



STACK OVERFLOW DEVELOPER SURVEY 2025

NIRANJAN NAYAK
1-April-2025

© IBM Corporation. All rights reserved.



Key Slide



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

Table Contents

- Introduction
- Methodology
- Programming Language Trends - Findings & Implications
- Database trends - Findings & Implications
- Dashboard
 - Current Technology Usage
 - Future Technology Trend
 - Demographics insight
- Insight from dashboard
- Overall findings & implications
- Conclusion

Executive Summary: Emerging & Future It Skills Analysis



In an era of rapid technological evolution, identifying emerging and future skills in the IT industry is crucial for workforce preparedness. As a Data Analyst working with a global organization, my project focused on uncovering key industry trends through data-driven insights.

- ◆ **Data Collection:** Gathered extensive industry data from multiple sources, including web scraping, APIs, and the **Stack Overflow Developer Survey**—a valuable dataset reflecting developer trends and skills.
 - ◆ **Data Cleaning & Wrangling:** Ensured accuracy and reliability through rigorous preprocessing techniques.
 - ◆ **Data Analysis:** Applied statistical and analytical methods to extract meaningful patterns in IT skill trends.
 - ◆ **Dashboard Development:** Designed interactive dashboards for real-time visualization of insights.
 - ◆ **Presentation & Findings:** Compiled key takeaways into a compelling PowerPoint presentation to drive strategic decisions.
- This analysis provides a roadmap for organizations and professionals to adapt to the evolving IT landscape, ensuring competitiveness in the digital future.



Introduction: Emerging & Future IT Skills Analysis



Nature of Analysis:

Comprehensive study of IT skill trends using statistical and exploratory analysis.

Problem Addressed:

Identifying in-demand and future IT skills to help organizations and professionals stay competitive.

Key Questions:

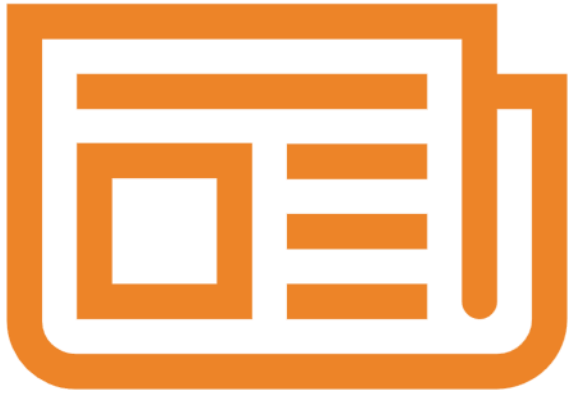
Which programming languages are most in demand?

Which database technologies are currently most sought after?

Which Integrated Development Environments (IDEs) are the most popular?



Methodology

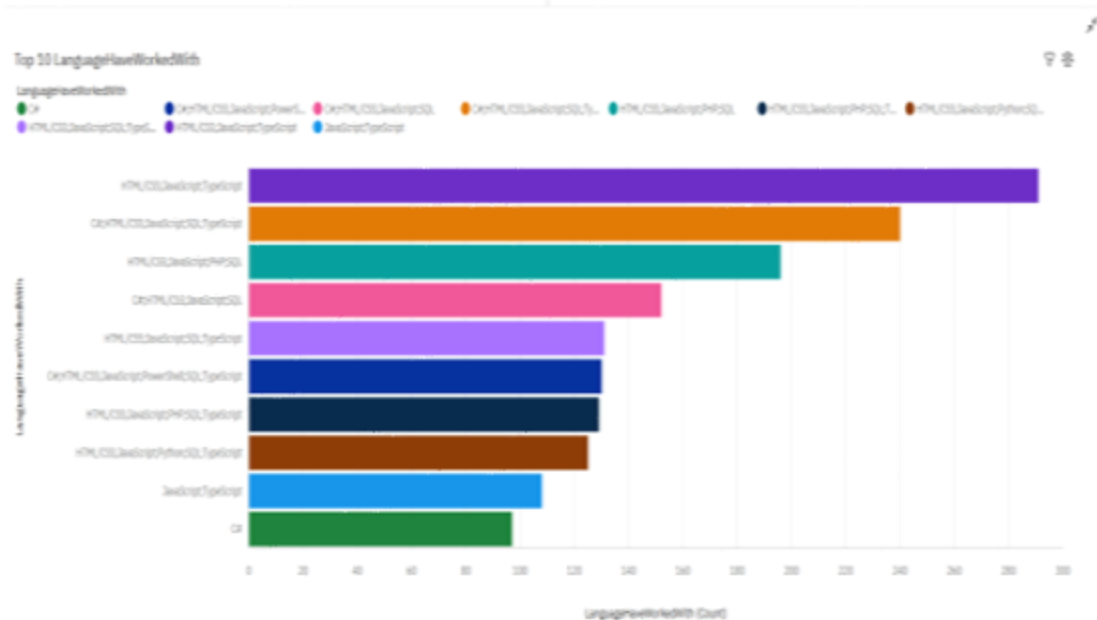


- Data Sources
 - The data set used in this Project is the Stack Overflow Developer Survey data is available at:
<https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/HLOosvsPgIwt5dgOOh1RSg/survey-data-updated.csv>
- Collection Method
 - Web Scrapping
 - API
 - Request Library
- Data Wrangling
 - Removing Duplicates
 - Fill or Drop missing value
 - Normalizing data
- Data Analysis
 - Data Distribution
 - Handling Outlier
 - Correlation

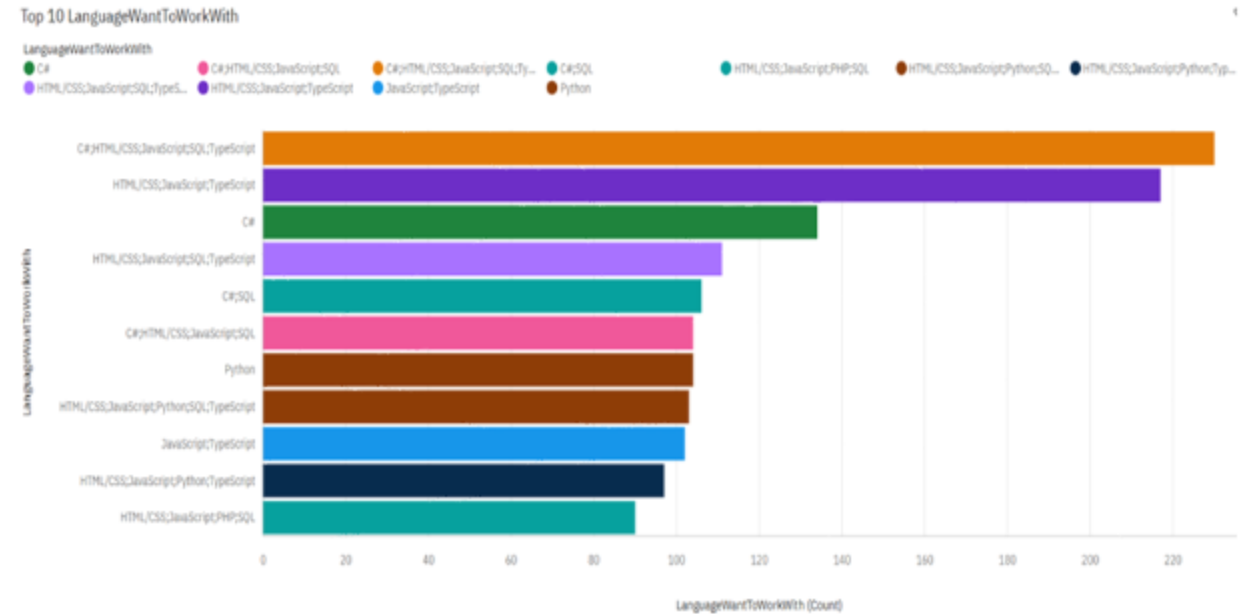


Programming Language Trends

Current Trend



Future Trend



Programming Language Trends - Findings & Implications

Findings

- Most Developer using combination of multiple programming languages.
- HTML/CSS; JavaScript; TypeScript is most popular combination used languages
- But Developer are likely shifting their choice to C#;HTML/CSS;SQL.
- SQL demand growing rapidly

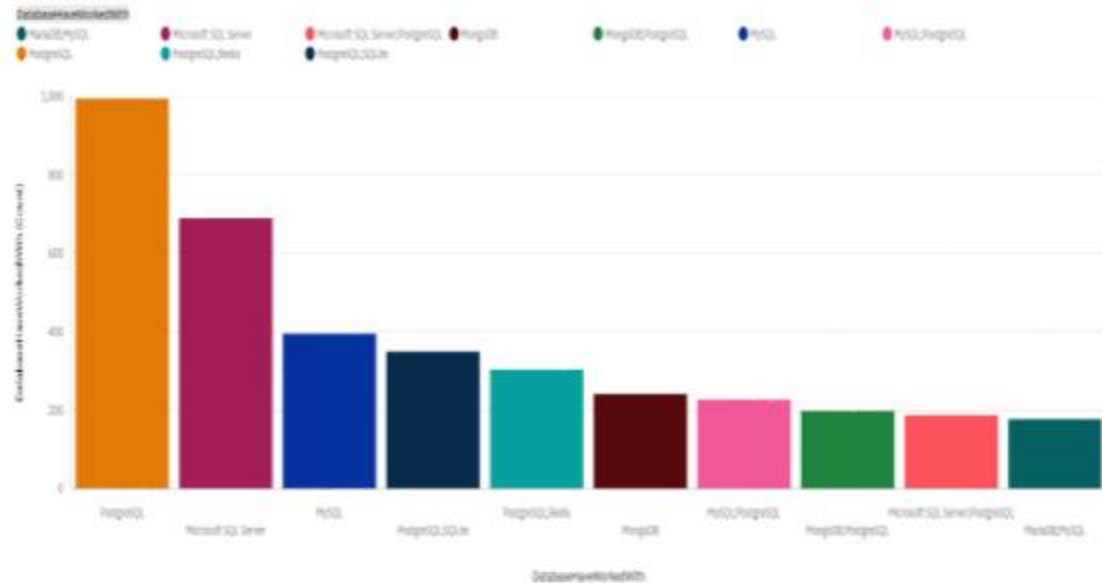
Implications

- Possible developers migration from HTML/CSS; JavaScript, TypeScript combination to C#;HTML/CSS;SQL.

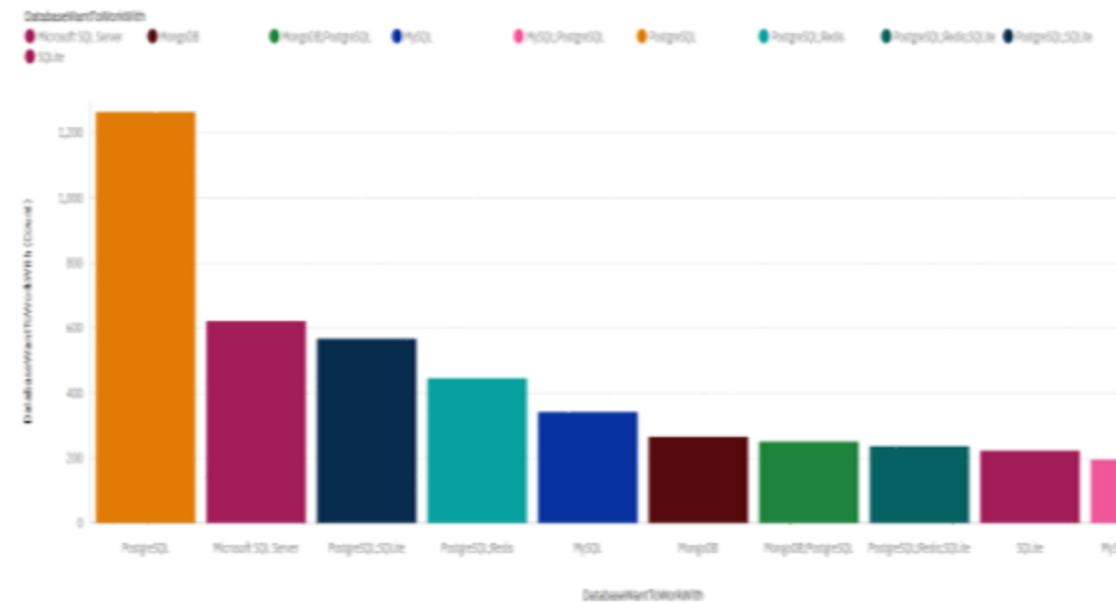


Database Trends

Current Trend



Future Trend



Database Trends - Findings & Implications

Findings

- Developer are most used database is PostgreSQL and second most is Microsoft SQL Server.
- In Future Technology Trend the above two database demand are remain unchanged popular database

Implications

- MySQL loss its ground in market.
- Most lite version are not in demand
- PostgreSQL is growing exponentially.

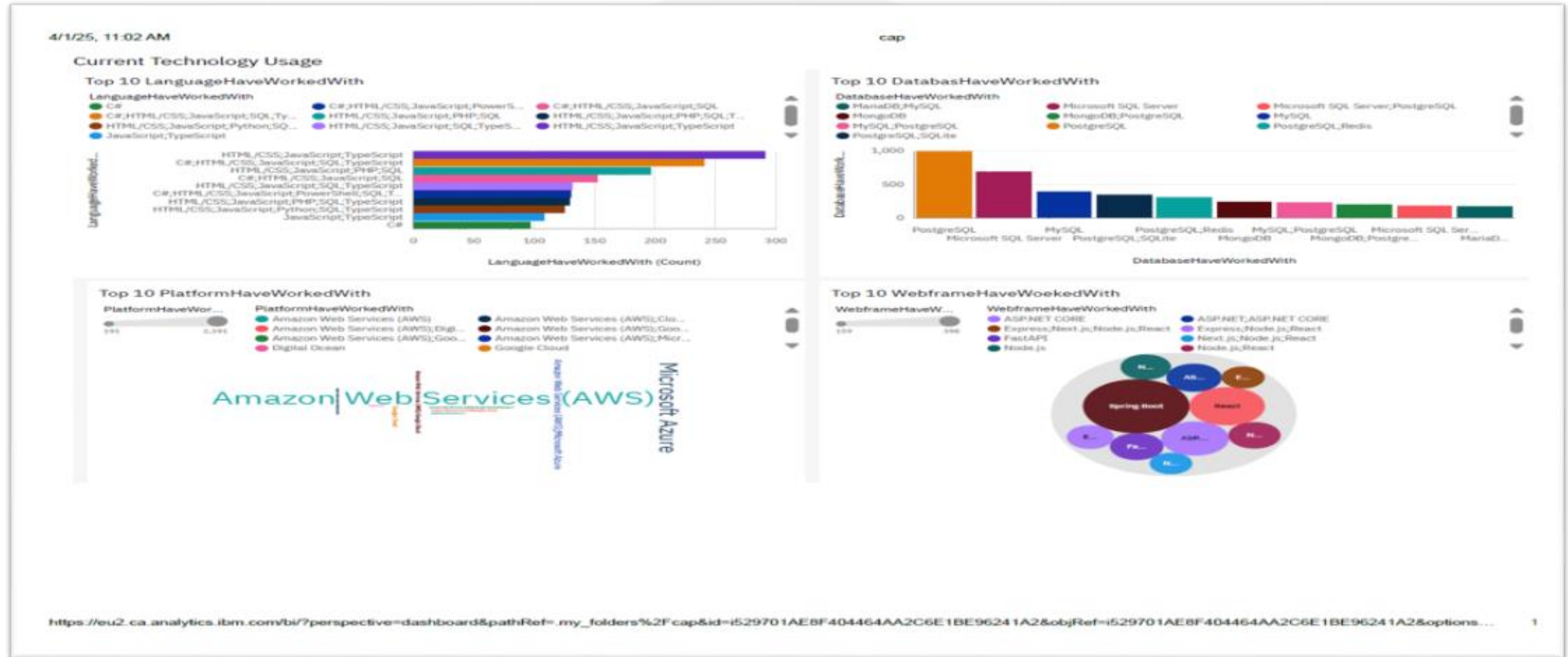
Dashboard



Dashboard created by using IBM Cognos.



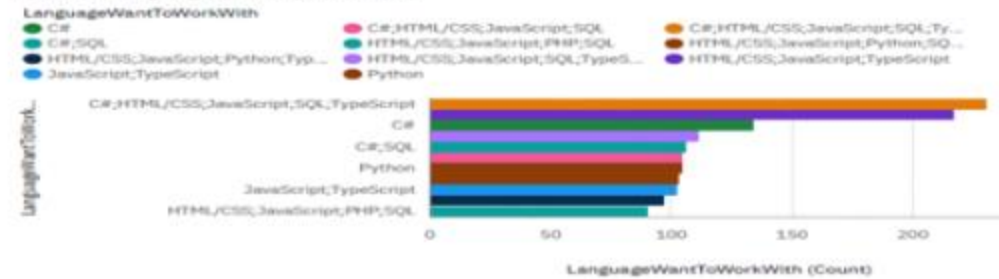
Current Technology Usage



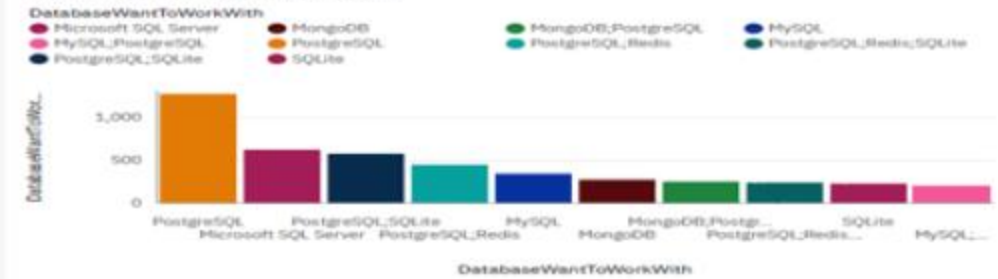
Future Technology Trend

Future Technology Trend

Top 10 LanguageWantToWorkWith



Top 10 DatasetWantWorkedWith



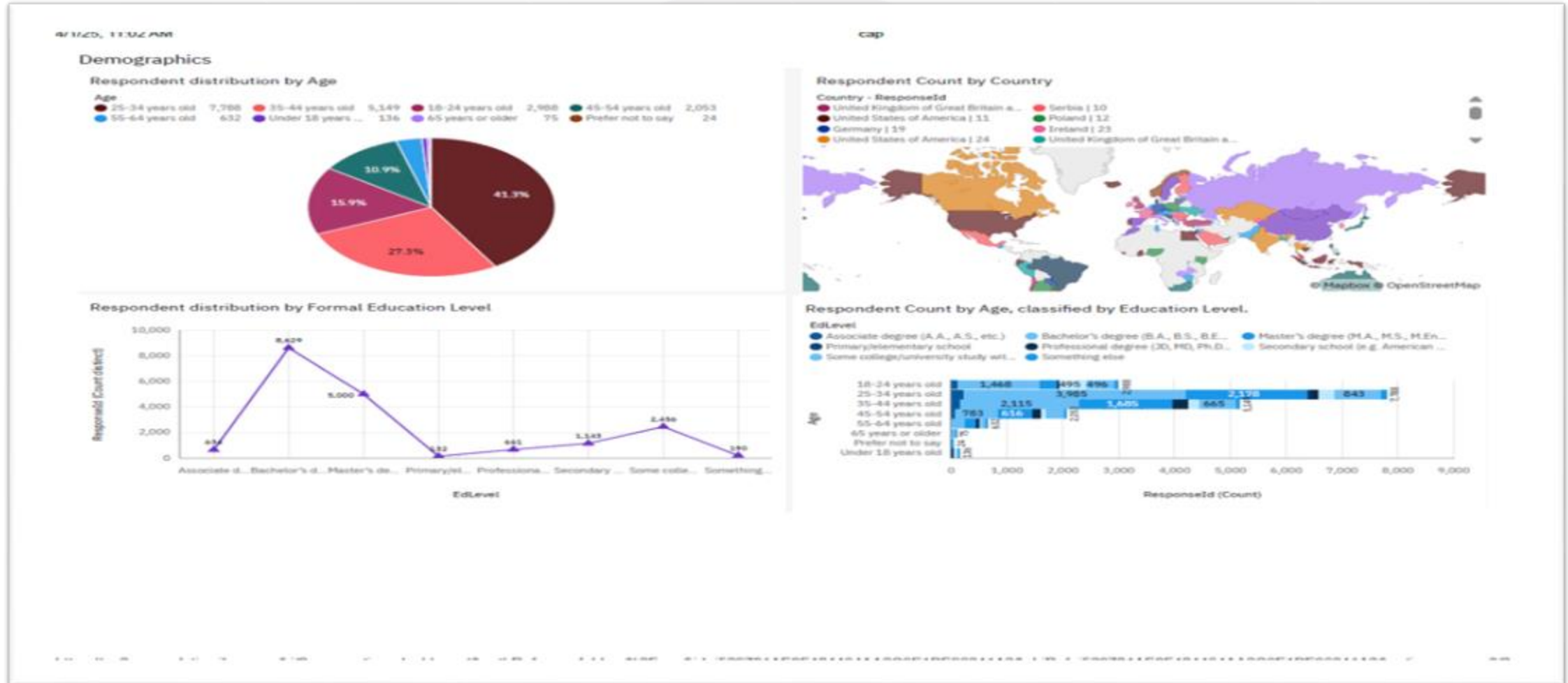
Top 10 PlatformWantToWorkWith



Top 10 WebframeWantToWorkWith



Demographics Insight



Insight From Dashboard

- Most Developer are from Developed Country such as United Kingdom, USA, Germany .
- Nearly 41% of Developer are falling age bracket(25-34)years old.
- Developer around the world are not rely on single language.
- PostgreSQL is most popular database among Developer.



Overall Findings & Implications

Findings

- Developer are using a combination of (HTML/CSS, JavaScript, TypeScript), but future technological trend indicating (C#,HTML/CSS, JavaScript, SQL, TypeScript)
- Both current and future trend indicating PostgreSQL is most database
- AWS is most popular Platform and in future also it secure its place on top.
- 2/5th Developers around the world are from (25 – 34)years age group.
- Most of Developers from Developed country.
- Most Developers holding Bachelor degree than Master degree.

Implications

- Due to complexity of work , Developers are using multiple Programming language. SQL, Python languages demand are increasing rapidly.
- PostgreSQL demand are increasing while MySQL database demand are drastically reduced.
- AWS shows their user-friendly and reliability feature keeping them top from all.
- Most young people are working in IT industry.
- It showing technology advancement distribution are not equal between Developed and Developing country.
- It shows bachelor degree is enough to entry to IT job.

Conclusion



- By leveraging data-driven insights, this analysis identifies critical emerging and future IT skills, empowering organizations to stay ahead in a rapidly evolving digital landscape. The findings serve as a strategic guide for workforce development, helping businesses align talent acquisition and upskilling initiatives with industry trends. With interactive dashboards and compelling visualizations, decision-makers can proactively adapt to technological advancements, ensuring long-term competitiveness and innovation.

