Stack Overflow Developer Survey Analysis

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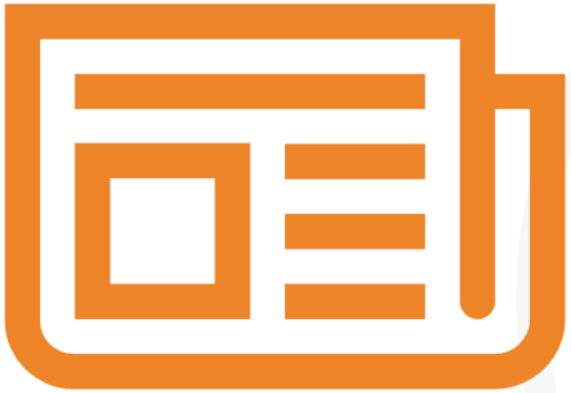
EXECUTIVE SUMMARY

- Analyzed Stack Overflow Developer Survey data to identify technology trends and developer job insights.
- Applied a structured analytics process to clean, explore, and visualize the dataset.
  - Performed data preprocessing.
  - Conducted exploratory analysis.
  - Built interactive dashboards in Cognos.
- JavaScript, Python, and SQL emerged as the most widely used technologies.
- Experience level and cloud skills showed strong impact on salary growth.

INTRODUCTION

- This project analyzes the Stack Overflow Developer Survey to study technology usage and career trends.
- The dataset includes information on programming languages, databases, platforms, salary, and experience.
- The objective is to convert raw survey data into meaningful and actionable insights.
- A structured data analysis workflow was applied to ensure reliable results.
  - Data was cleaned and explored using Python, SQL, and Excel tools.
  - Visualizations and dashboards were created to present insights clearly.

METHODOLOGY

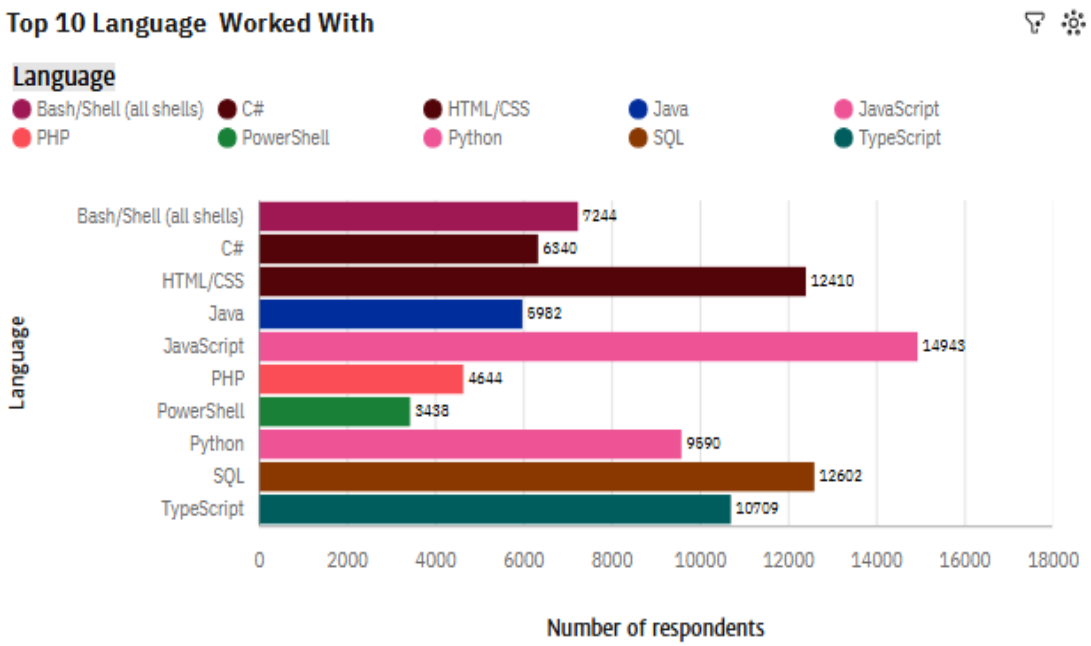


- The project followed a systematic data analytics workflow from data collection to insight generation.
- Raw survey data was cleaned to remove duplicates, handle missing values, and standardize formats.
- Exploratory data analysis was performed using Python, SQL queries, and Excel techniques.
- Visualizations and dashboards were developed to present trends and comparisons.
  - Visualizations and dashboards were developed to present trends and comparisons.
  - An interactive Cognos dashboard was built for filtering and decision support.

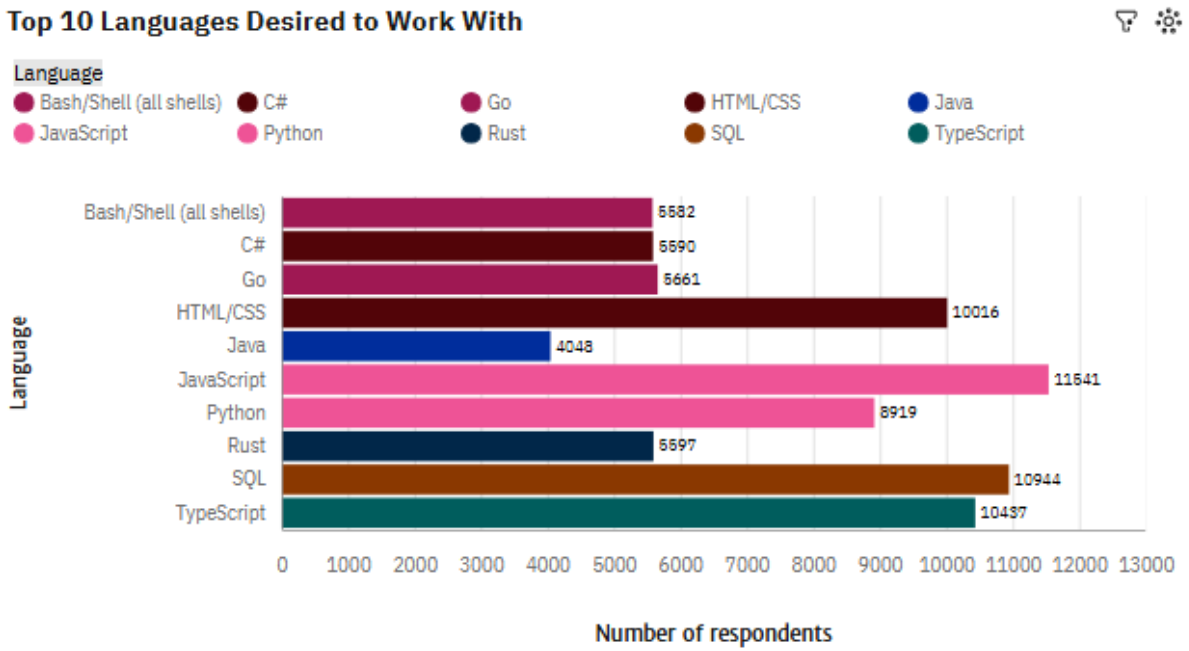
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

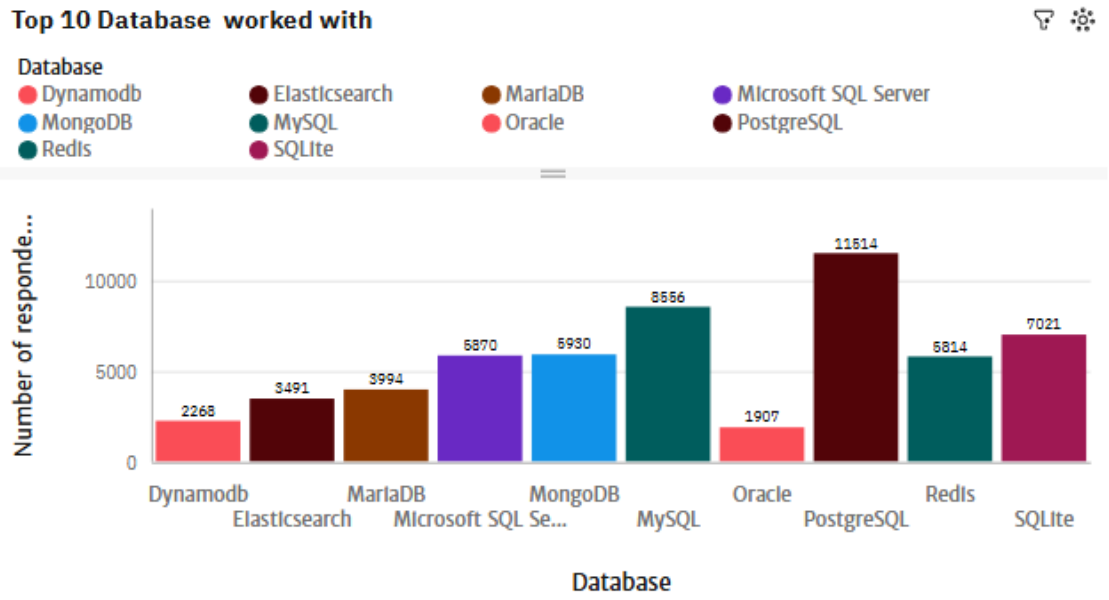
- JavaScript, Python, and SQL are the most widely used programming languages among developers.
- Python shows strong growth due to demand in data science, AI, and automation roles.
- Traditional languages like Java and C remain important in enterprise development.

Implications

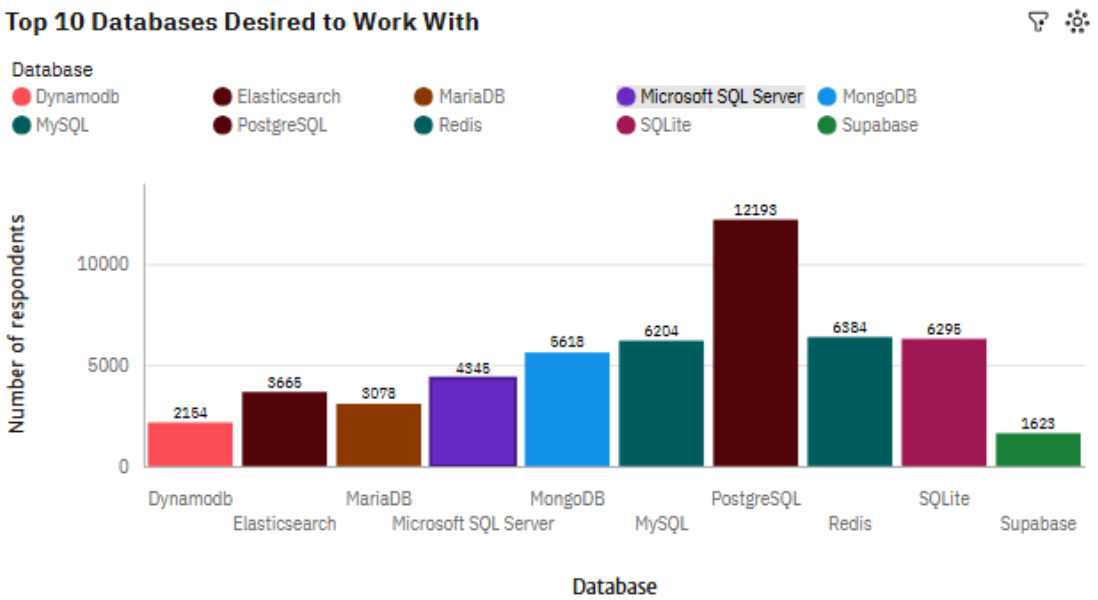
- New learners should prioritize JavaScript and Python to improve employability.
- Organizations should invest in Python and data-focused skill development.
- Organizations should invest in Python and data-focused skill development.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL and MySQL are the most commonly used databases among developers.
- NoSQL databases like MongoDB are gaining popularity for modern applications.
- Relational databases remain dominant for enterprise and transactional systems.

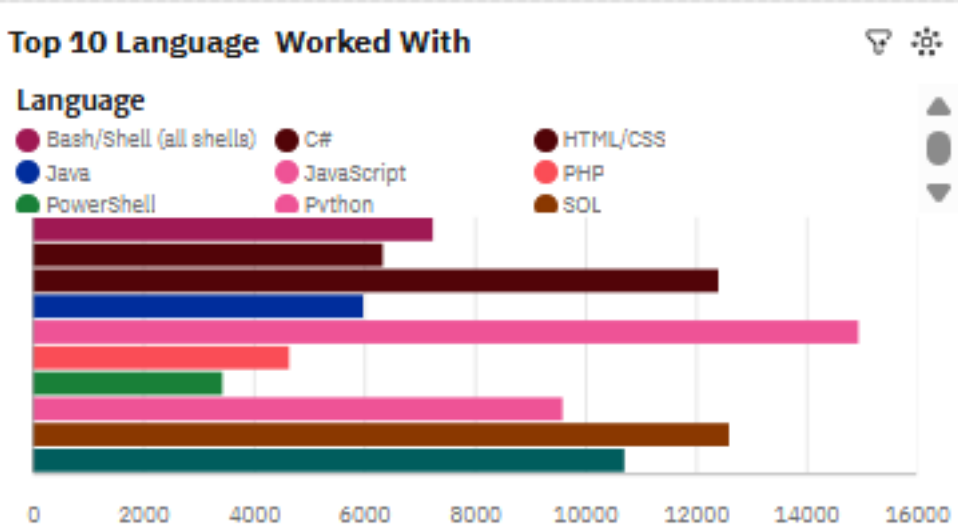
Implications

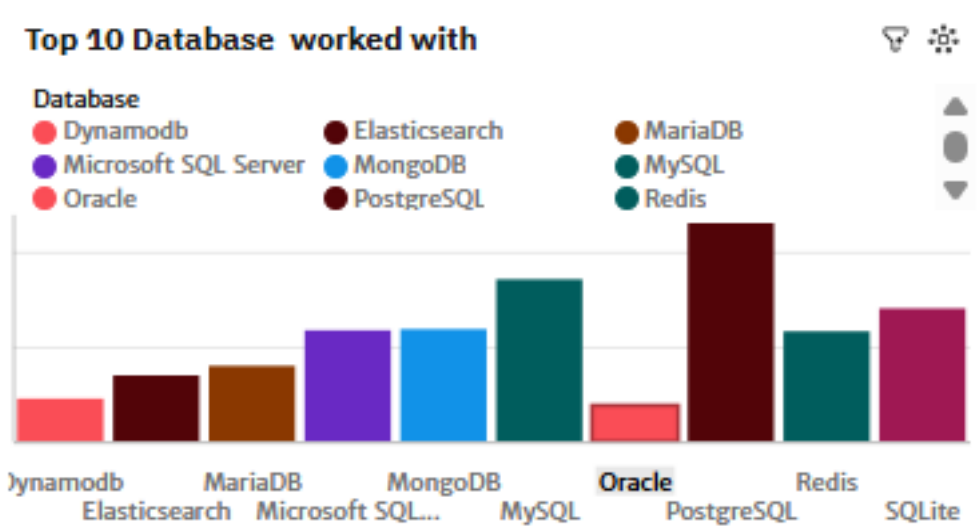
- Professionals should build strong SQL skills for better job opportunities.
- Organizations should adopt a mix of relational and NoSQL databases.
- Database selection should be based on scalability and application needs.

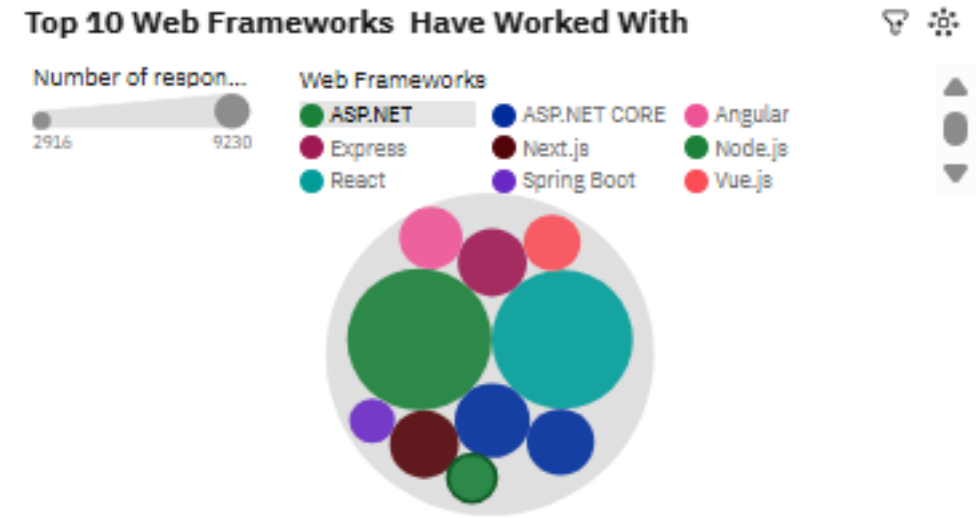
DASHBOARD

https://ap1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FIBM_data%2Banalyst_capstone&action=view&mode=dashboard&subView=model0000019c418020d7_00000000&nav_filter=true

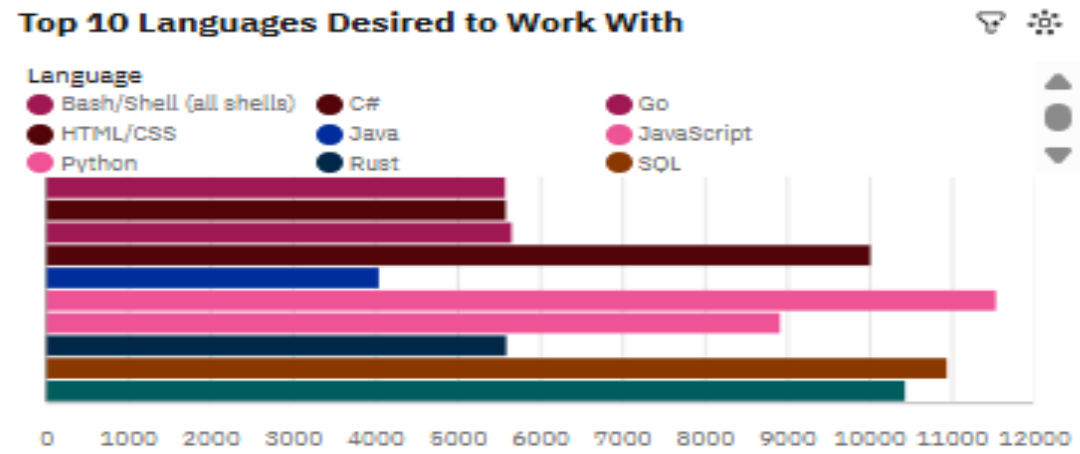
DASHBOARD TAB 1

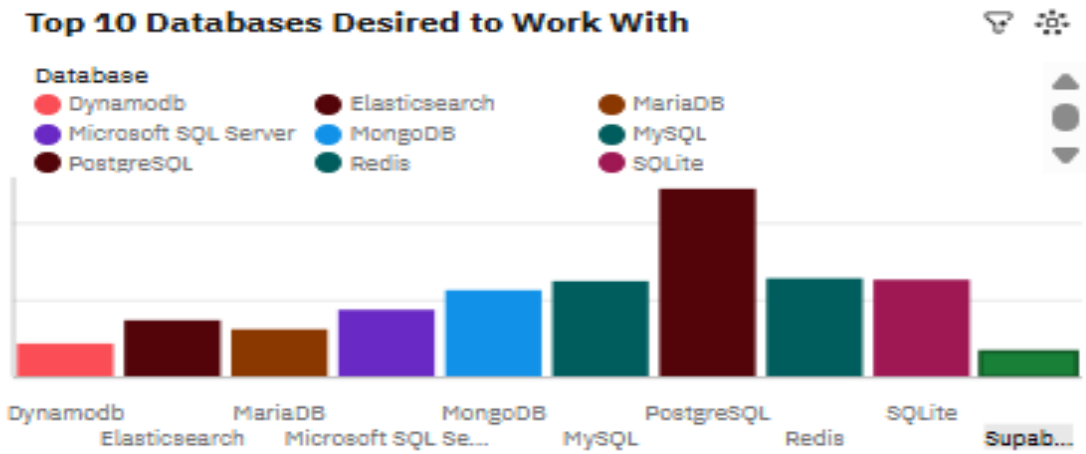


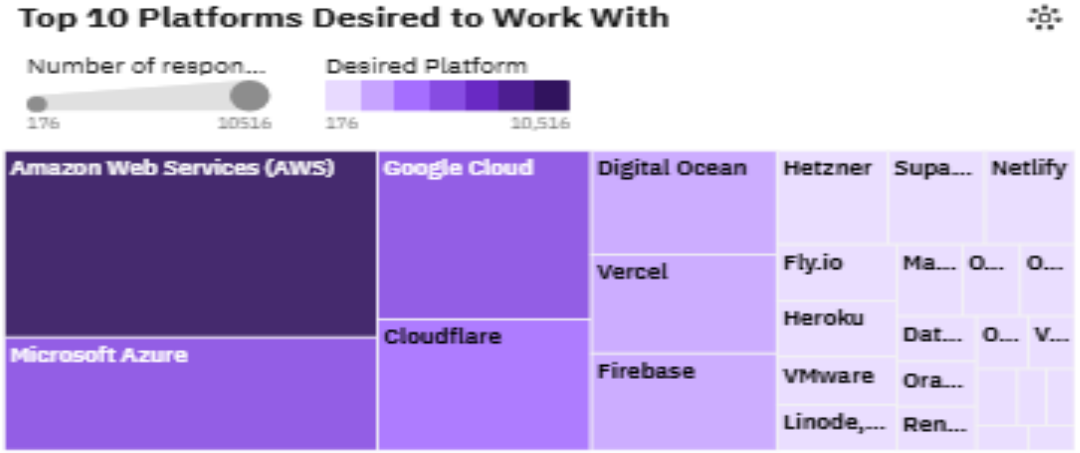


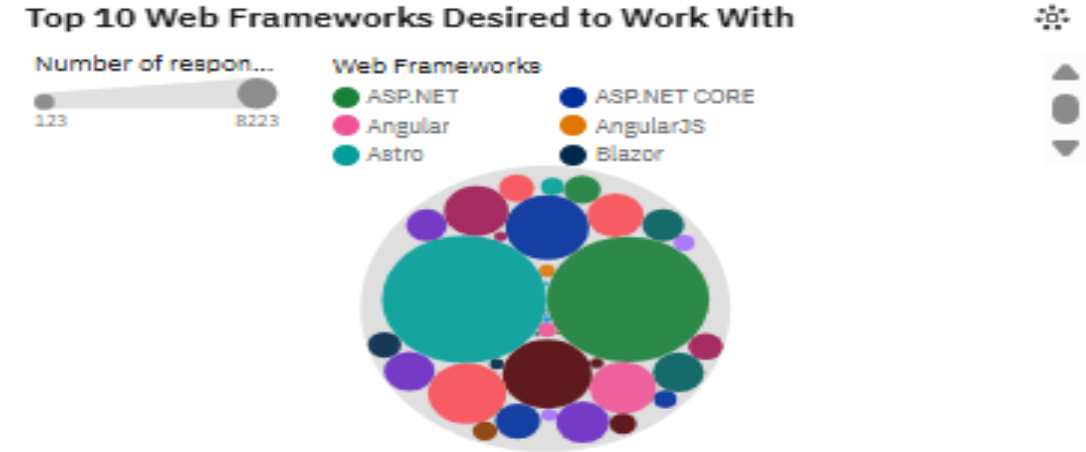


DASHBOARD TAB 2

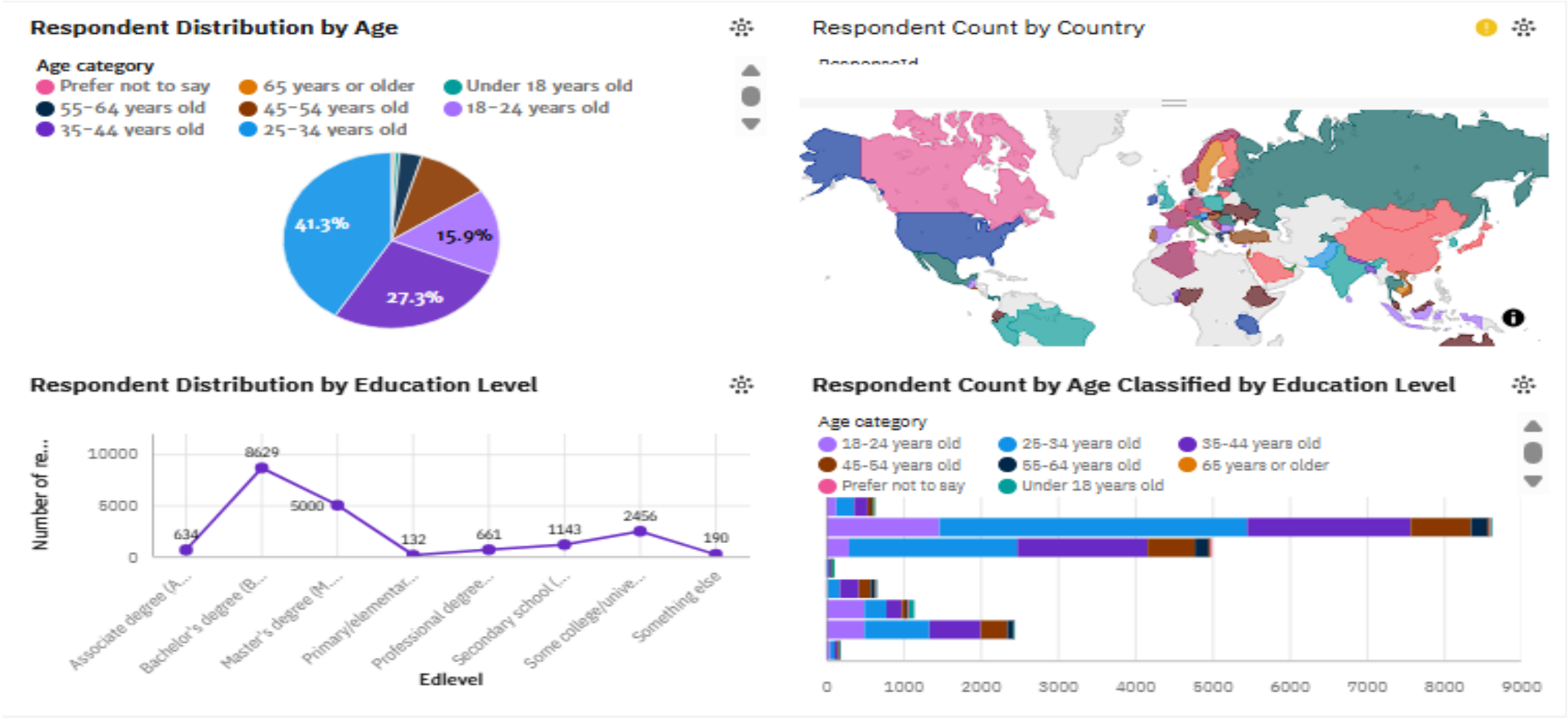








DASHBOARD TAB 3



DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript, Python, and SQL are the core technologies shaping the current developer market.
- Relational databases remain dominant while NoSQL adoption is steadily increasing.
- Experience level and cloud skills strongly influence salary and job opportunities.

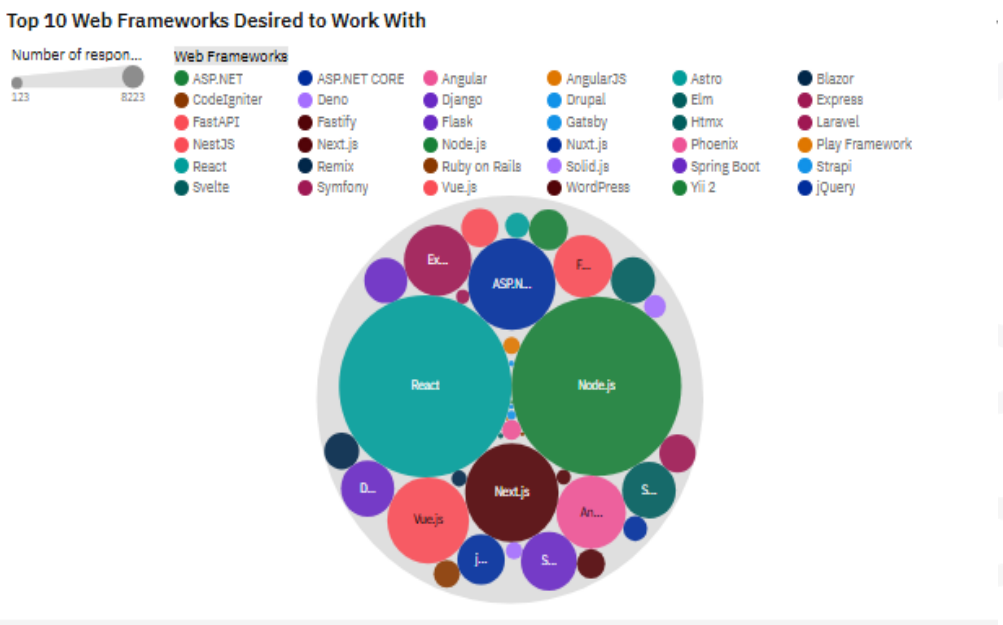
Implications

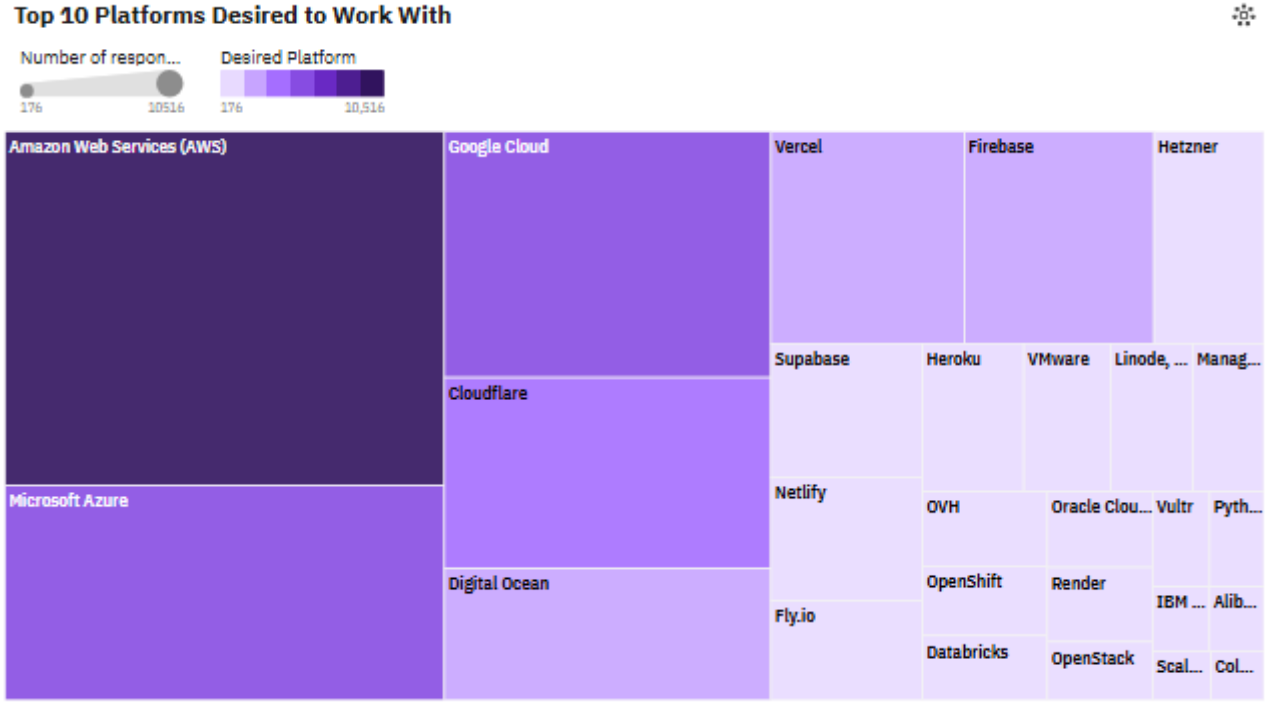
- Job seekers should focus on Python, SQL, and cloud platforms to stay competitive.
- Organizations should invest in data-driven and cloud-based technology training.
- Continuous skill development is essential to adapt to evolving technology trends.

CONCLUSION

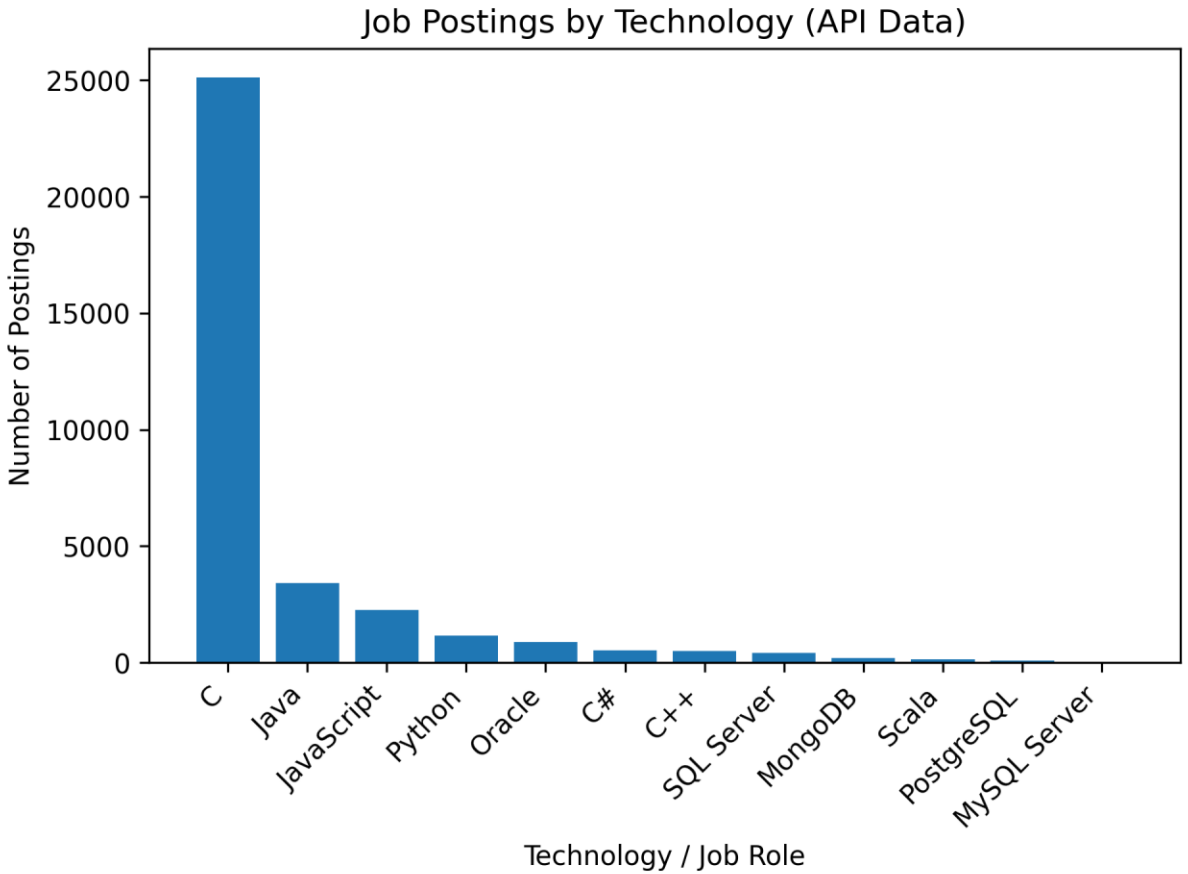
- The project successfully analyzed real-world survey data to identify key technology and career trends.
- Data cleaning, analysis, and visualization helped transform raw data into meaningful insights.
- Interactive dashboards enabled clear understanding of programming, database, and job patterns.
- The project demonstrated practical skills required for real-world data analyst roles.

APPENDIX





JOB POSTINGS



POPULAR LANGUAGES