, and Python have gained popularity in current trends, but they may not remain the go-to languages in the future.

Implications

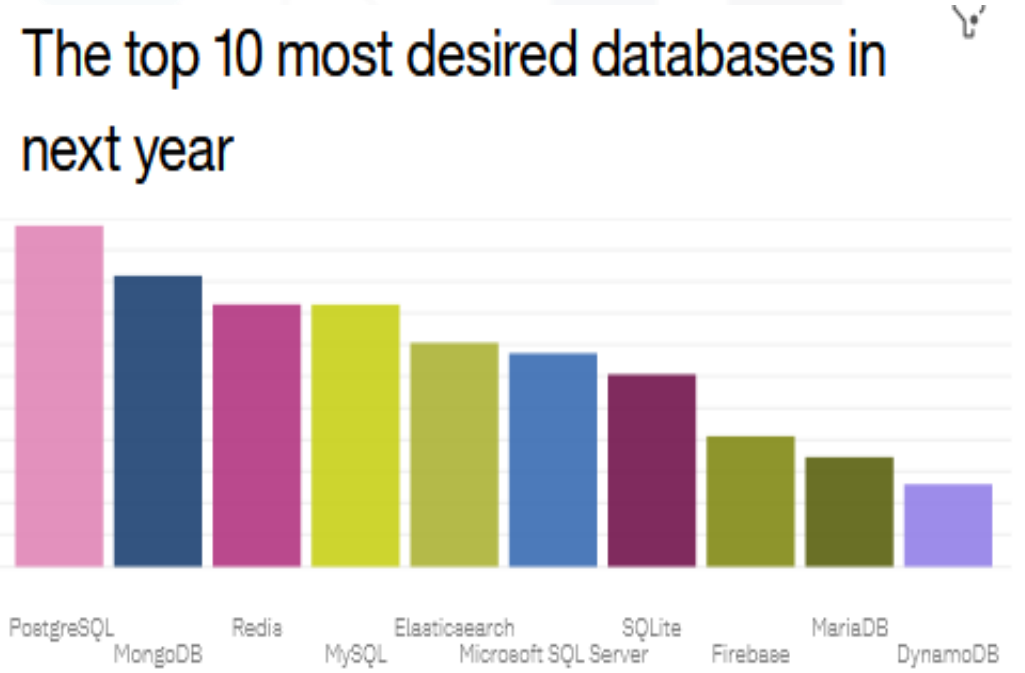
- The implication of JavaScript and HTML's continued dominance is a stable, accessible, and thriving ecosystem for web development, with reduced risk and sustained demand for developers skilled in these technologies.
- New languages and tools may emerge in the future, leading to shifts in preferences.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL currently dominates as the preferred database platform among developers. MySQL currently dominates as the preferred database platform among developers.
- MongoDB is anticipated to become the most preferred database platform in the future.

Implications

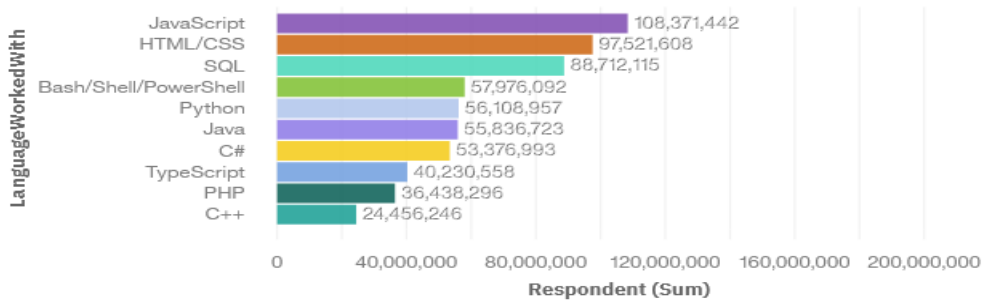
- However, there is a potential trend suggesting a steep decline in MySQL's preferences in the coming years.
- This shift may signify changing developer preferences and could influence technology choices in upcoming projects.

DASHBOARD

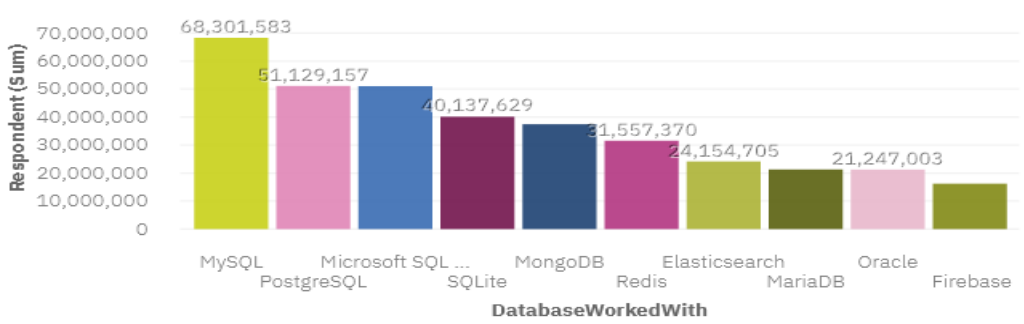
https://dataplatform.cloud.ibm.com/dashboards/a2988373-42c5-44b9-973b-8e6a81012f81/view/0023c1046e8a109f63cfc4e407902e5378662459b0bb8a57d3827b490d692297a8681a99c87c4b0bde400165a5ba100ccf

DASHBOARD TAB 1

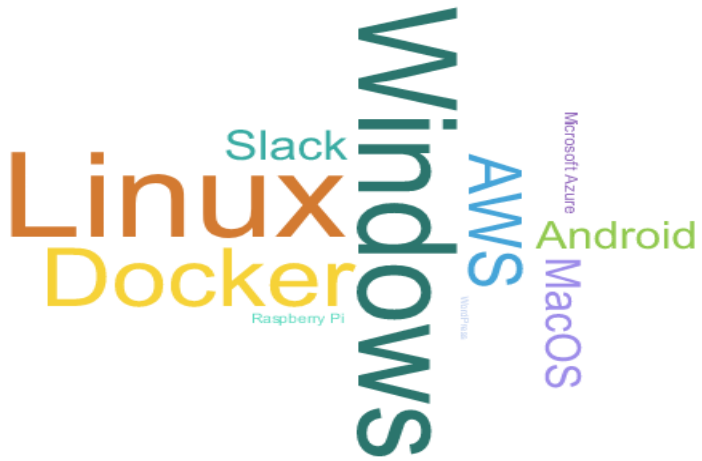
The top 10 most worked languages



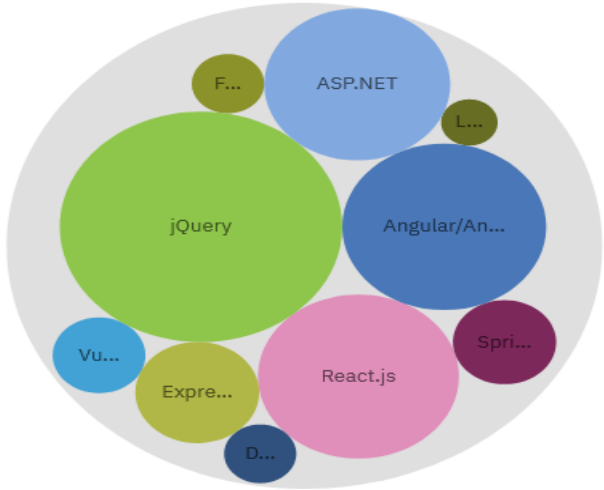
The top 10 most worked databases



The top 10 most worked platforms



The top 10 most worked web frames

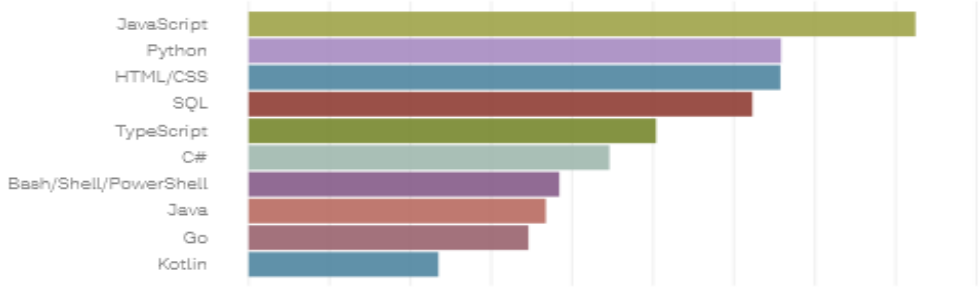


IBM Developer

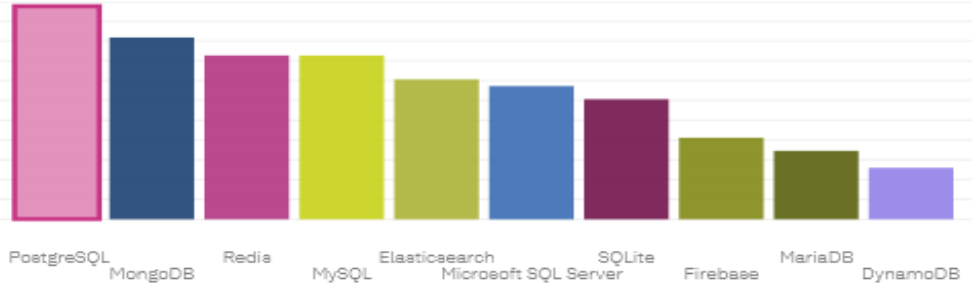
SKILLS NETWORK

DASHBOARD TAB 2

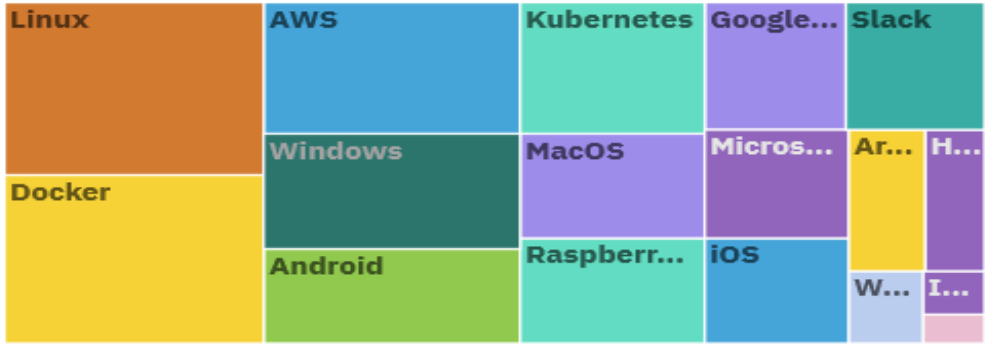
The top 10 most desired languages in next year



The top 10 most desired databases in next year

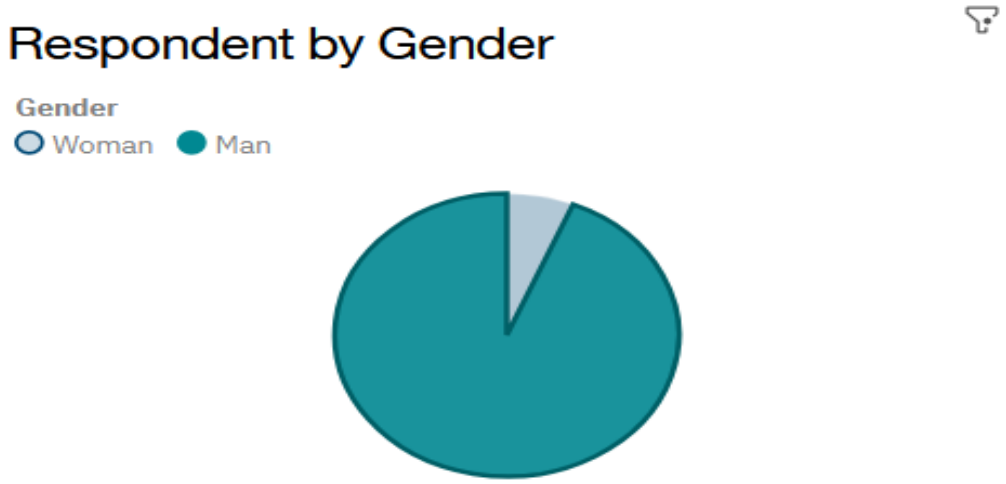


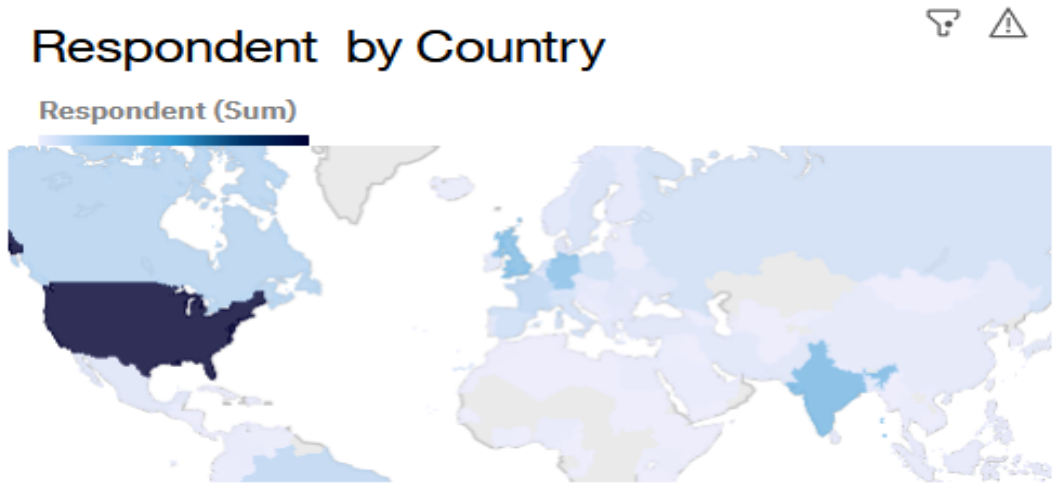
The most desired platforms in next year

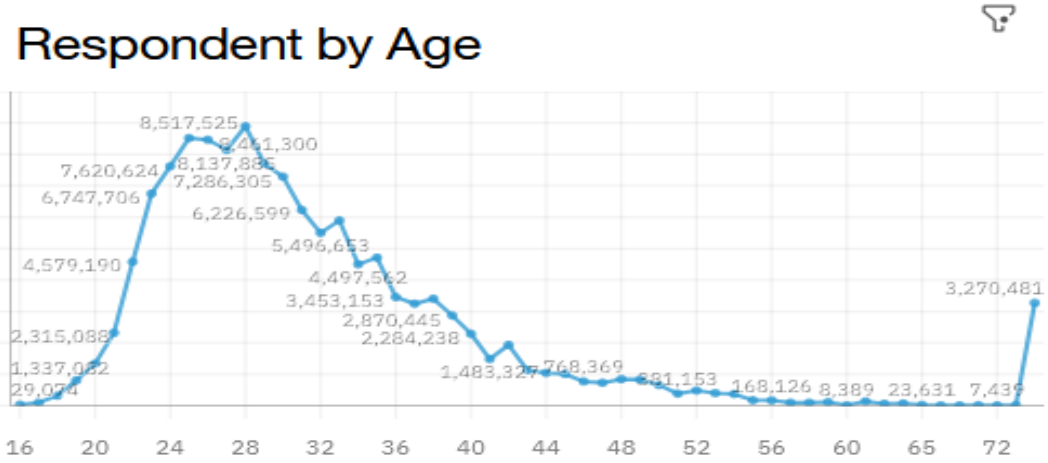


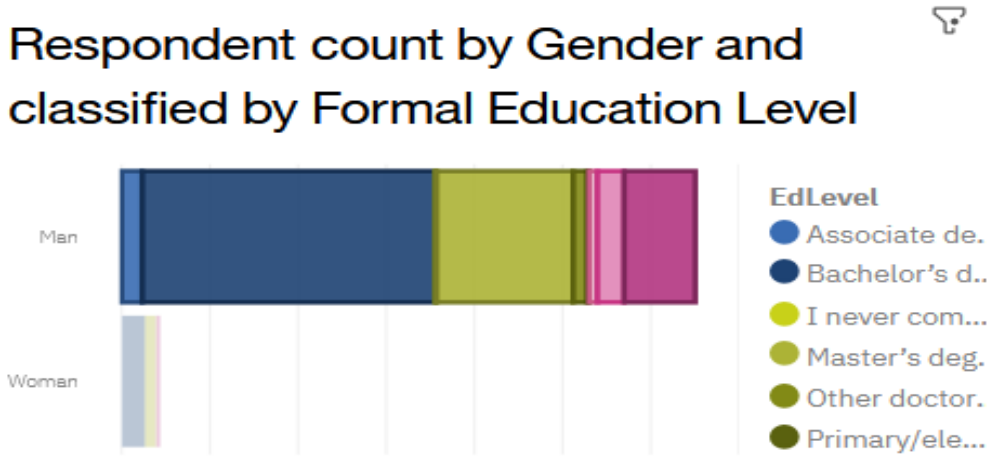
The top 10 most desired web frames in next year

DASHBOARD TAB 3









IBM Developer

SKILLS NETWORK

DISCUSSION

- Languages: Will SQL and Python tend to lose it dominance in upcoming years? Will other languages such as Go, C# would be the new emerging languages of future?

OVERALL FINDINGS & IMPLICATIONS

Findings

- The database technology survey results reveal a notable gender disparity, with a strong male majority among respondents.
- The majority of survey respondents are based in the United States.
- Bachelor's and Master's students show a significant preference for specializing in data technology.

Implications

- These demographic insights shed light on the gender and geographical aspects of database technology surveys.
- The strong interest among Bachelor's and Master's students in data technology specialization suggests a growing demand for related programs and courses.

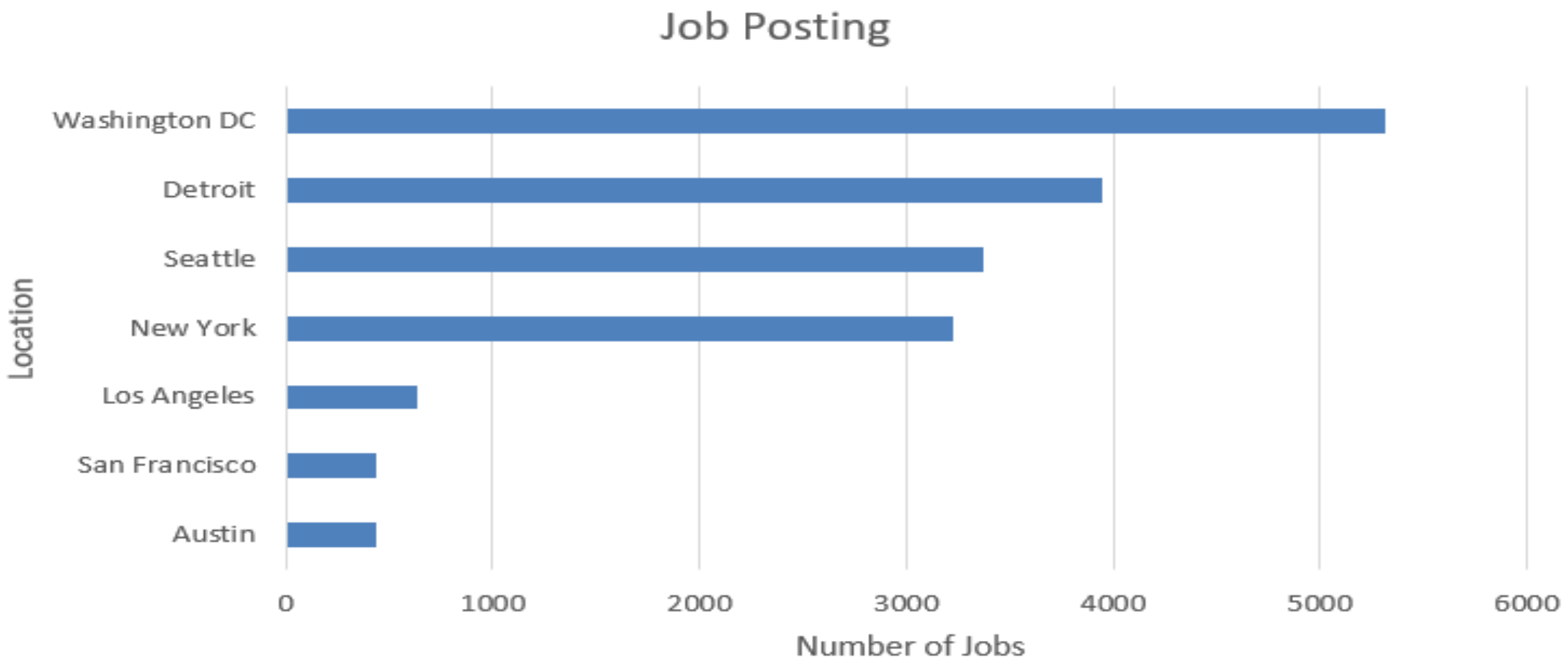
CONCLUSION

- Our goal was to analyze the dataset to uncover preferred current and future trends in data technology while considering respondent demographics.
- Notably, data technology trends are most preferred by individuals aged between 21 to 36 years
- Male respondents show a greater preference for data technology trends.
- Among programming languages, HTML and JavaScript are expected to remain the most preferred choices for future work.
- The data suggests a potential decrease in the popularity of SQL.
- MongoDB and PostgreSQL emerge as potential replacements, indicating shifting preferences in the database domain.

APPENDIX

- **Resources Used**
- **Database Source**:
  - Data collected from the Stack Overflow blog.
  - Open Database License.
- **Dashboard Creation**:
  - IBM Cognos Dashboard utilized for creating interactive and informative dashboards.

JOB POSTINGS



POPULAR LANGUAGES