Technology Trends in Programming & Databases - 2024

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OUTLINE

- Executive Summary
- Introduction
- Methodology
- Programming Language Trends (Current & Future)
- Database Trends (Current & Future)
- Dashboards (3 tabs)
- Dashboard Insights
- Overall Findings & Implications
- Conclusion
- Appendix

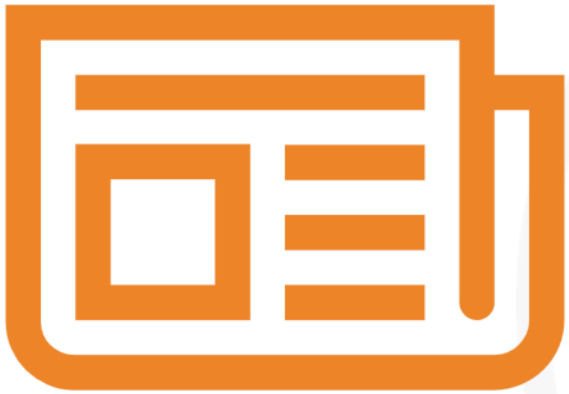
EXECUTIVE SUMMARY

- Analyzed technology preferences of professionals globally.
- Focused on programming languages, databases, and dashboard visualizations.
  - Python, JavaScript, and SQL were top-ranked.
  - PostgreSQL and MySQL lead in databases.
  - Future trends show rising demand for TypeScript and MongoDB.
- Dashboard created using Google Looker Studio.
- Data visualizations reveal key demographic insights.
- Results can support hiring strategies and tech investment planning.

INTRODUCTION

- The report investigates current and future technology trends.
- Focus areas include programming languages and databases.
- Data was visualized using interactive dashboards.
- Industry professionals and educators can use the insights.
  - Helps in curriculum planning and workforce alignment.
  - Supports better hiring and investment decisions.

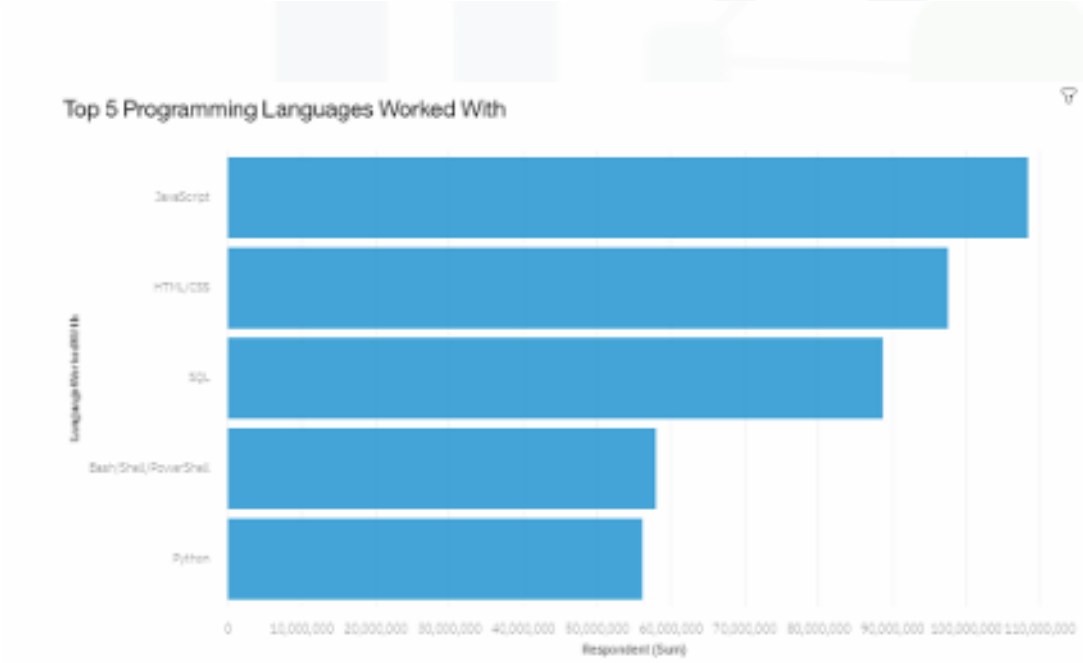
METHODOLOGY



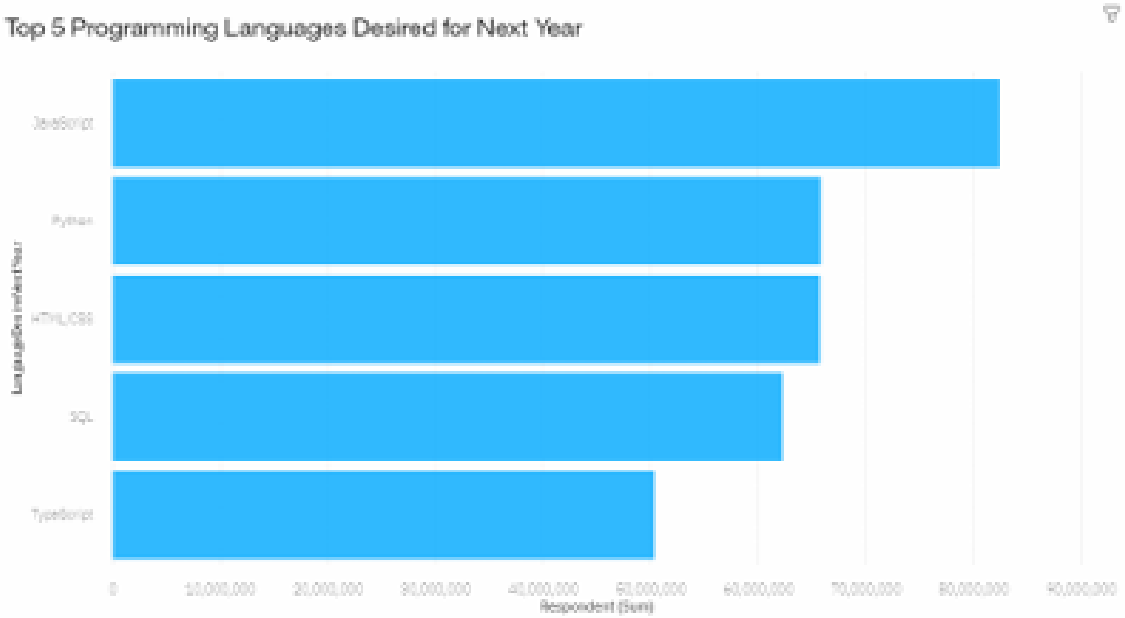
- Data collected via Job API and web scraping.
- Datasets used: `job-postings.xlsx` and `popular-languages.csv`.
- Data cleaning: null handling, normalization, and merging.
- Visualization tools: Excel, Looker Studio, Cognos.
  - Dashboards created with filtered trends and comparisons.
  - Top 10 trends visualized using bar charts.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

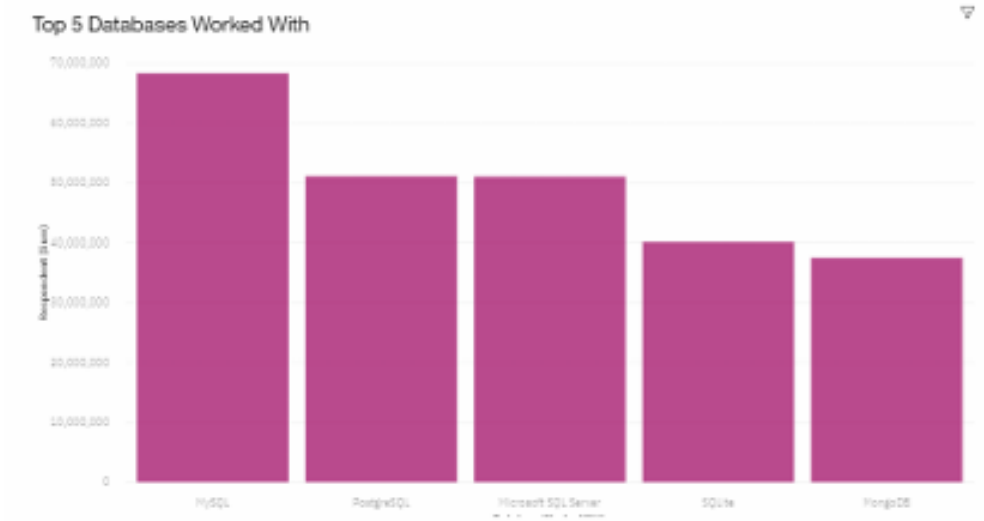
Findings:

- Python remains dominant.
- TypeScript shows sharp growth.
- PHP is declining.

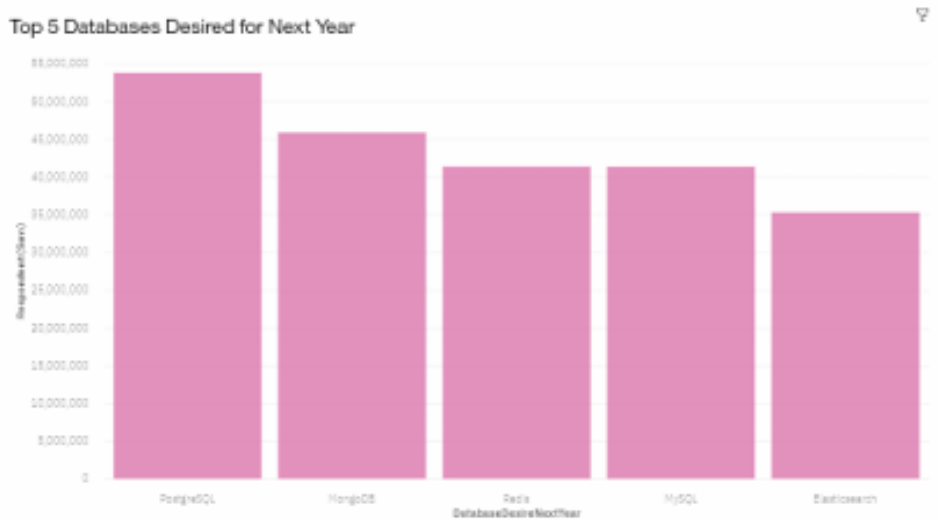
- **Implications**:
- Invest in Python and JavaScript training.
- Monitor emerging languages.
- Adapt hiring to meet future trends.

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- PostgreSQL leads usage.
- MongoDB is growing in preference.
- Oracle usage declining.

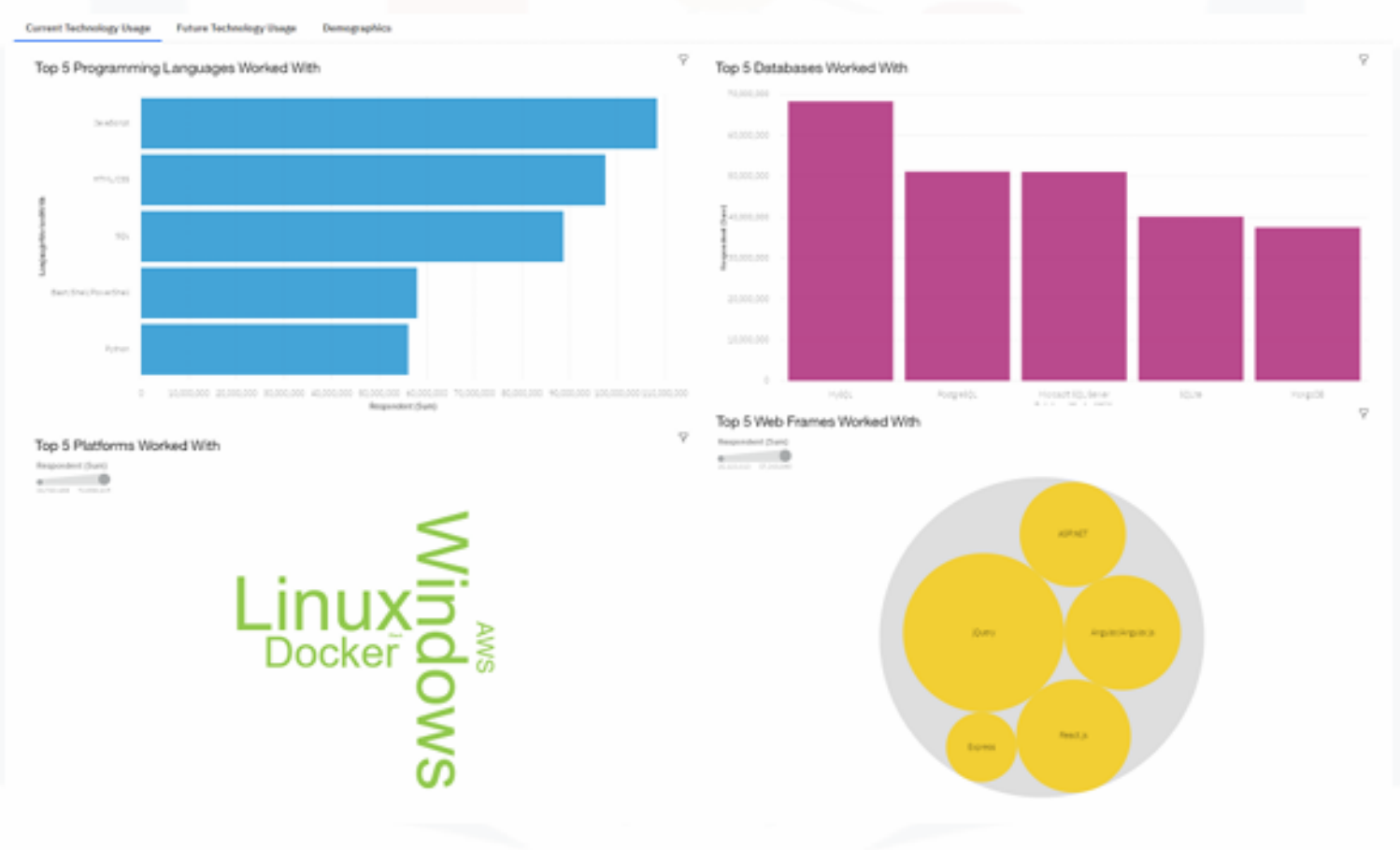
Implications:

- Focus on open-source DBs.
- Support for NoSQL adoption.
- Cost-saving with cloud-based DB solutions.

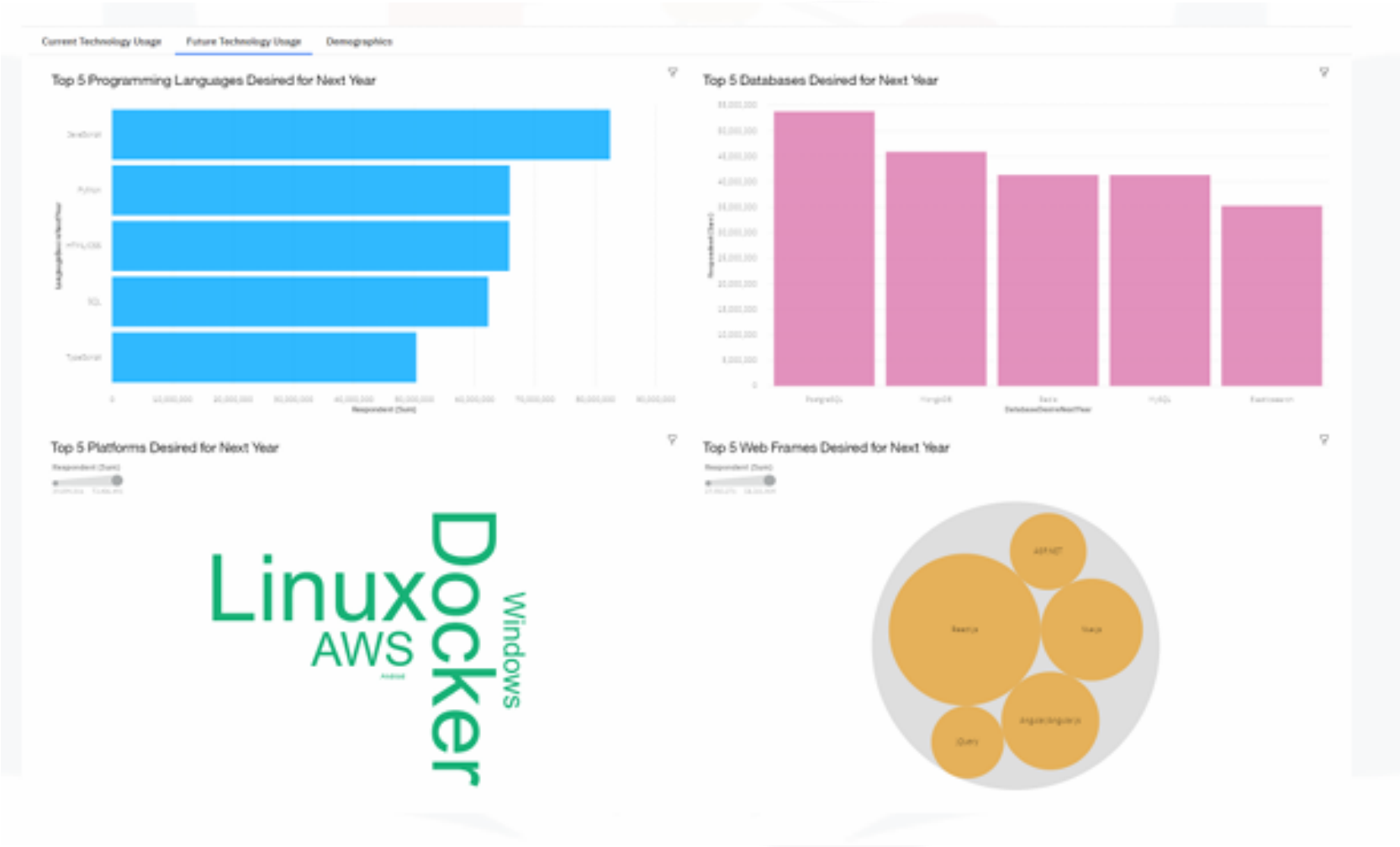
DASHBOARD

https://dataplatform.cloud.ibm.com/dashboards/

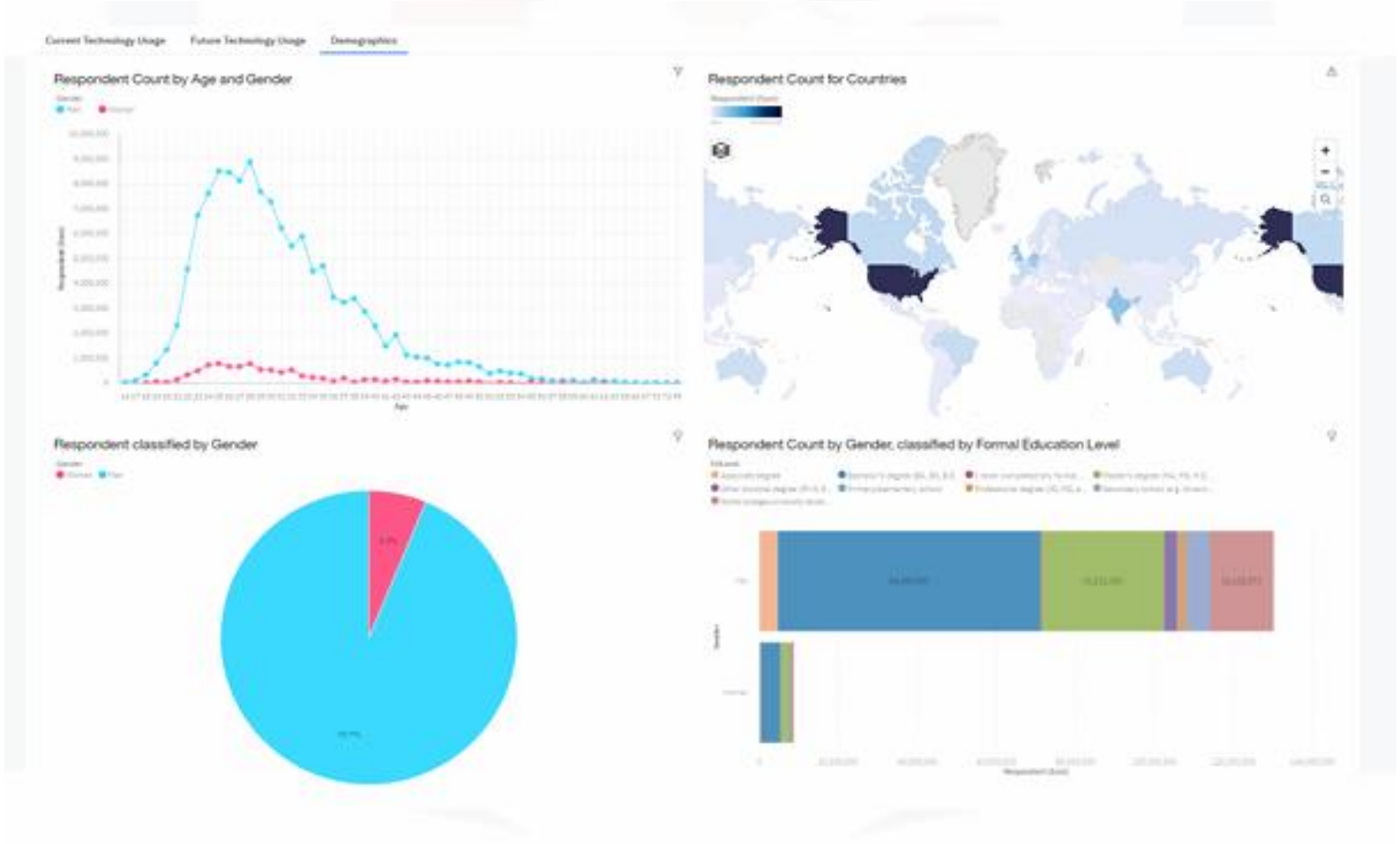
DASHBOARD TAB 1



DASHBOARD TAB 2



DASHBOARD TAB 3



DISCUSSION

- New technology constantly emerges leading to changes in demand.

- The IT industry needs to diversify in order to eliminate gender gap

OVERALL FINDINGS & IMPLICATIONS

- **Findings**:
- Python and PostgreSQL dominate.
- Java and MongoDB rising in demand.
- Job postings correlate with tech trends.

Implications:

- Upskilling in modern stacks is crucial.
- Education programs need to realign.
- Companies should revise tech stack policies.

CONCLUSION

- Summarize:
  - Trend data supports Python/JavaScript and PostgreSQL dominance.
  - Dashboards validated survey insights.
  - Future skills: cloud, AI, and NoSQL.
  - Businesses and educators must stay agile.

APPENDIX

- Include any relevant additional charts, or tables that you may have created during the analysis phase.

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.