ANALYSIS OF JOBS & EDUCATION OPPORTUNITIES IN TECHNOLOGY FIELD
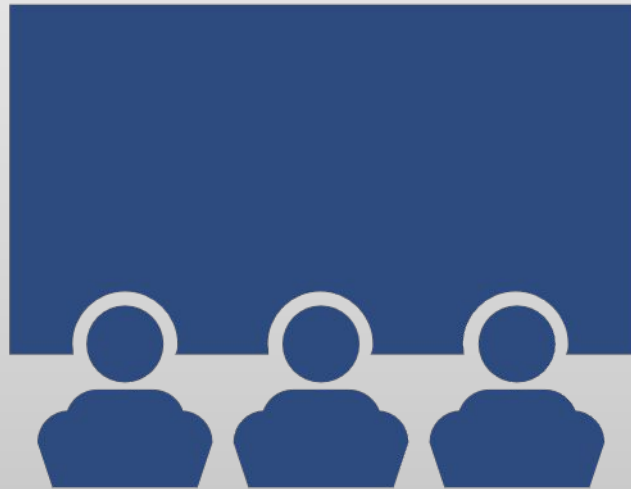
Stack OverFlow Developer Survey 2019.

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Ago 2022

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OUTLINE

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

EXECUTIVE SUMMARY

This report presents some key findings based on the survey conducted by stackoverflow.com, *Developer Survey Results 2019.*

The analysis yielded information on the following:

- Most widely used technologies and how they are related to each other today.
- Identification of trends in the most promising and fastest growing technologies.
- Demographic data, gender participation, ages and educational level.

Data that is relevant for current and future developers, analysts, professors, journalists, entrepreneurs, businessmen and promoters of information technologies.
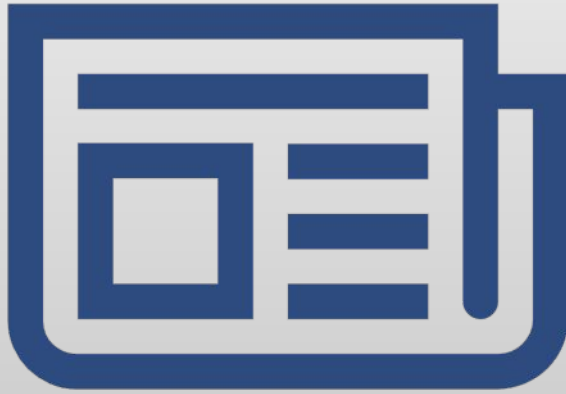
INTRODUCTION

Stack Overflow, a flagship Q&A site for professional and amateur programmers, has been conducting an annual developer survey since 2011.

The main purpose of the annual surveys is to collect data on technology usage and trends among developers.

This report is based on a survey of 88,883 software developers from 179 countries around the world.
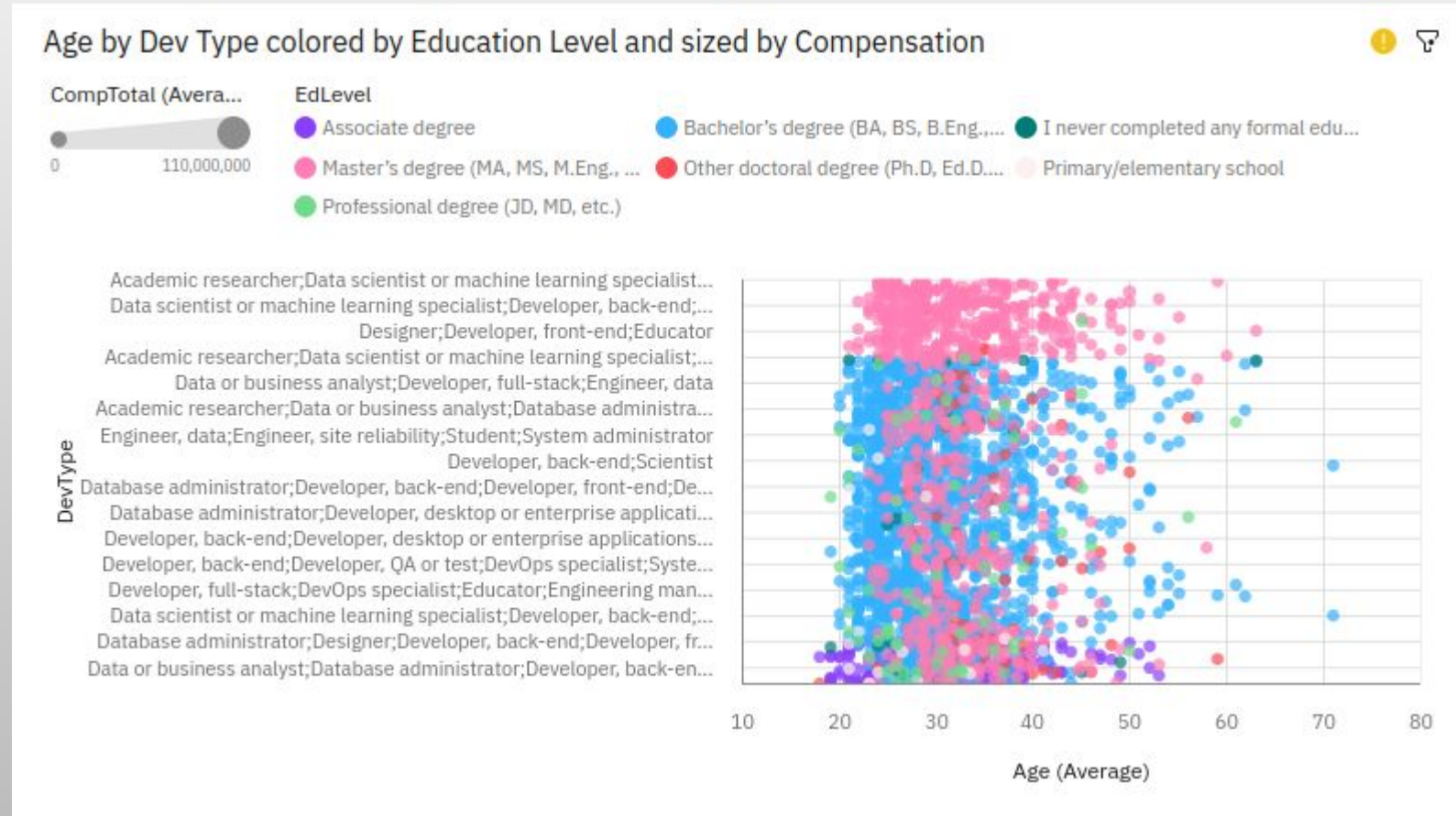
The data set used for the analysis and preparation of this report is 11,398. processed and normalized for educational purposes corresponding to the IBM-Data Analyst course.

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METHODOLOGY

- Data source: Survey -- *Developer Survey Results 2019.*

1. **Data management:** The IBM-provided data set was cleaned and normalized using SQL and the Python pandas library. -- *normalized.csv* -- demographic.csv

2. **Analysis:** Python and multiple libraries were used for normalization cleaning and exploratory analysis and IBM Cognos Analytic on IBM Cloud to provide the interactive visualization Dashboard.

3. **Visualization:** It was decided to propose a visualization of the following aspects.
    - Most used technologies in 2019
    - Most desired technologies for the coming year
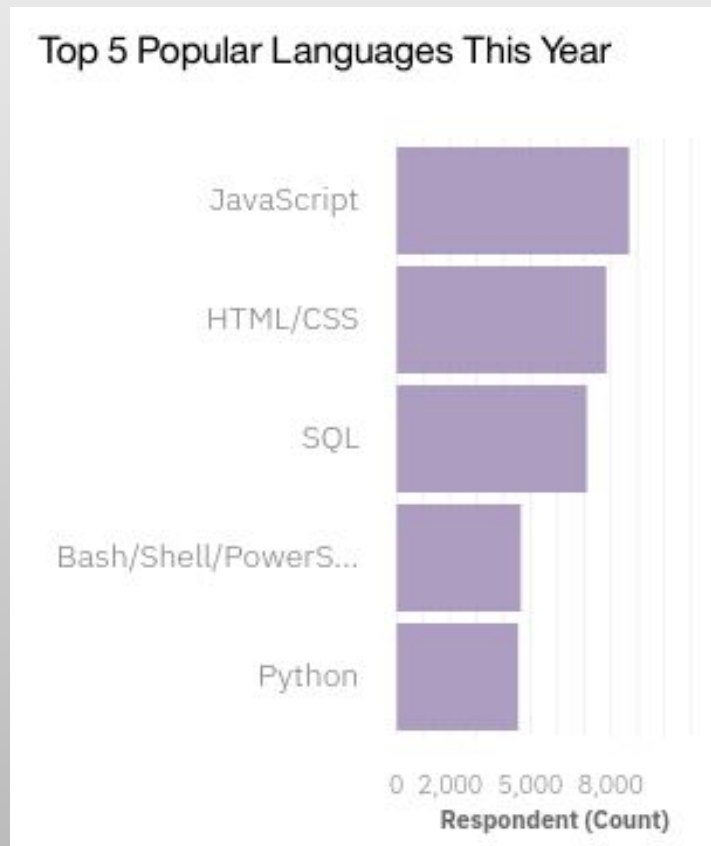   - demographic data.

    -- *Cognos dashboard.*

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RESULTS: AGE BY DEVTYPE, EDUCATION LEVEL & COMPENSATION

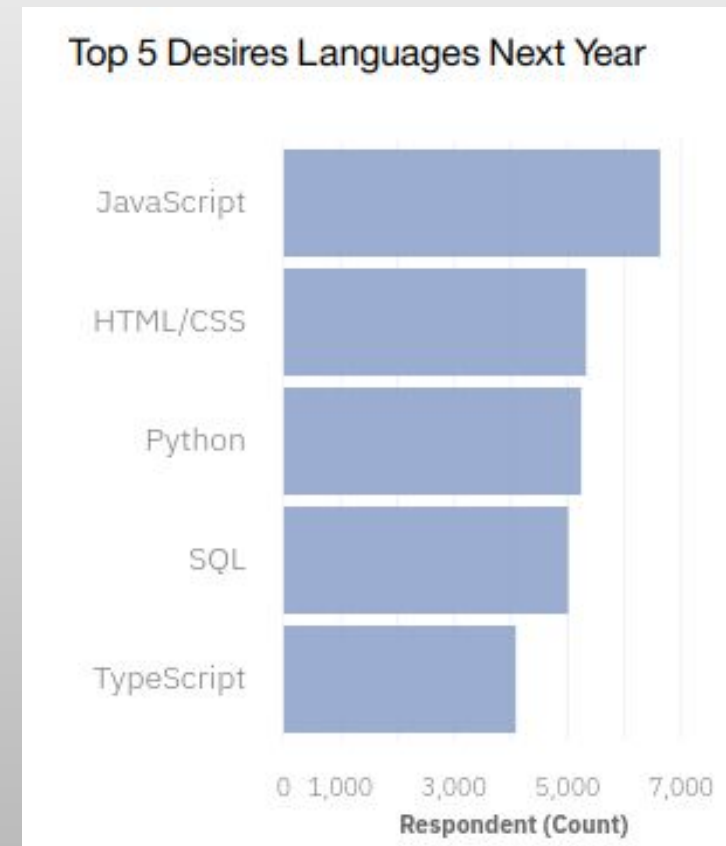Age by Dev Type colored by Education Level and sized by Compensation

- Sample size after removal of offsetting outliers 10519:

- Average age of 29 years

- Average financial compensation $52,704 USD per year.

- Review of areas that show the need to strengthen the level of education

PROGRAMMING LANGUAGE TRENDS

Current Year 2019

Top 5 Popular Languages This Year

- JavaScript
- HTML/CSS
- SQL
- Bash/Shell/PowerS...
- Python

Respondent (Count)

Next Year

Top 5 Desires Languages Next Year

- JavaScript
- HTML/CSS
- Python
- SQL
- TypeScript

Respondent (Count)

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- Javascript and HTML/CSS were the most popular in 2019 and are leading the way as technologies for the web.
- SQL was as popular in 2019 as it was before.
- Growing interest in Python as a broad and versatile language.
- TypeScript (also for web development).
- PowerShell/Bash drops from the top but gives way to Python.
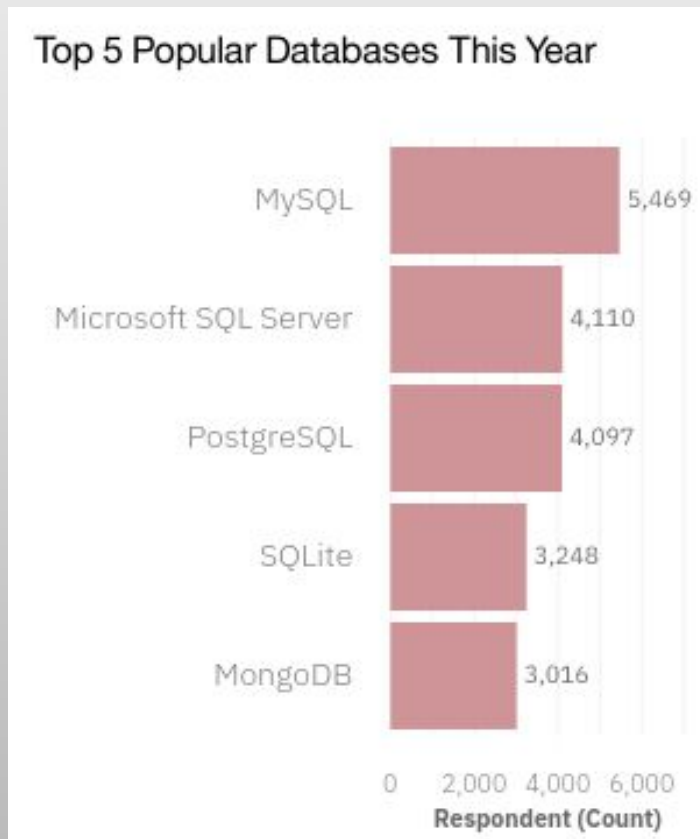
Implications:

The languages oriented to web development continue to have a predilection and will have it more and more among developers

Developers are increasingly turning to versatile, fast-learning languages like Python.
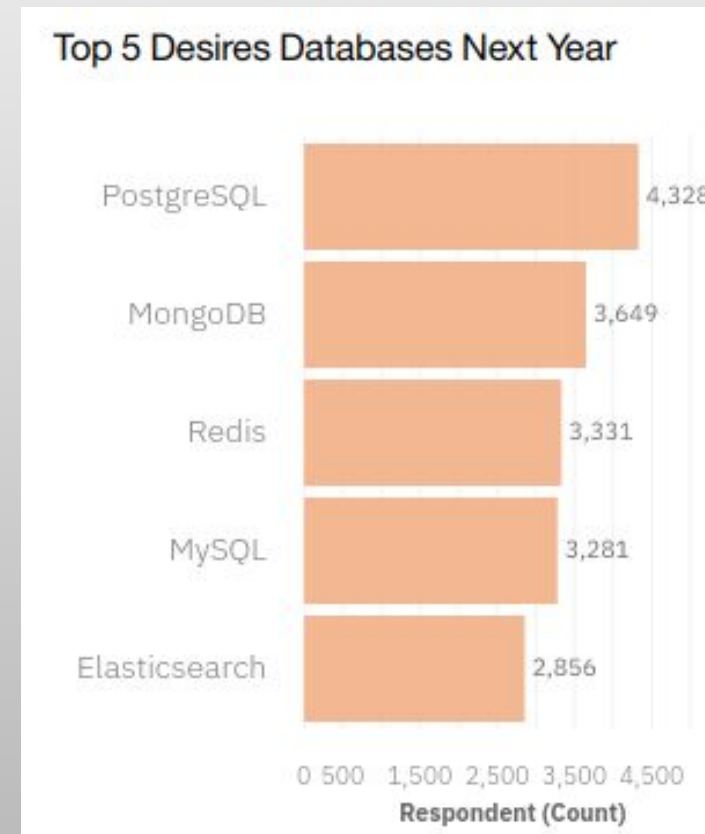
Typescript looks set to gain ground as it powers javascript for development.

DATABASE TRENDS

Current Year 2019

Top 5 Popular Databases This Year

Database	Respondent (Count)
MySQL	5,469
Microsoft SQL Server	4,110
PostgreSQL	4,097
SQLite	3,248
MongoDB	3,016

Next Year

Top 5 Desires Databases Next Year

Database	Respondent (Count)
PostgreSQL	4,328
MongoDB	3,649
Redis	3,331
MySQL	3,281
Elasticsearch	2,856

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- SQL databases were the most popular in 2019, with MySQL leading the way.

- PostgreSQL is gaining popularity.

- MongoDB also open source is gaining popularity.

- Growing interest in Elasticsearch.

Implications:

- As with the implications of programming language trends, the implications lie in the same technological paradigm shift.

- The huge amount of data generated constantly, Big Data requires processing quickly and effectively.

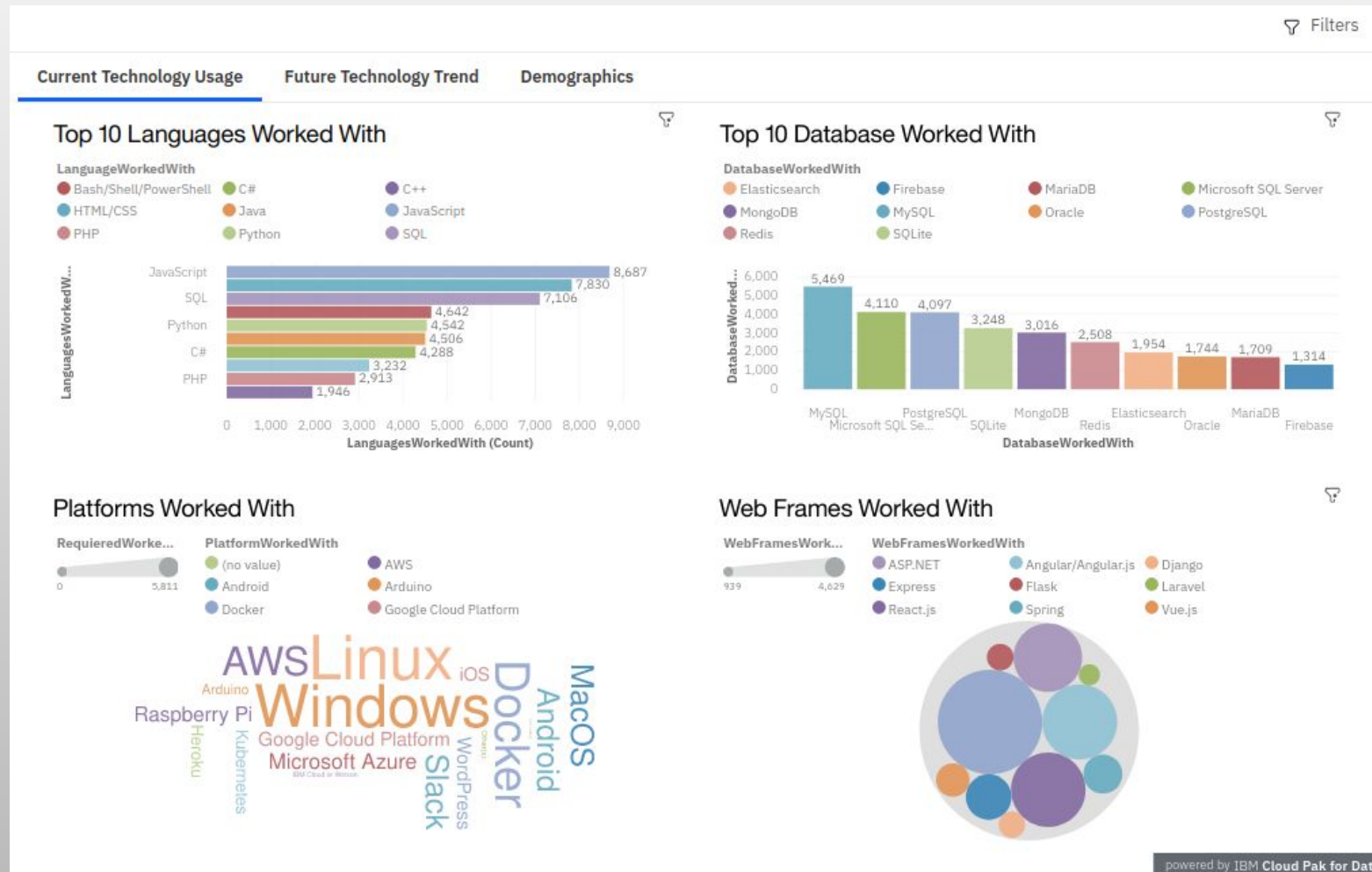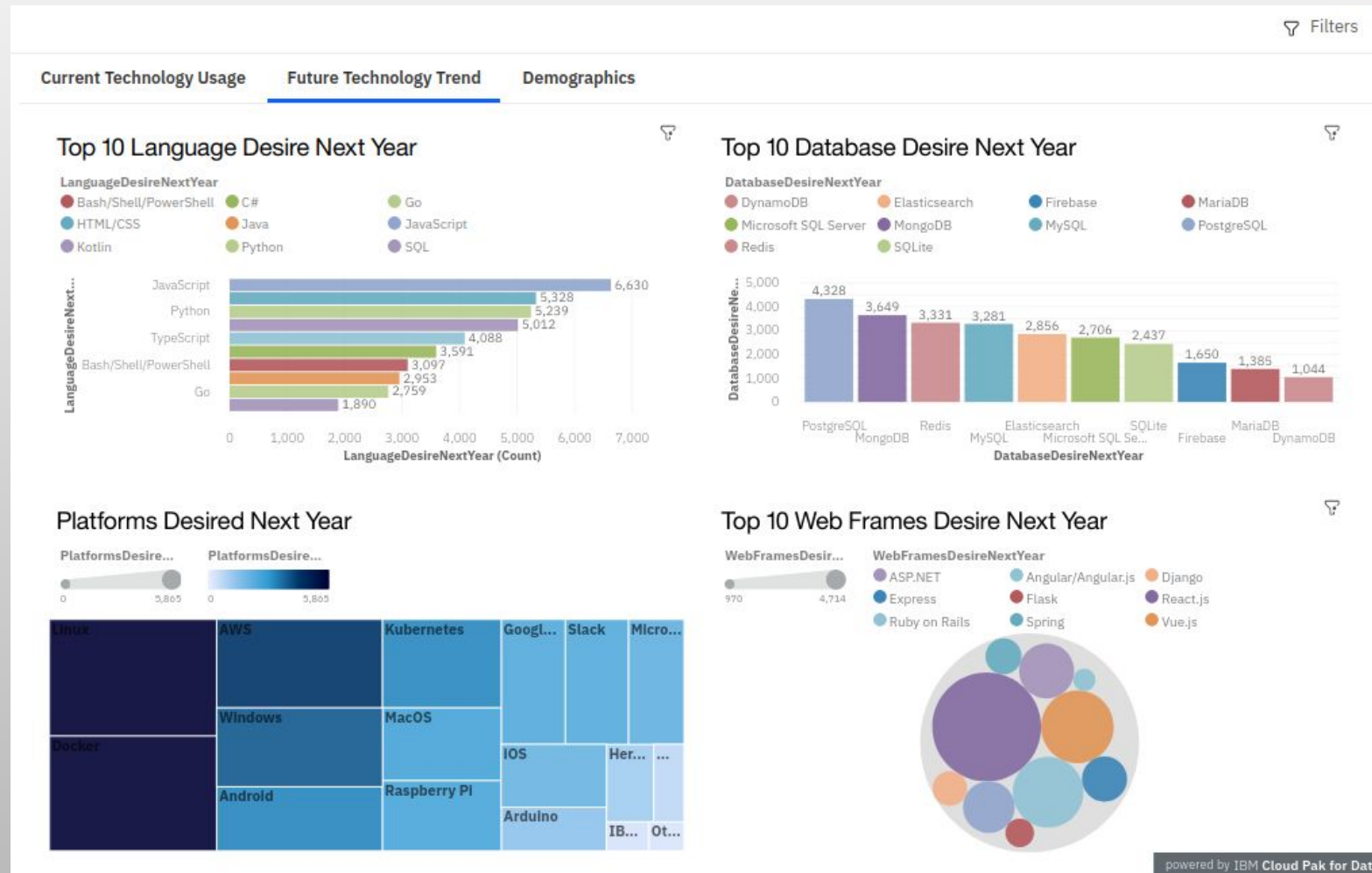- The preference for open source databases is evident among developers.

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DASHBOARD - INTERACTIVE

You can see the interactive Dashboard at this *link*.

In the next slide you can see screenshots of the dashboard.
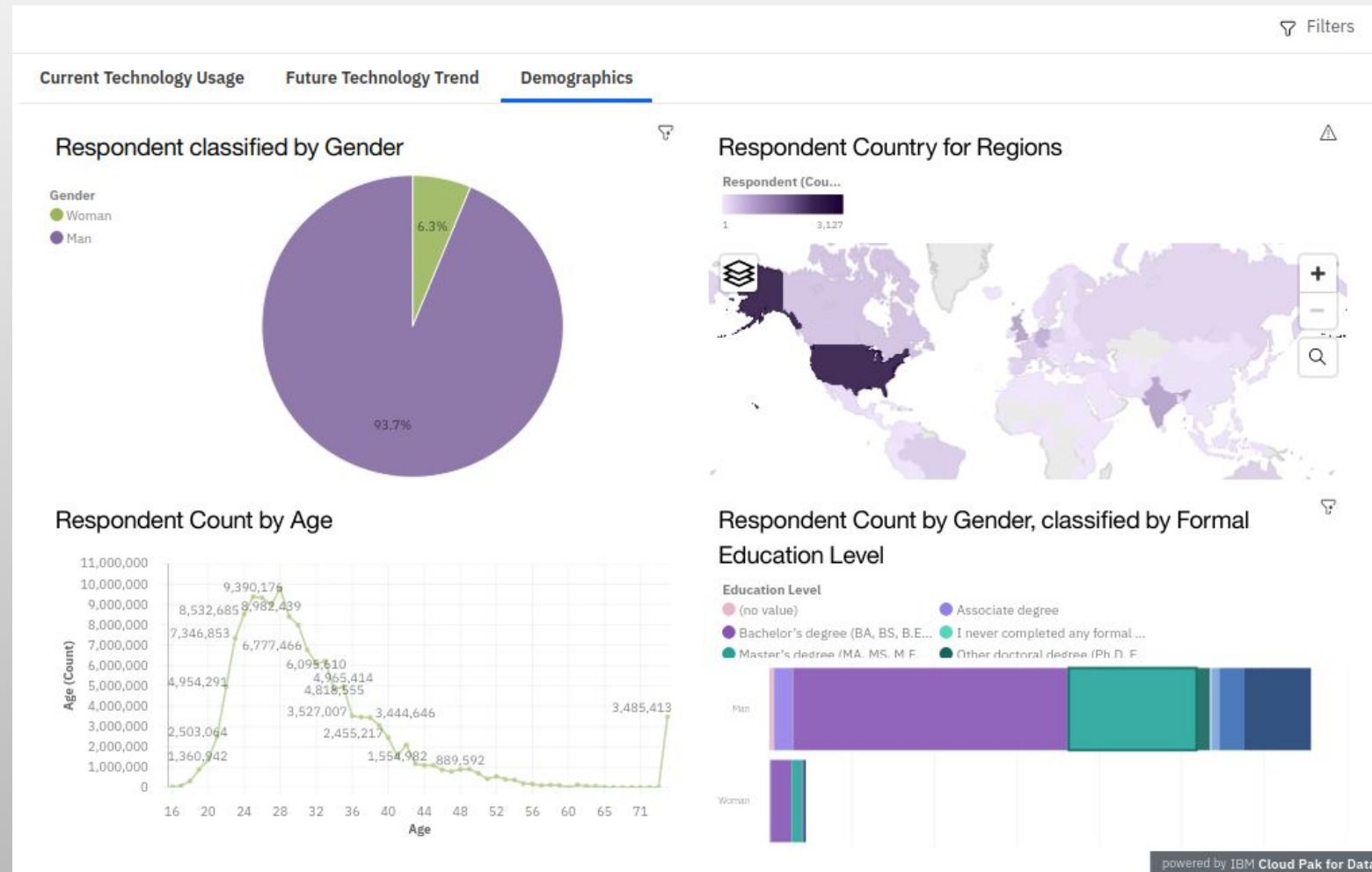
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DASHBOARD TAB-1: CURRENT TECHNOLOGY USE

DASHBOARD TAB-2: FUTURE TECHNOLOGY TREND

DASHBOARD TAB-3: DEMOGRAPHICS

DISCUSSION

It is clear that the new paradigm demands rapid adaptation by professionals and institutions.

The question that arises is:

- Are there enough learning tools?
- Are the institutions prepared to face the vertiginous change?

OVERALL FINDINGS & IMPLICATIONS

Findings

• High usage and interest in Javascript and HTML/CSS remains high usage There is also a growing interest in Typescript.

• Growing interest in Python.

• High use and interest in SQL. MySQL had the most usage in 2019, but PostgreSQL is gaining interest and was the most desired database program overall for the next year

• NoSQL database programs are gaining interest.

• Open source technologies are gaining more and more relevance.

Implications:

• The implications that emerge from these findings lie in the profound change in the technological paradigm.

• Web development, cloud computing, Big Data, AI-Machine learning, Deep Learning, IOT. Datascience.

• With huge amounts of data generated constantly, it is required to process them quickly and effectively.

• New tools are constantly emerging, which is why developers tend to lean towards flexible, fast-learning languages and high performance in dynamic environments, to advance in this new paradigm of Big Data, Data Science and enhance their analysis skills.

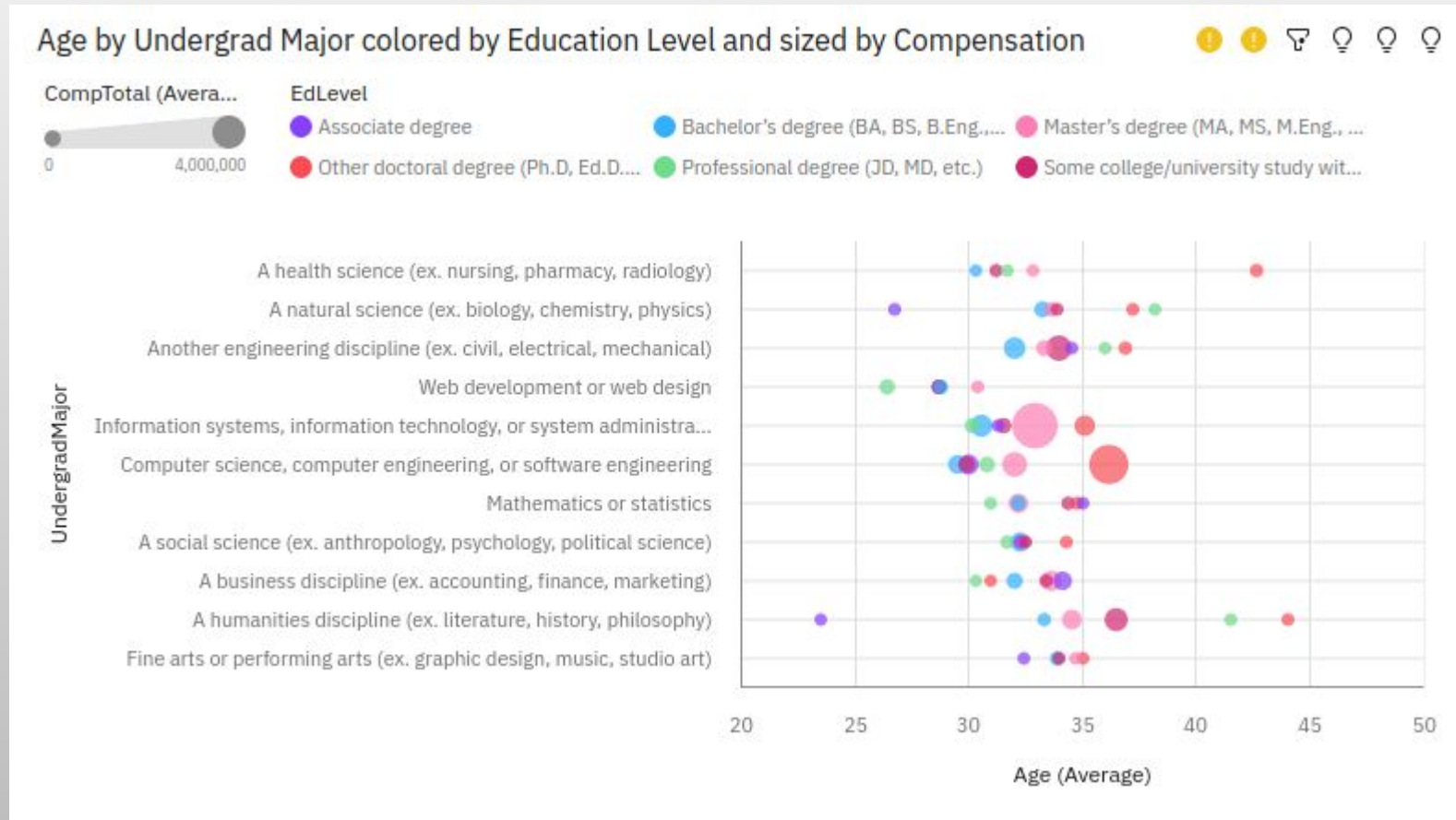• Institutions need to adapt to changing technology.

CONCLUSION

The data analyzed in this report allow us to make relevant findings.

The findings give us insight into the direction in which new technologies are moving and how developers are meeting new challenges in a fast-paced and exciting environment.
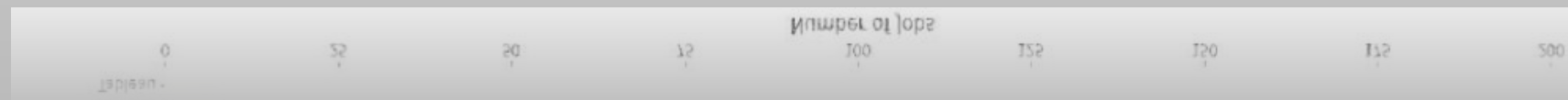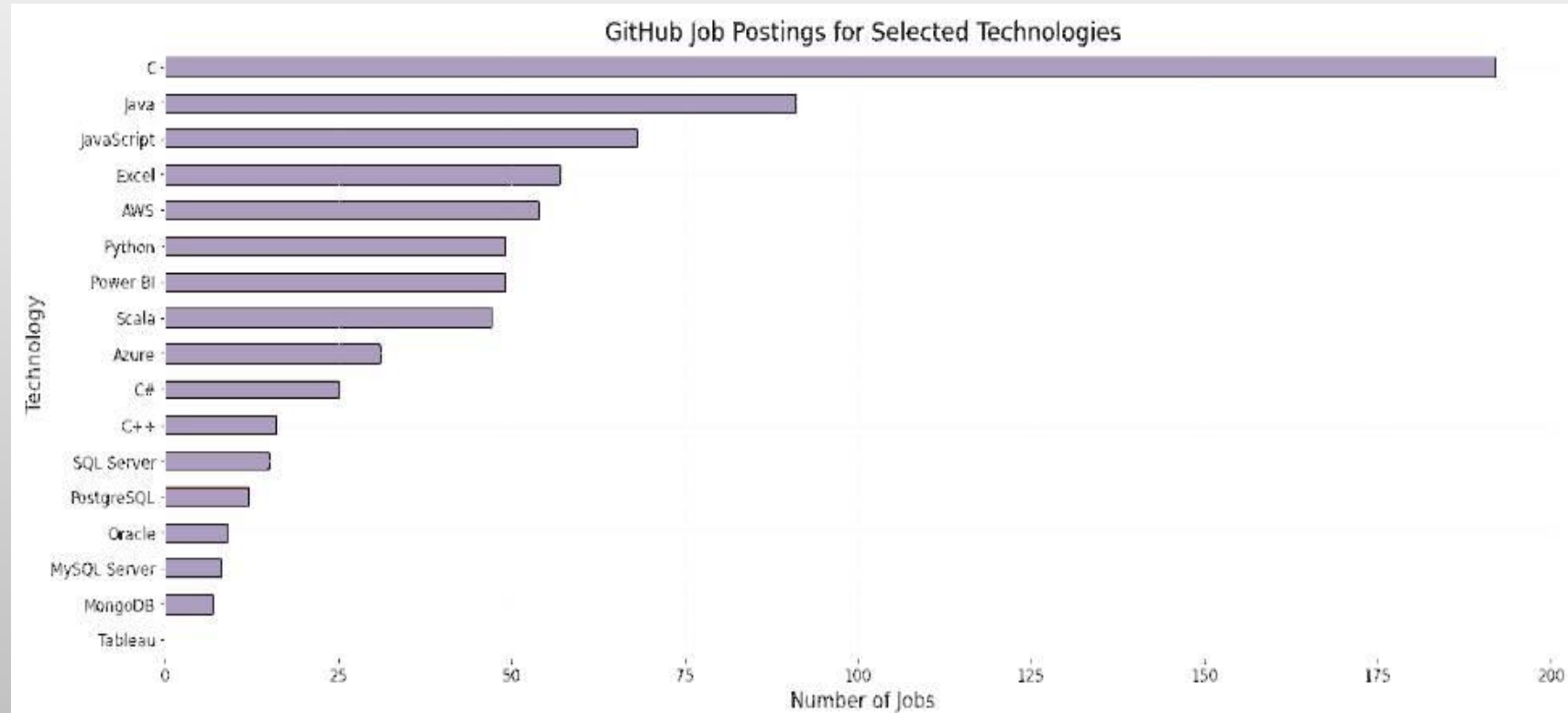
Environment for which educational institutions, companies and organizations should be especially interested in preparing and thus promoting in the near future a human development never seen before.
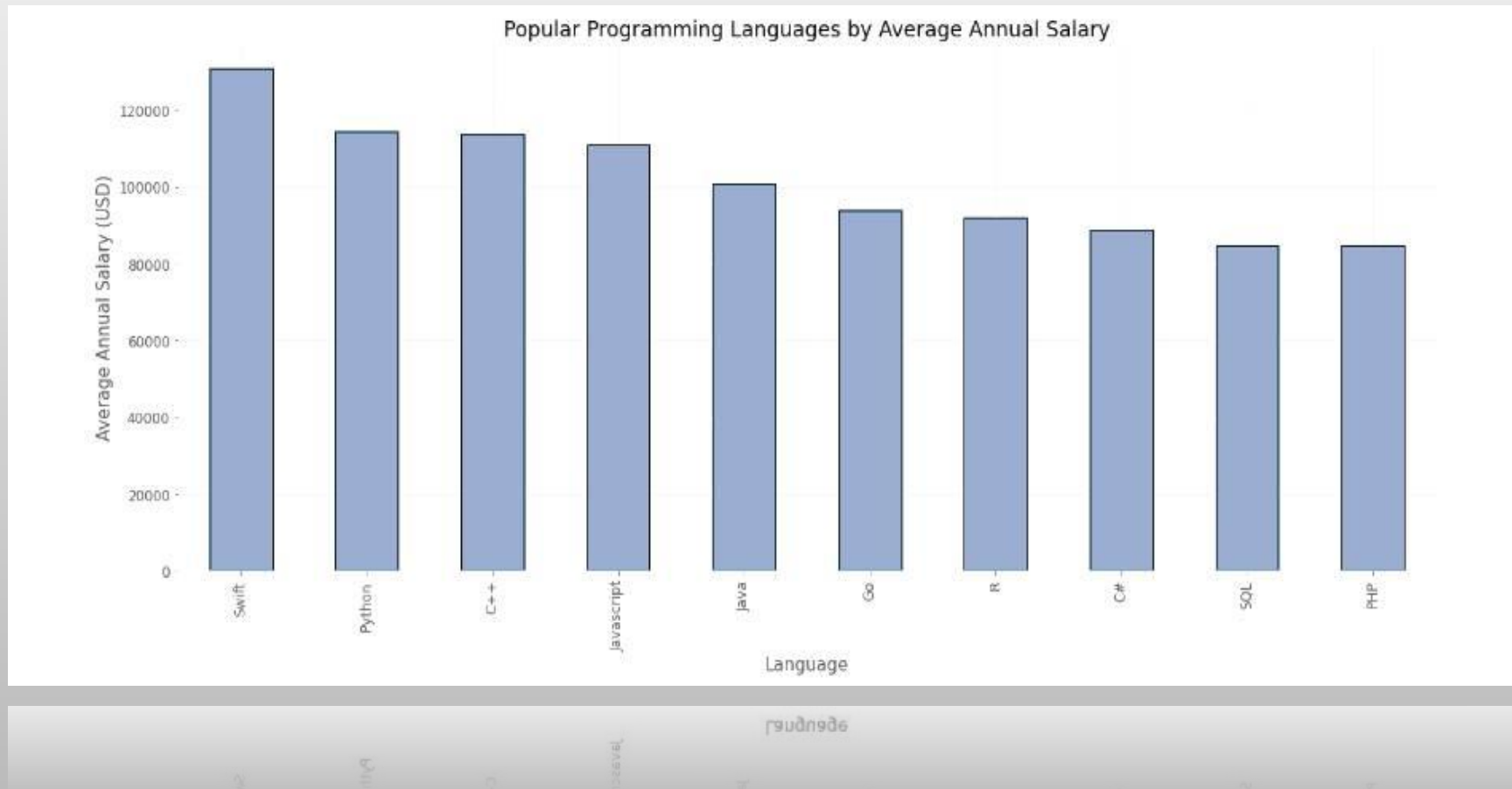
APPENDIX

Age by Undergrad Major colored by Education Level and sized by Compensation

- In this exploratory graphic analysis, the need to create study degrees that adapt to the demand in the different areas of the market is clearly seen, since some of them are only covered by master's degrees and doctorates.

- This review reinforces what is stated in the Discussion section below.

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JOB POSTINGS

GitHub Job Postings for Selected Technologies

POPULAR LANGUAGES

Popular Programming Languages by Average Annual Salary

REFERENCES

To view project details and review the items that make up this report.

Follow the link below