Skill requirements: today and tomorrow

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OUTLINE

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

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EXECUTIVE SUMMARY

- The main question is: in which direction to develop?

- Points of view from which we consider the issue:
  - looking for employers
  - offered by training programs
  - mentioned in surveys and discussions

INTRODUCTION

- The main questions we are looking for answers to:
  - What are the top programming languages in demand?
  - What are the top database skills in demand?
  - What are the popular IDEs?
  - Where to look for employees with the right skills?
  - How do employees improve their level?

- Who will be interested in the answers:
  - employers
  - colleges, universities, training centers
  - students and employees who want to expand their career horizons

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METHODOLOGY

Sources:

- Job postings
  https://www.kaggle.com/promptcloud/jobs-on-naukricom

- Training portals
  https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html

- Surveys
  https://stackoverflow.blog/2019/04/09/the-2019-stack-overflow-developer-survey-results-are-in/
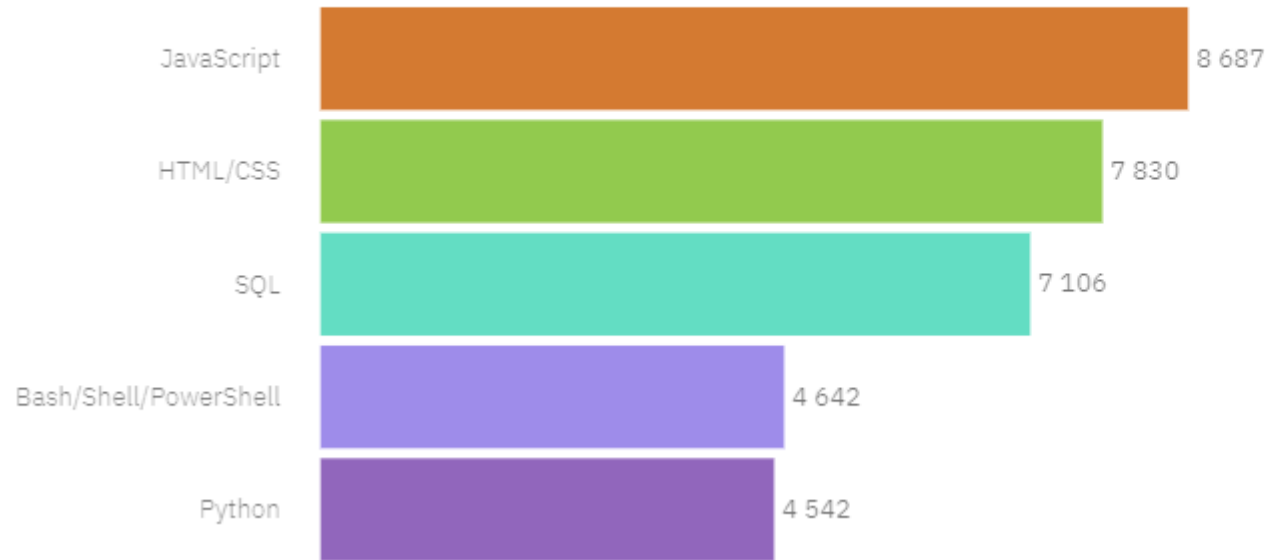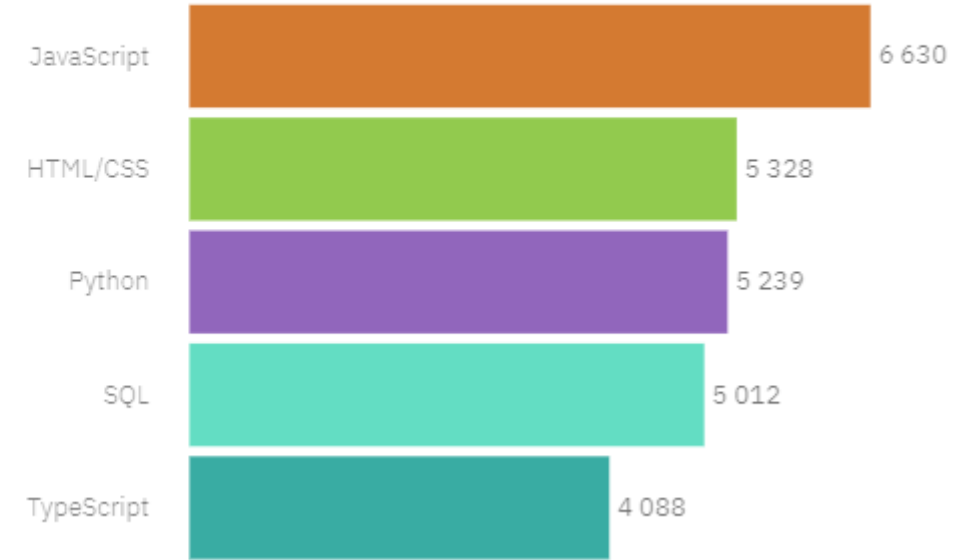
RESULTS

PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

Top 5 Language Worked With

Language	Value
JavaScript	8 687
HTML/CSS	7 830
SQL	7 106
Bash/Shell/PowerShell	4 642
Python	4 542

Top 5 Language Desire Next Year

Language	Value
JavaScript	6 630
HTML/CSS	5 328
Python	5 239
SQL	5 012
TypeScript	4 088

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PROGRAMMING LANGUAGE TRENDS – FINDINGS & IMPLICATIONS

Findings

- JavaScript, HTML / CSS have not lost their leading positions in the rankings, but the number of proposals for them has decreased slightly

- Python rose 2 positions and ahead of SQL
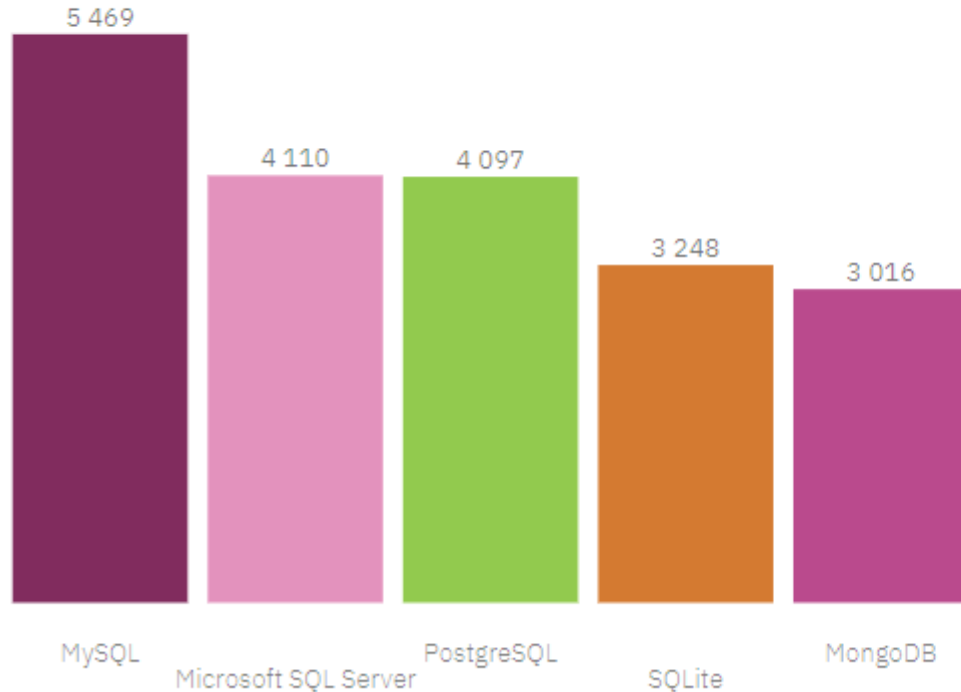
- TypeScript has supplanted Bash

Implications

- Employers: give employees the opportunity to learn a new programming language in on-the-job training.

- Colleges, universities, training centers: increase the number of proposals for learning popular programming languages.

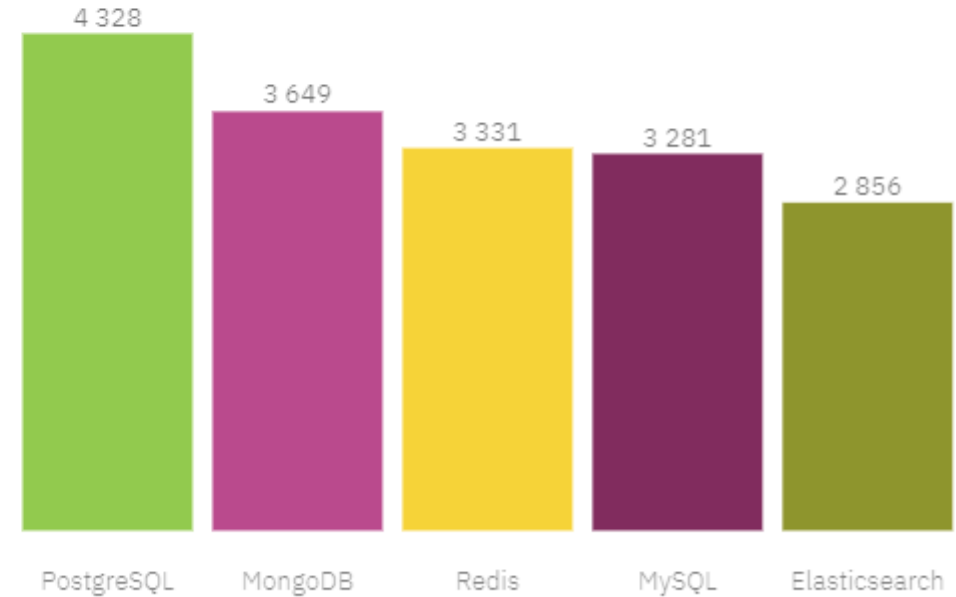- Students and employees: take a training or online course, preferably practical.

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DATABASE TRENDS

Current Year

Top 5 Database Worked With

MySQL	Microsoft SQL Server	PostgreSQL	SQLite	MongoDB
5 469	4 110	4 097	3 248	3 016

Next Year

Top 5 Database Desire Next Year

PostgreSQL	MongoDB	Redis	MySQL	Elasticsearch
4 328	3 649	3 331	3 281	2 856

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- More and more data is stored in object-relational and non-relational databases, so PostgreSQL, MongoDB and Redis become leaders

- MySQL and other relational databases continue to be used where it is possible to structure data

Implications

- Employers: Consider deciding to move to a different type of database

- Colleges, universities, training centers: list at least two different types of databases

- Students and employees: first of all, consider the possibility of improving your skills at the expense of the employer - so you will learn what you can immediately use in work

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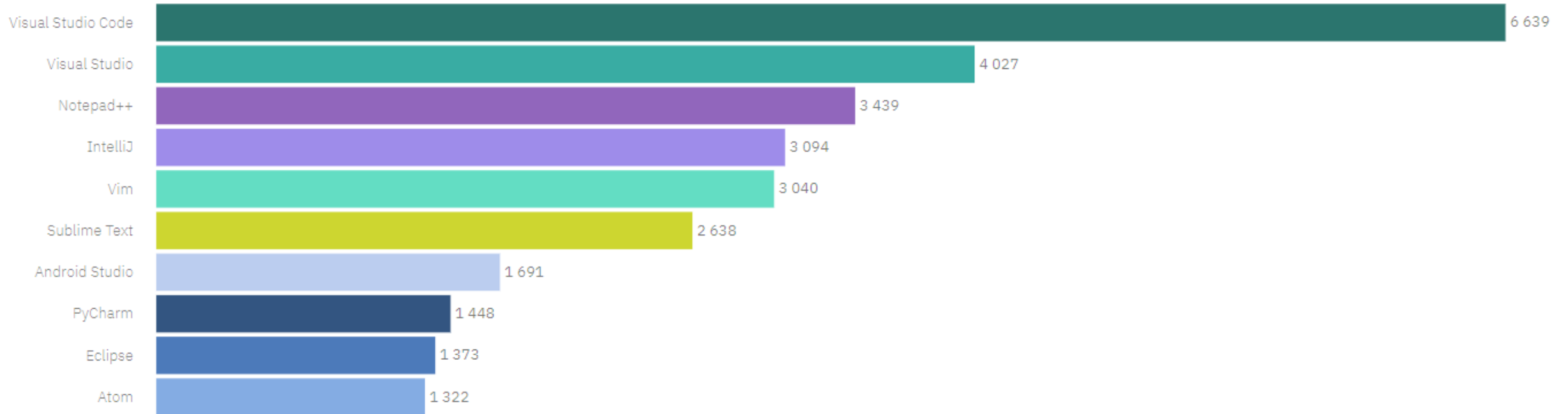
IDEs TRENDS

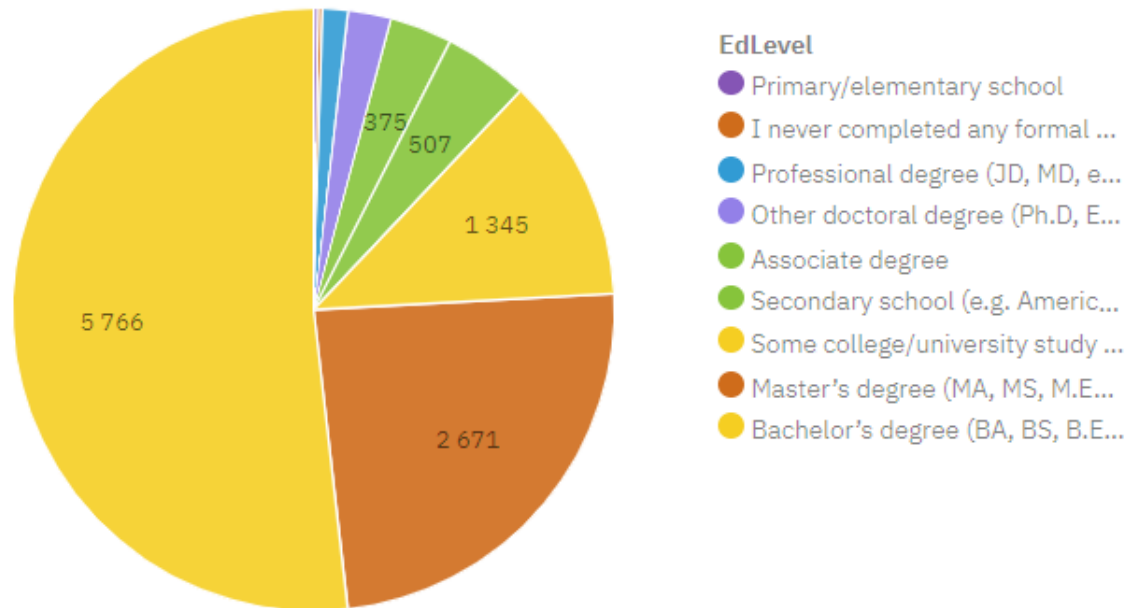# IDEs TRENDS - FINDINGS & IMPLICATIONS

Findings

- Visual Studio Code and Visual Studio are in the lead

- Remain popular Notepade ++, Intellio, Vim, Sublime Text

Implications

- When studying, students should be encouraged to use the top 5 development environments

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Where to look for employees with the right skills?

Who tends to improve their skills

EdLevel
- Primary/elementary school
- I never completed any formal ...
- Professional degree (JD, MD, e...
- Other doctoral degree (Ph.D, E...
- Associate degree
- Secondary school (e.g. Americ...
- Some college/university study ...
- Master's degree (MA, MS, M.E...
- Bachelor's degree (BA, BS, B.E...

Pie chart values: 375, 507, 1 345, 5 766, 2 671

Findings & Implications

- Employers should pay attention to employees with a bachelor's, master's degree and those who studied at a college or university without earning a degree. These categories are easy to learn new technologies.

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How do employees improve their level?
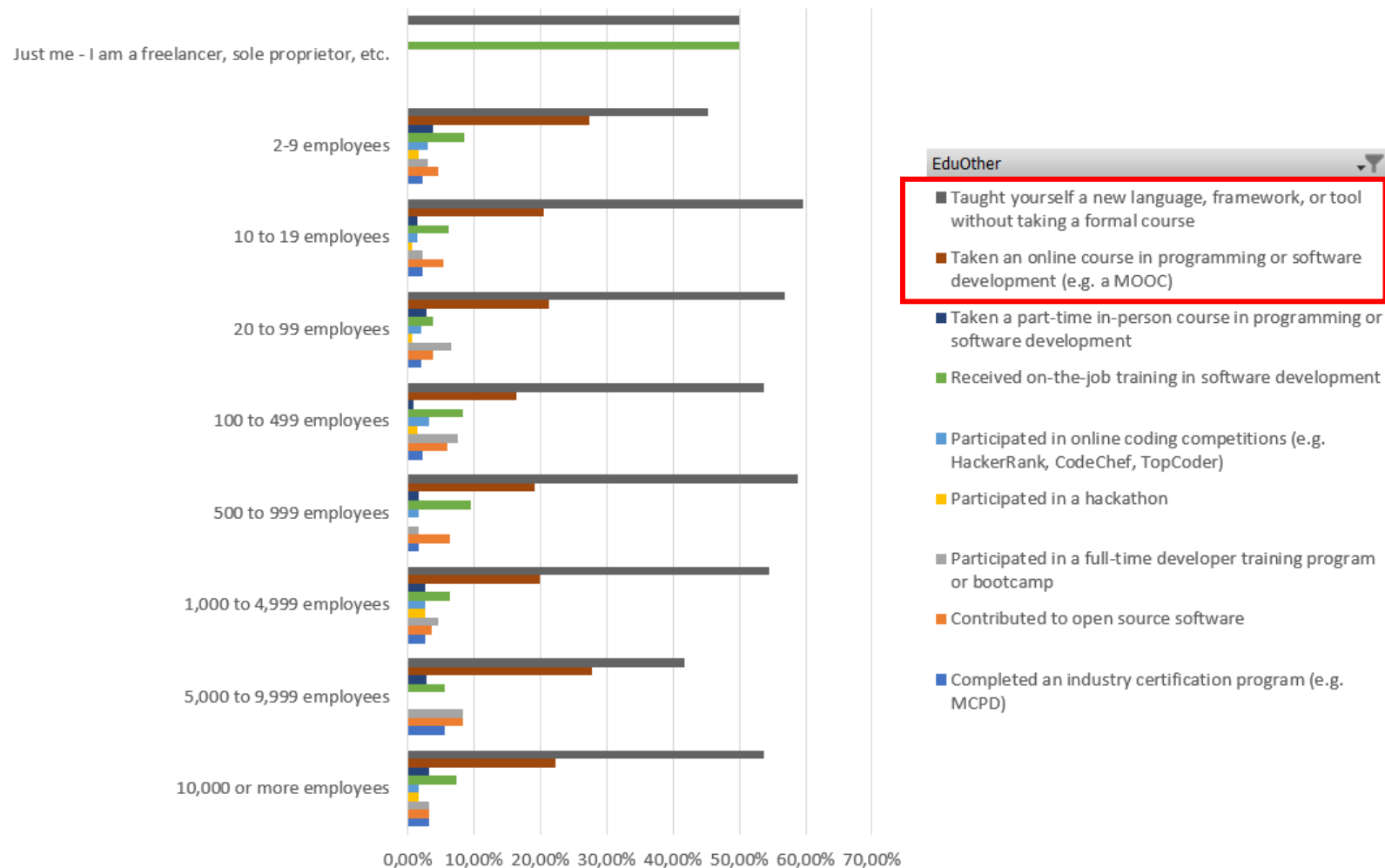
Findings

- The most popular way is to study on your own or taken an online course in programing or software development

DASHBOARD

The permanent link of the read-only view of the Cognos dashboard

https://eu-de.dataplatform.cloud.ibm.com/dashboards/8aecd3ff-2813-41c4-a3ae-8006b954d386/view/673ac92a7dab6b9064e8d4e407cc78557937215dbbbb840282d17b495b367897f06d1093c8794d59dd165760f4bf430fce
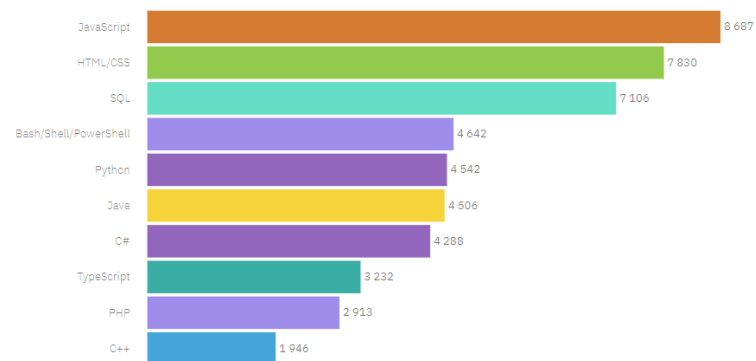
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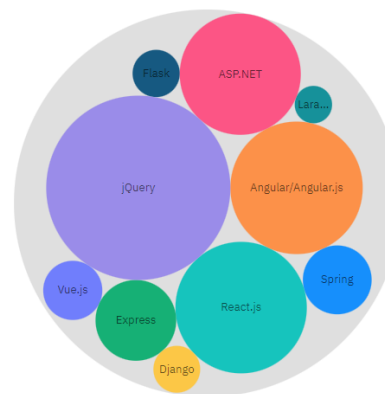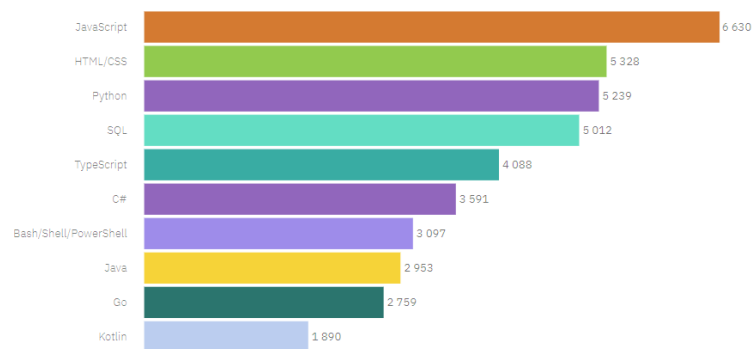
DASHBOARD TAB 1

DASHBOARD TAB 2

DASHBOARD TAB 3
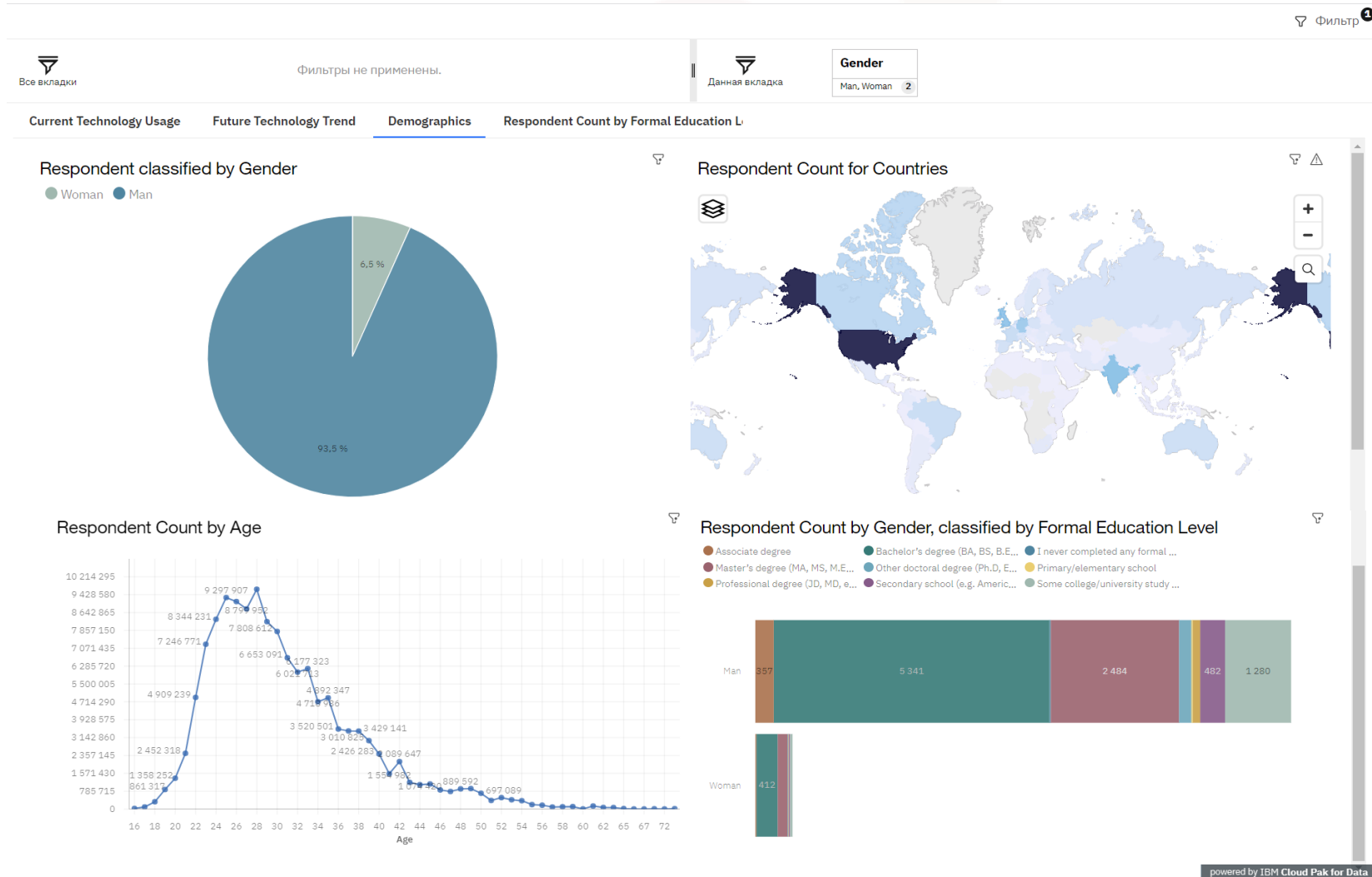
DISCUSSION

So what to recommend to stakeholders?

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OVERALL FINDINGS & IMPLICATIONS

- Employers: it makes sense for large companies to organize training on their own basis (employees will immediately receive the necessary knowledge and skills); for small businesses, it is better to look for college or university graduates with the right skills, or to offer employees to master them on their own.

- Colleges, universities, training centers: cooperate with employers, find out their needs and promptly update the list of courses and training programs

- Students and employees: working conditions and requirements for employees change quite quickly - make it a rule to learn something new every year that will be useful in your work. Learn on your own or in open online courses; will be able to prove to the employer that you can quickly master the necessary skills - he will pay you for additional training
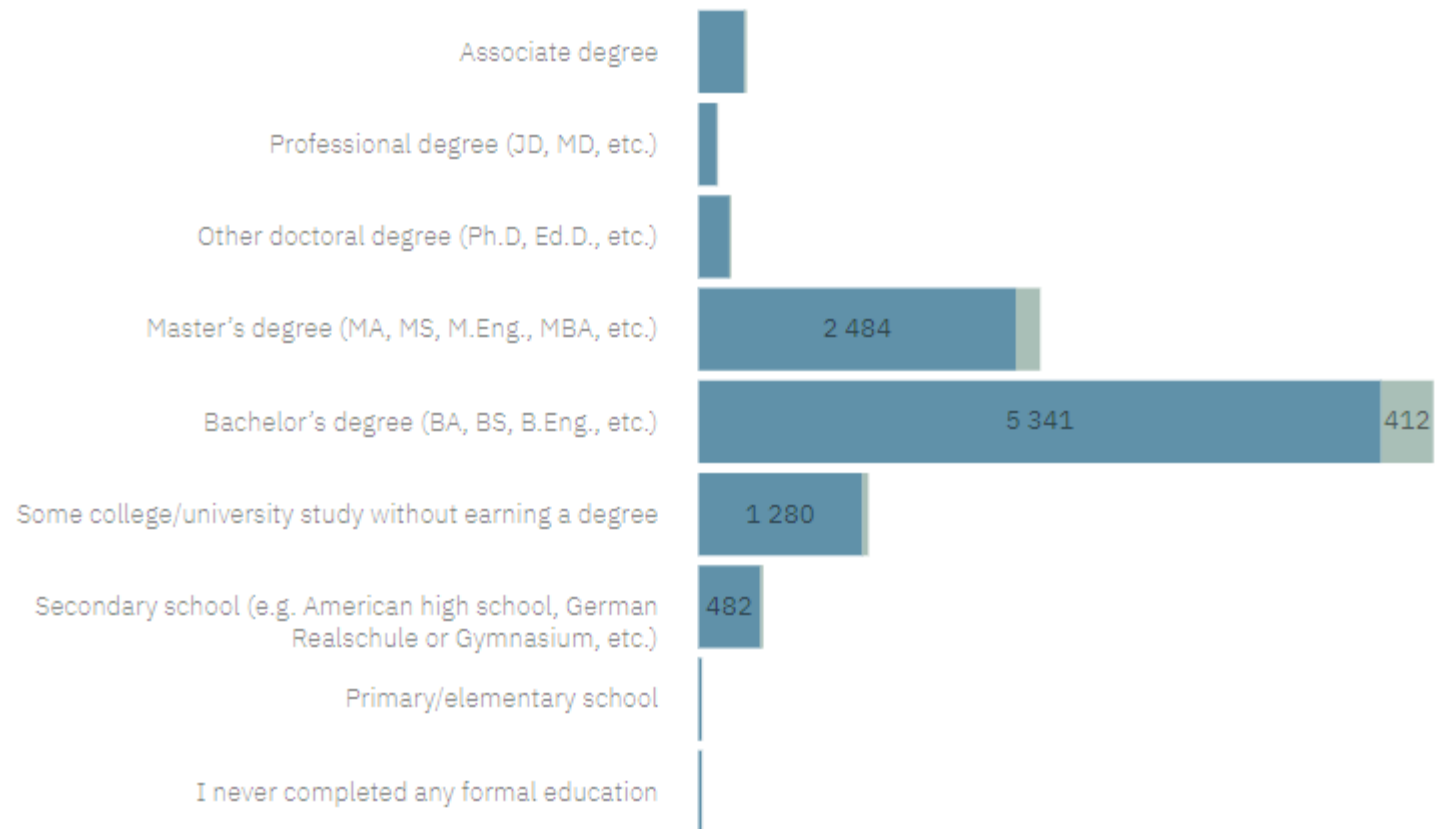
CONCLUSION

- The industry employs mostly young people who know how and want to learn something new.

- For employers, this situation is quite favorable - they do not often need to look for new employees with the right skills, you can just teach them those who already work.

- Cooperation between employers and colleges, universities and training centers can quickly meet the training needs of employees in new skills.

- Learning a new table is easy - even without significant funds, you can find the information you need on the Internet and learn on your own. The main thing is not to be lazy to study, and to study constantly.
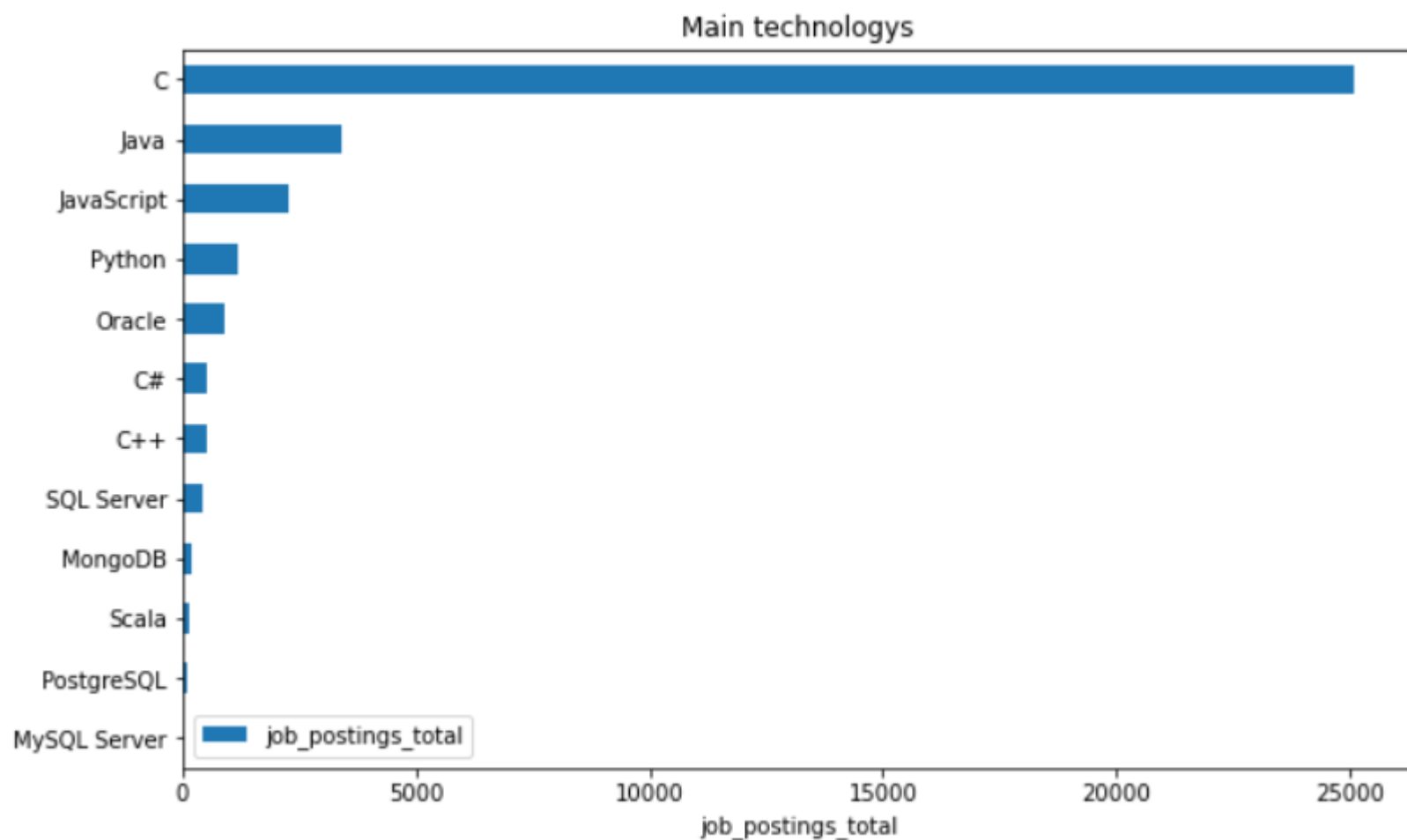
APPENDIX

Respondent Count by Formal Education Level, classified by Gender

Education Level	Count
Associate degree	
Professional degree (JD, MD, etc.)	
Other doctoral degree (Ph.D, Ed.D., etc.)	
Master's degree (MA, MS, M.Eng., MBA, etc.)	2 484
Bachelor's degree (BA, BS, B.Eng., etc.)	5 341 ... 412
Some college/university study without earning a degree	1 280
Secondary school (e.g. American high school, German Realschule or Gymnasium, etc.)	482
Primary/elementary school	
I never completed any formal education	

GITHUB JOB POSTINGS

Main technologys

POPULAR LANGUAGES

Average Annual Salary