Stack Overflow

Developer Survey:

FINDINGS - 2019

By: Valentin Jimenez De Santiago

Date: March-07-2022

IBM Developer

SKILLS NETWORK

OUTLINE

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

EXECUTIVE SUMMARY

- **Purpose:** analyze data to help identify future skill requirements for IT Technologies.
- **Key findings:** programming languages interest and use are the most "stable", all the other sectors are pretty changing: databases, platforms and web frames.
- **Other findings:**
  - Gender gap is still big.
  - Salary by age and hence by experience has a big relevance
  - Respondents age mostly between 24 and 32 years old, the age range is expanding a lot.

INTRODUCTION

- **In order to keep pace with changing technologies and remain competitive, we analyze data to help identify future skill requirements for IT Technologies.**

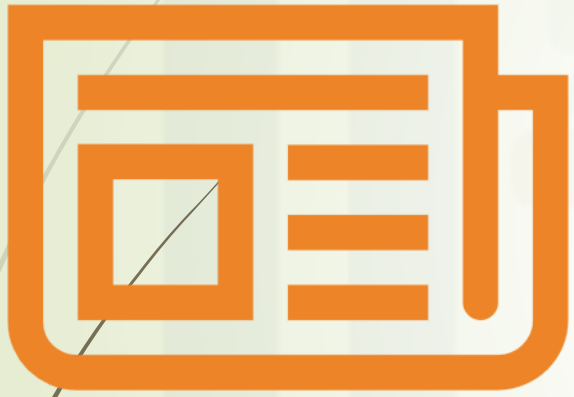
- We collected data of the top programming skills that are most in demand from various sources including:

  - Job postings
  - Training portals
  - Surveys

- Then, we analyzed the data and identify insights and trends that include the following:

  - What are the top programming languages in demand?
  - What are the top database skills in demand?
  - What are the popular IDEs?

METHODOLOGY



- **We indicate the source where data was taken from and the respective Licence.**

- The dataset used for this work comes from the following source:

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

- under a **ODbL: Open Database License**.

RESULTS

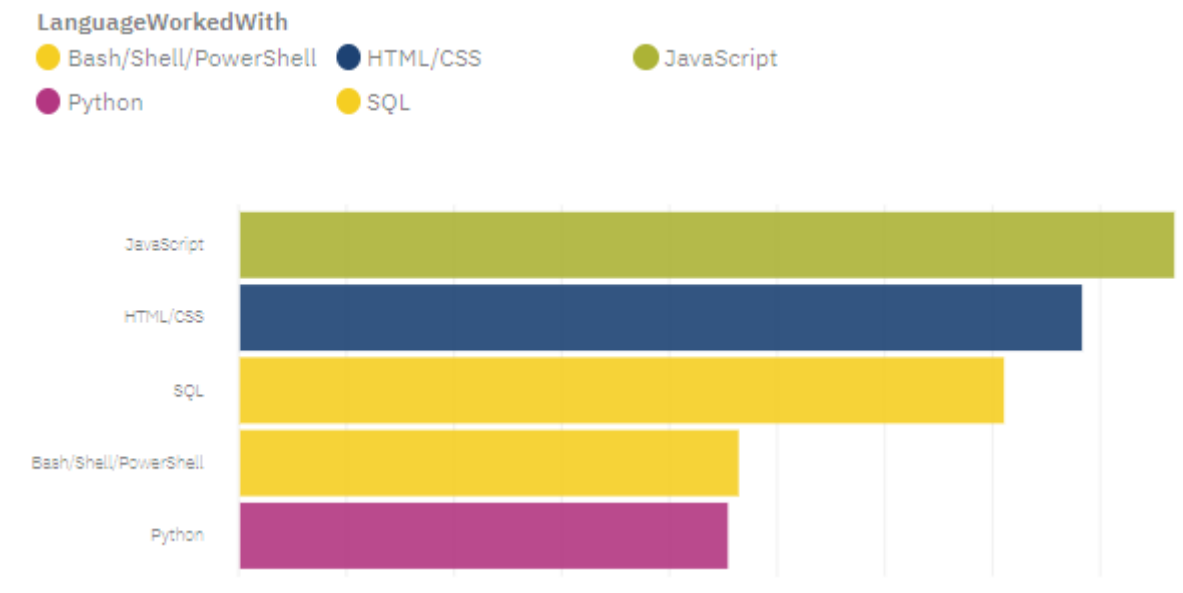
We focused on results about programming languages and Databases the workers are using right now and the ones they want to learn for next year.

We also include how age, country and gender affect the outcomes.

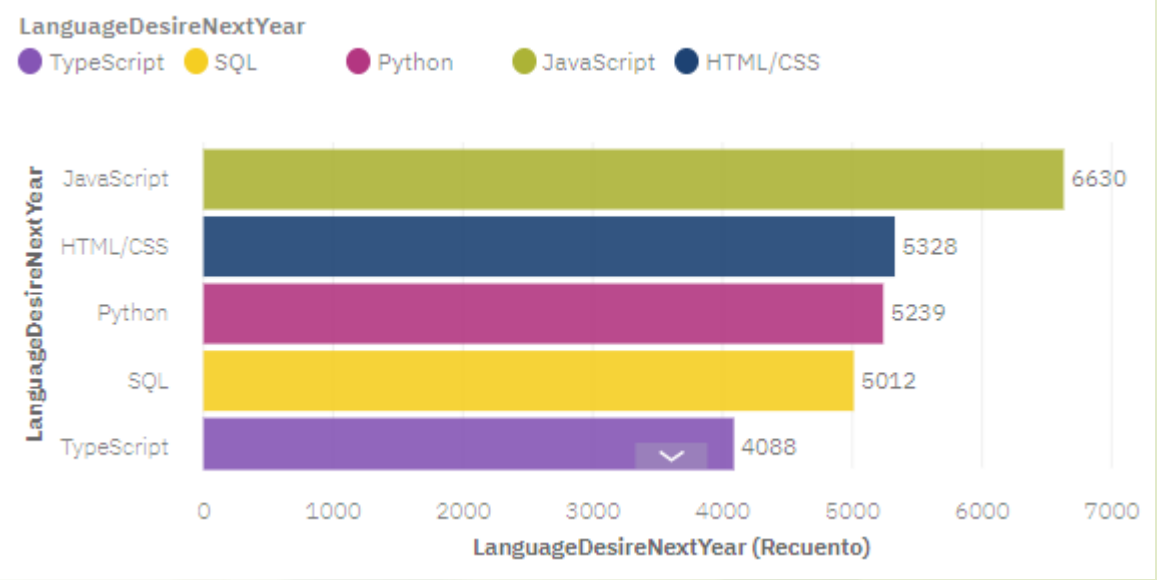
The results are then presented using charts of different kinds in the next slides, then we give our found observations and conclusions.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



IBM Developer

SKILLS NETWORK

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

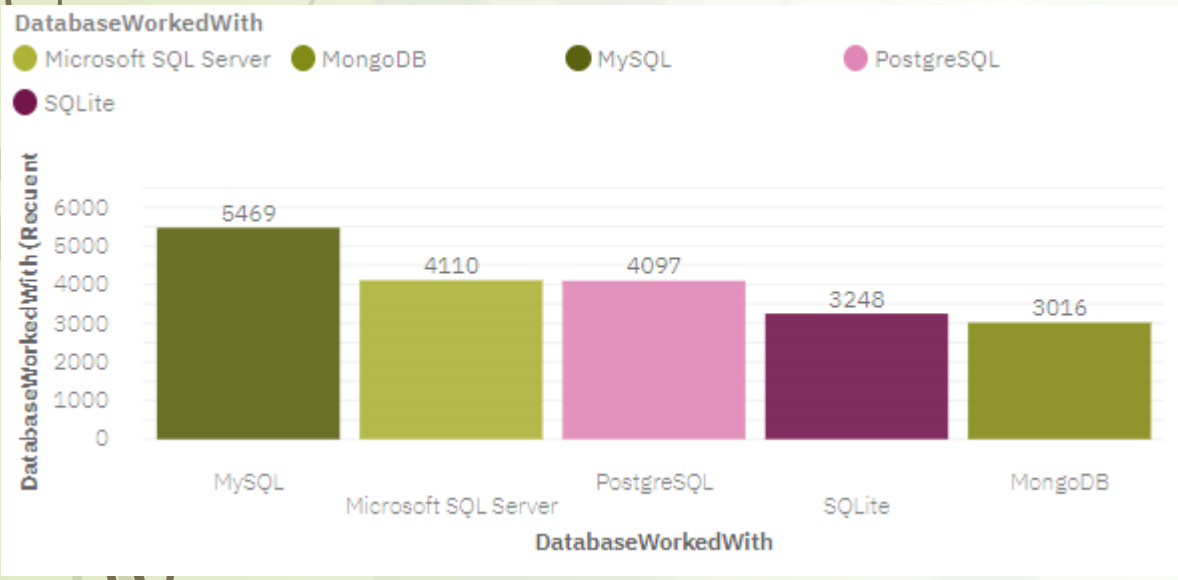
- JavaScript, HTML/CSS keep their interest by developers
- There is a relevant increment on interest about Python.
- SQL keeps the interest though it has been displaced by Python.

Implications

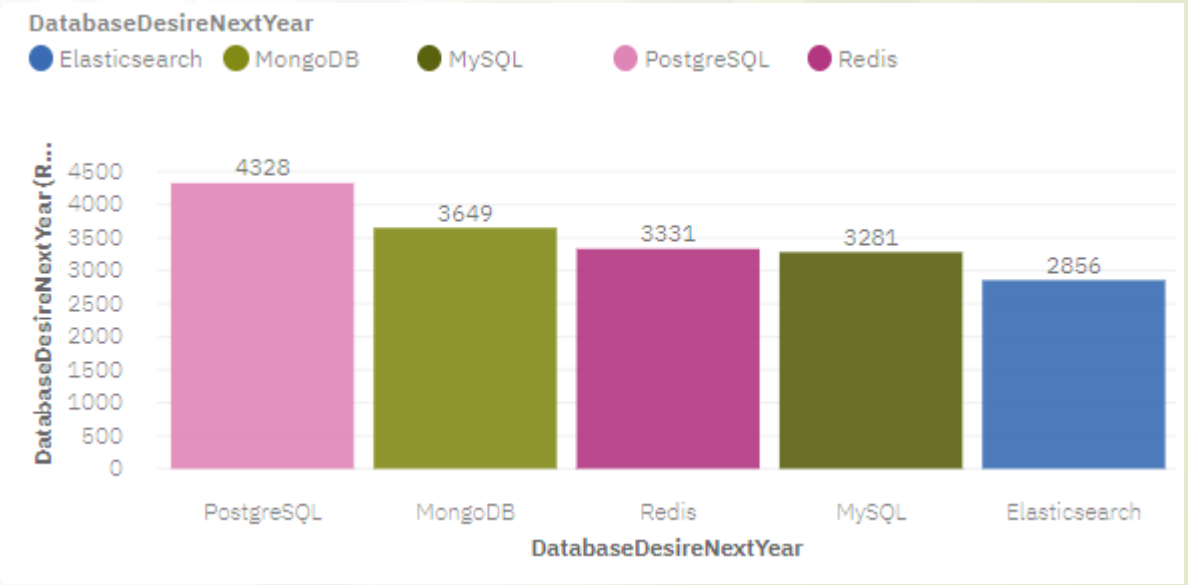
- Python technologies are expanding, and it can be seen in many areas of IT Technologies.
- We must find a way to include python in other technologies, for examples, work SQL within the Pyhton environment.

DATABASE TRENDS

Current Year



Next Year



IBM Developer

SKILLS NETWORK

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL, MongoDB and MySQL keep their place in top 5.
- PostgreSQL is growing interest.
- The variation in the top 5 databases is bigger than the variation in programming languages.

Implications

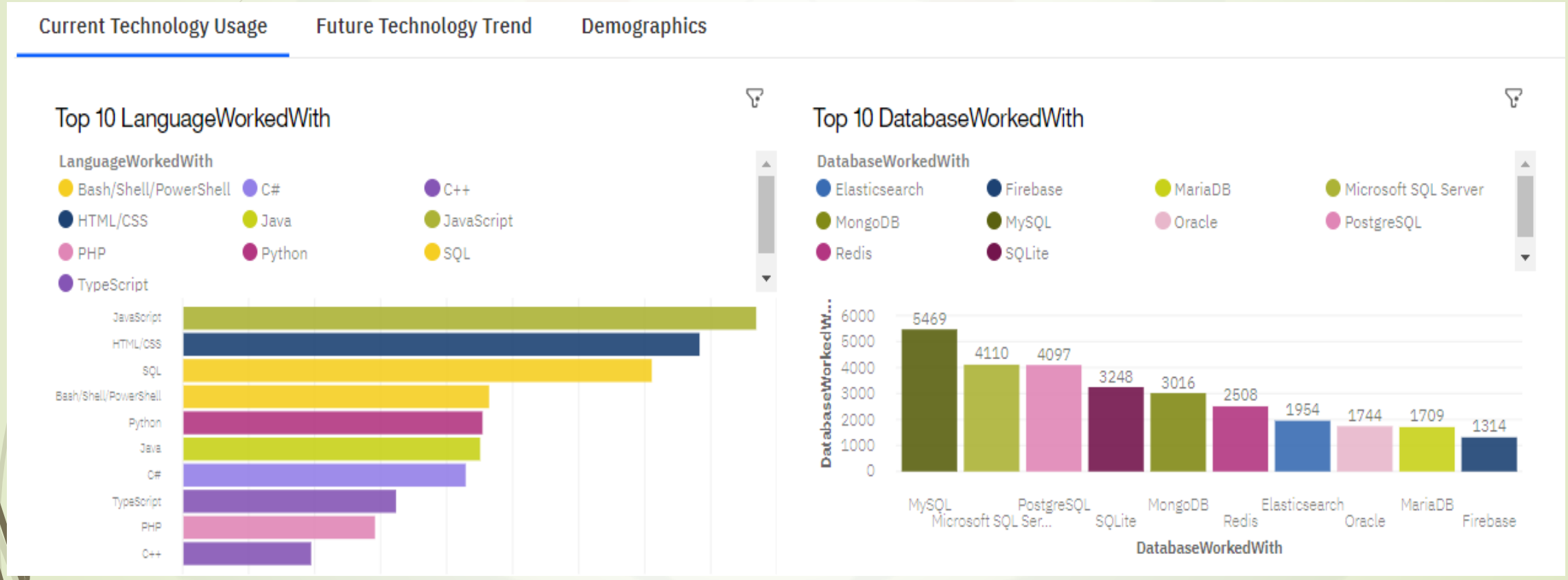
- Variation in Databases trends are very changing. We must be very attempt to new technologies.
- We must prepare developers to adapt to this changing environment.

DASHBOARD

Feel Free to visit the following site to interact with the dashboards I created for this document results:

https://dataplatform.cloud.ibm.com/dashboards/92c6dbb6-8939-4252-83b1-a0605bb56d0e/view/7704c676199802cb6dd3c0e407cb7a552b307655b7bb830783847b4909672497a9381593c87e4f52d9115432f6be165ccb

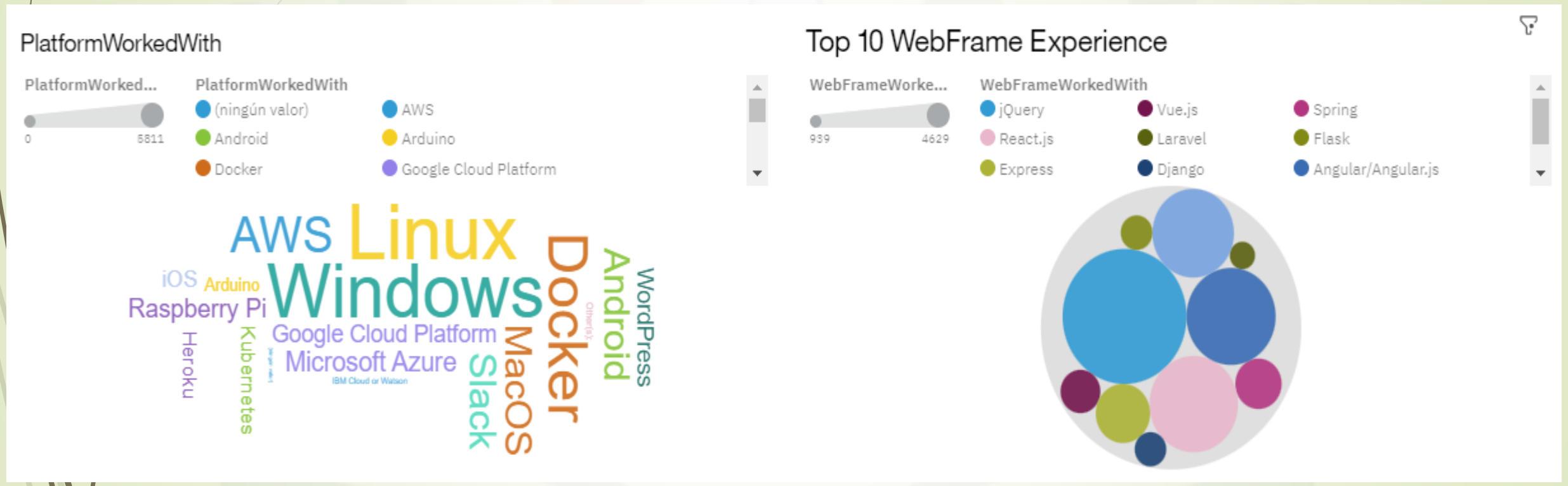
CURRENT TECHNOLOGY USAGE



IBM Developer

SKILLS NETWORK

CURRENT TECHNOLOGY USAGE

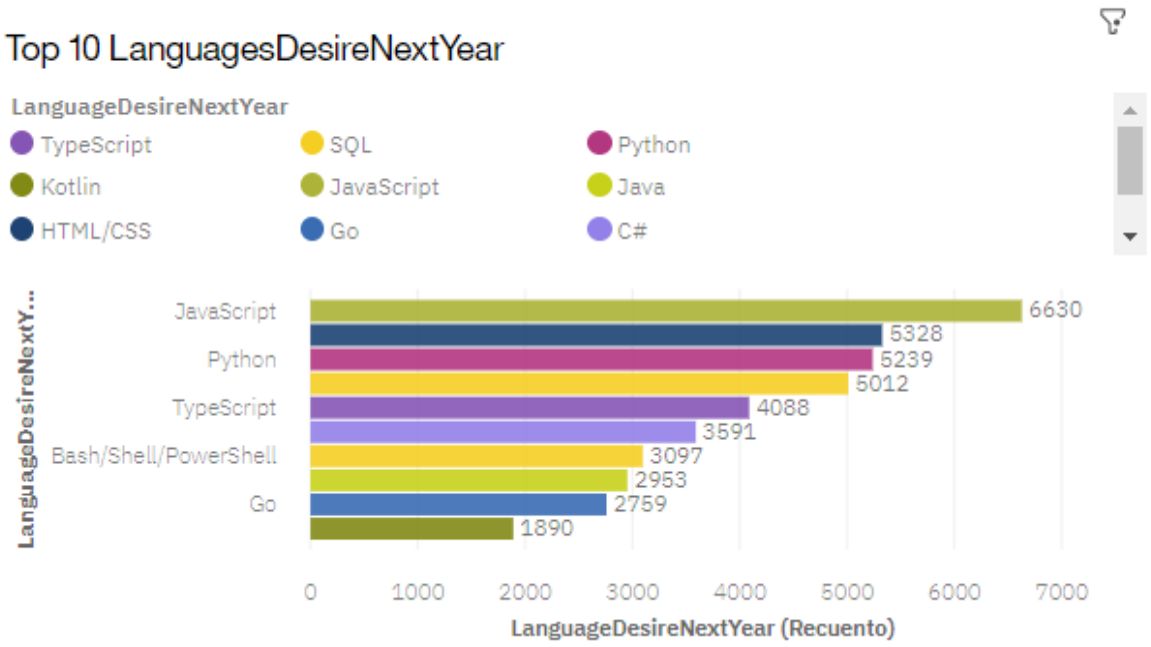


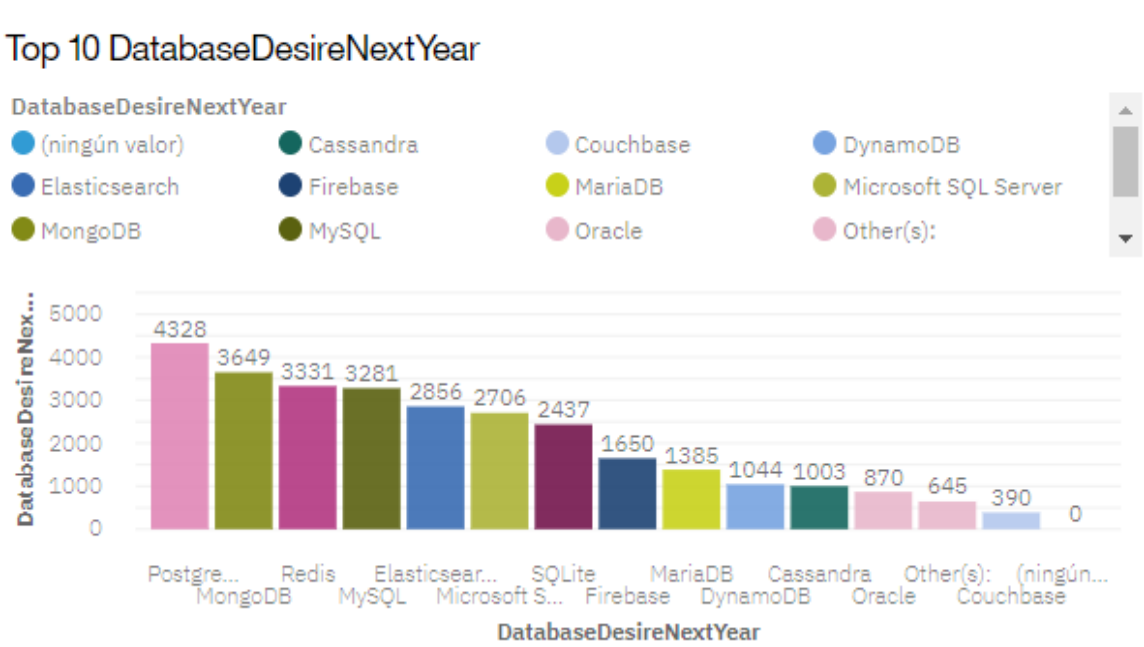
IBM Developer

SKILLS NETWORK

FUTURE TECHNOLOGY TREND

Current Technology Usage | Future Technology Trend | Demographics

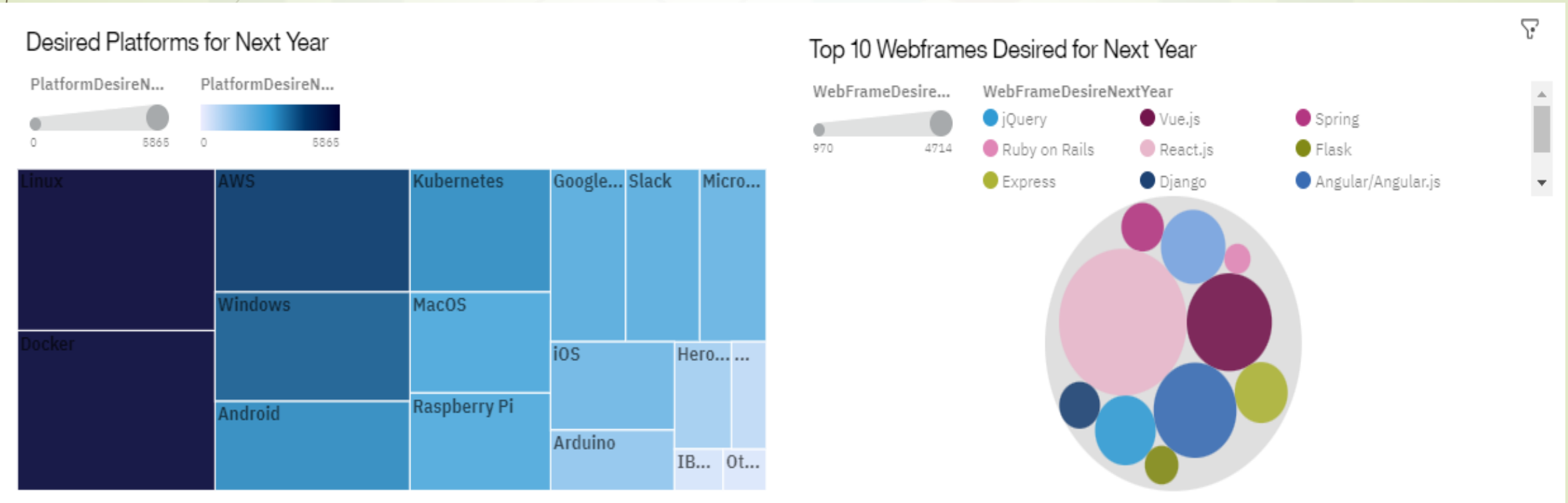




IBM Developer

SKILLS NETWORK

FUTURE TECHNOLOGY TREND

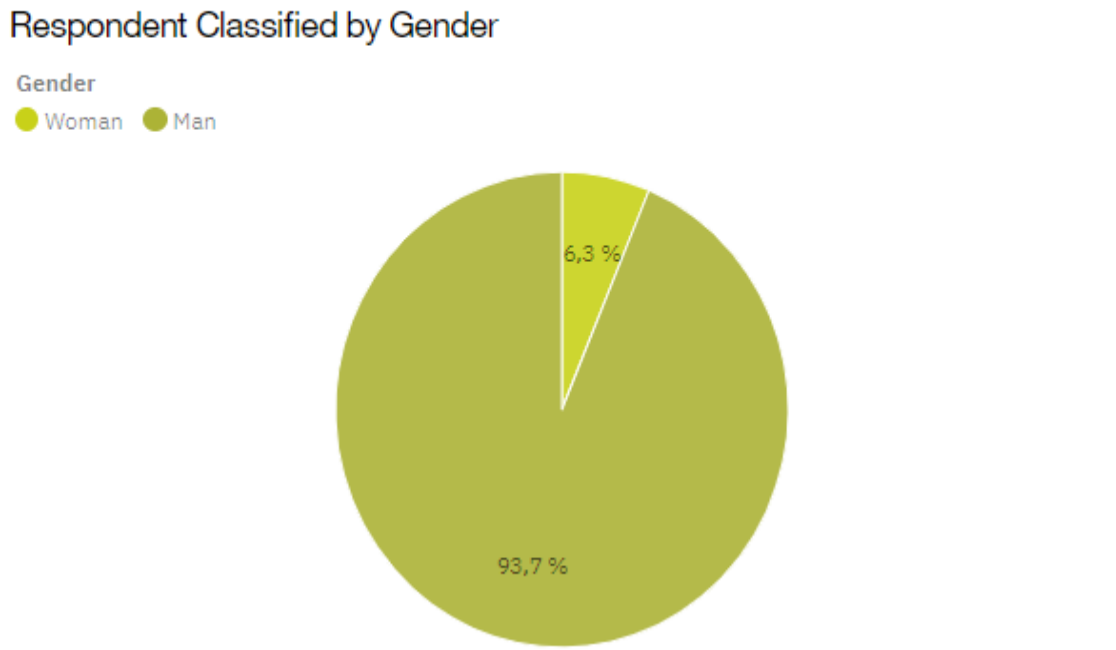


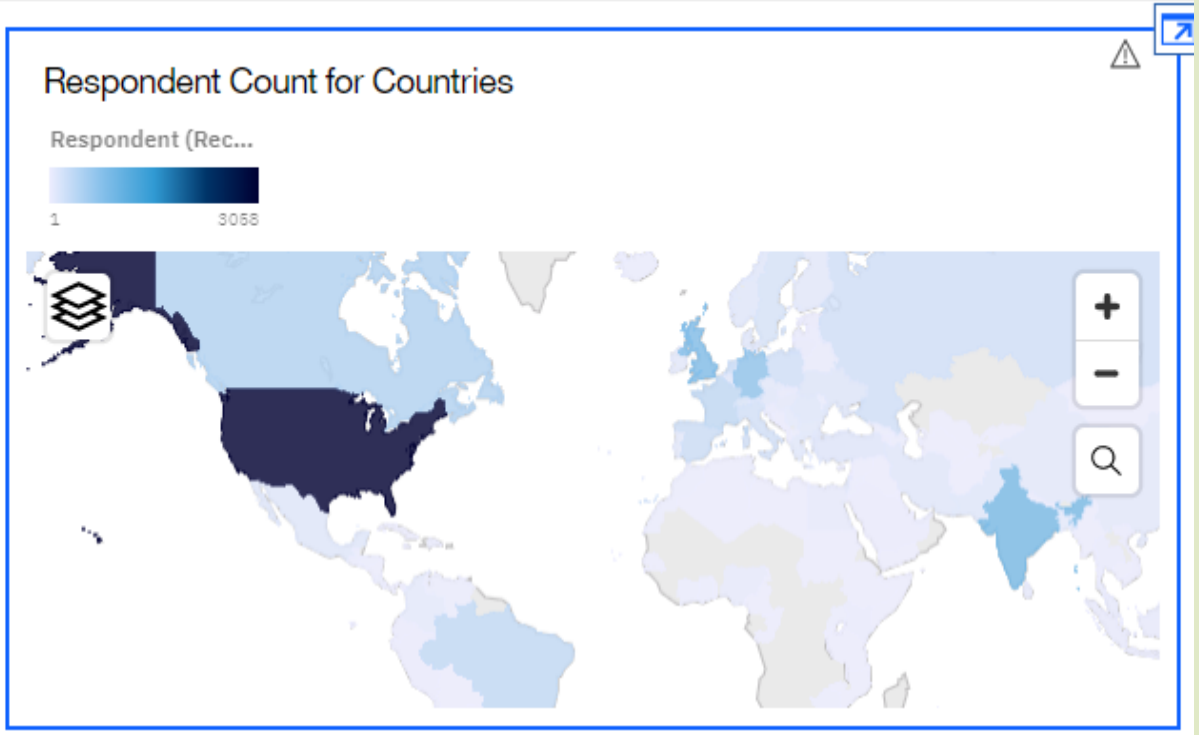
IBM Developer

SKILLS NETWORK

DEMOGRAPHICS

Current Technology Usage | Future Technology Trend | Demographics

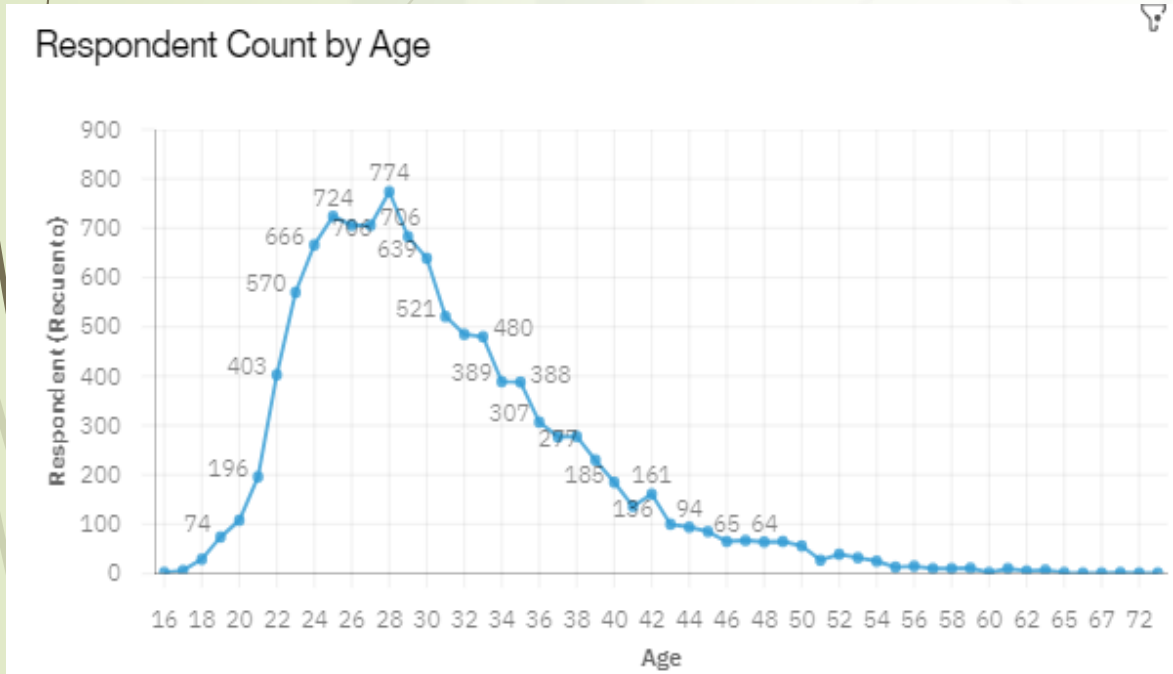


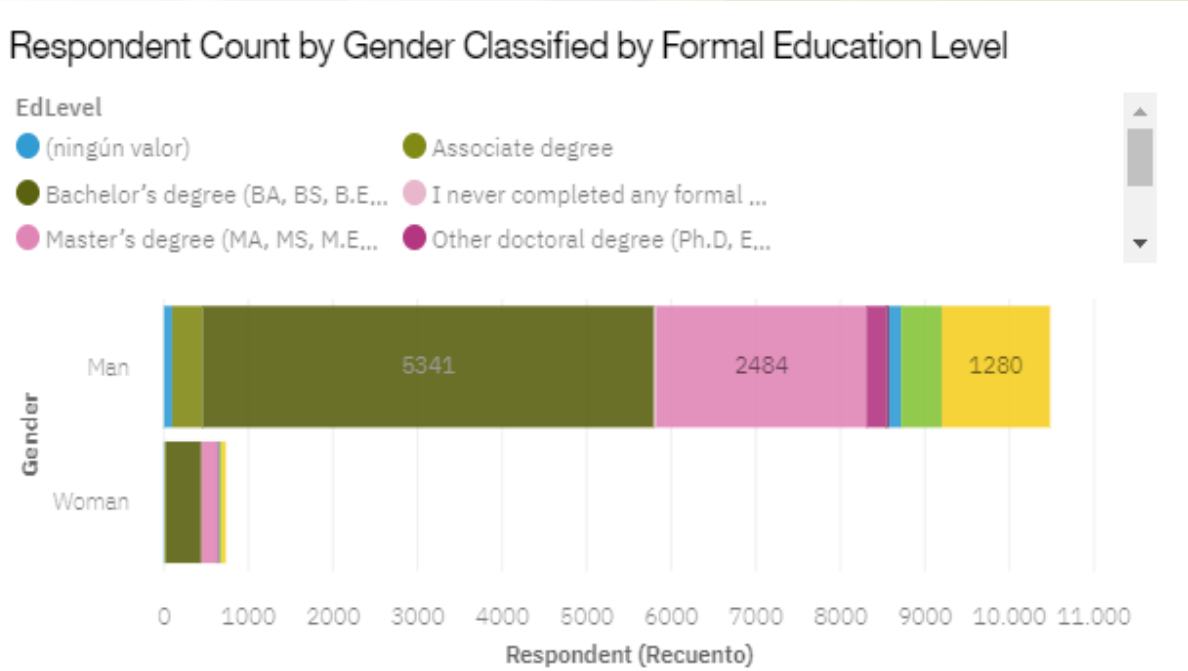


IBM Developer

SKILLS NETWORK

DEMOGRAPHICS





IBM Developer

SKILLS NETWORK

OVERALL FINDINGS & IMPLICATIONS

Findings

- Number of Respondent by gender is very notorious.
- Most respondents belong to developed countries.
- Most respondent are between 24 and 32 years old.
- Education Level is primarily in bachelors degree and then in masters degree.

Implications

- An Increasing number of women working in technology sector can be expected for the next years.
- Use of technology by many countries can be expected for the next years.
- Each time the education level required is getting higher.

CONCLUSION

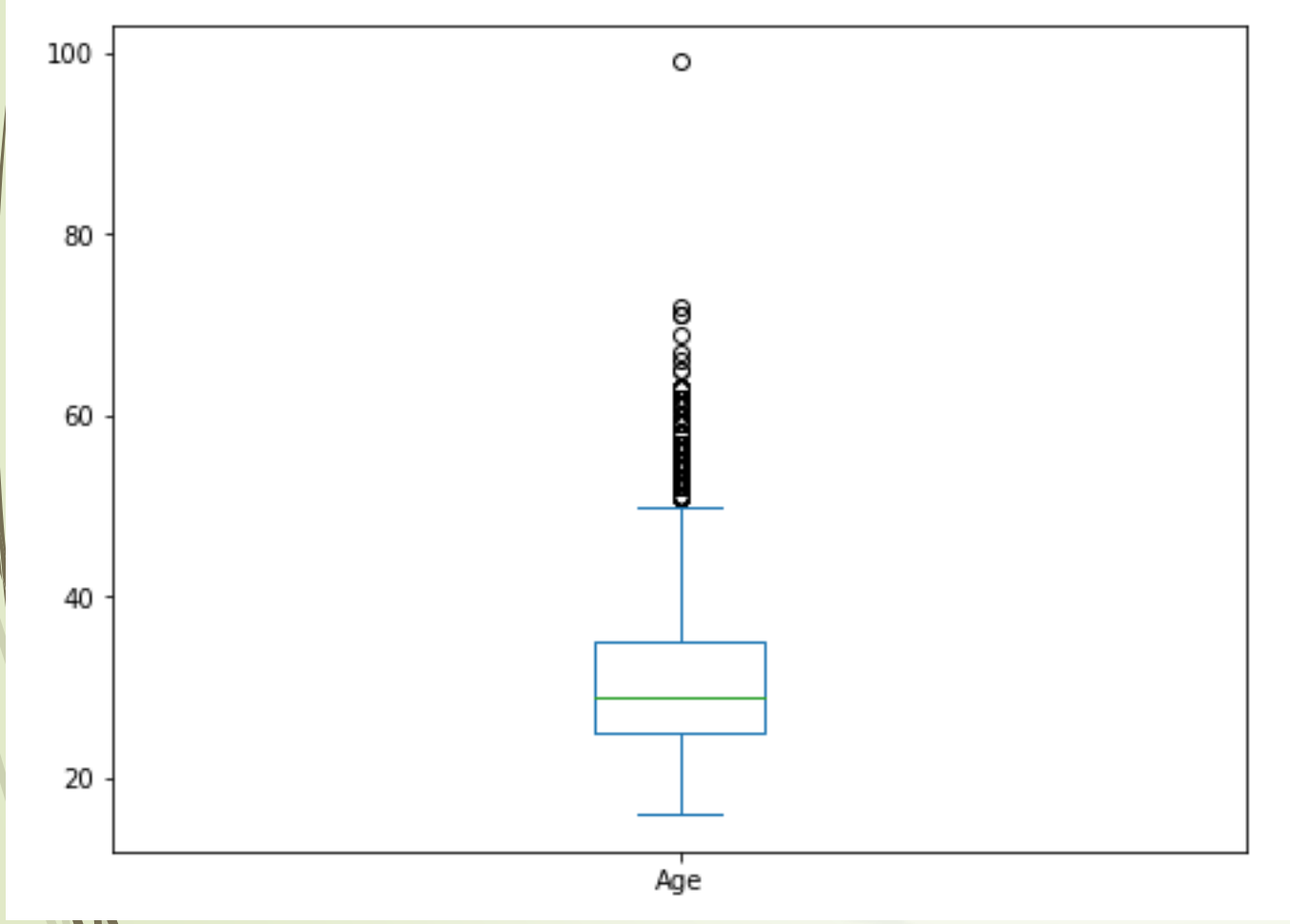
- Though programming languages interest and use are the most “stable”, all the other sectors are still pretty changing: databases, platforms and web frames.
- There is still a lot of worldwide adoption of technology by many countries and also by gender. So keep an I eye on preferences and neediness for this sectors in the following years.
- Though nowadays people working in technology is relatively young, we must be aware that this people will get older and also use of technology is expanding, so we must find a way to classify better people by experience to be able to include more people in the sector.
- Education level is getting more and more competitive, so evaluation of skills will be pretty necessary to be refined for the different technological sectors.

APPENDIX

We include a table of correlations between the different numerical variables. Observe that the only relevant correlation is between Age and converted Annual USD Salaries (ConvertedComp), and correlation though positive, is still not very high.

	Respondent	CompTotal	ConvertedComp	WorkWeekHrs	CodeRevHrs	Age
Respondent	1.000000	-0.018225	0.011443	-0.015376	0.010341	0.002202
CompTotal	-0.018225	1.000000	-0.062544	0.004910	0.017484	0.006761
ConvertedComp	0.011443	-0.062544	1.000000	0.034478	-0.087375	0.402108
WorkWeekHrs	-0.015376	0.004910	0.034478	1.000000	0.039200	0.032469
CodeRevHrs	0.010341	0.017484	-0.087375	0.039200	1.000000	-0.011066
Age	0.002202	0.006761	0.402108	0.032469	-0.011066	1.000000

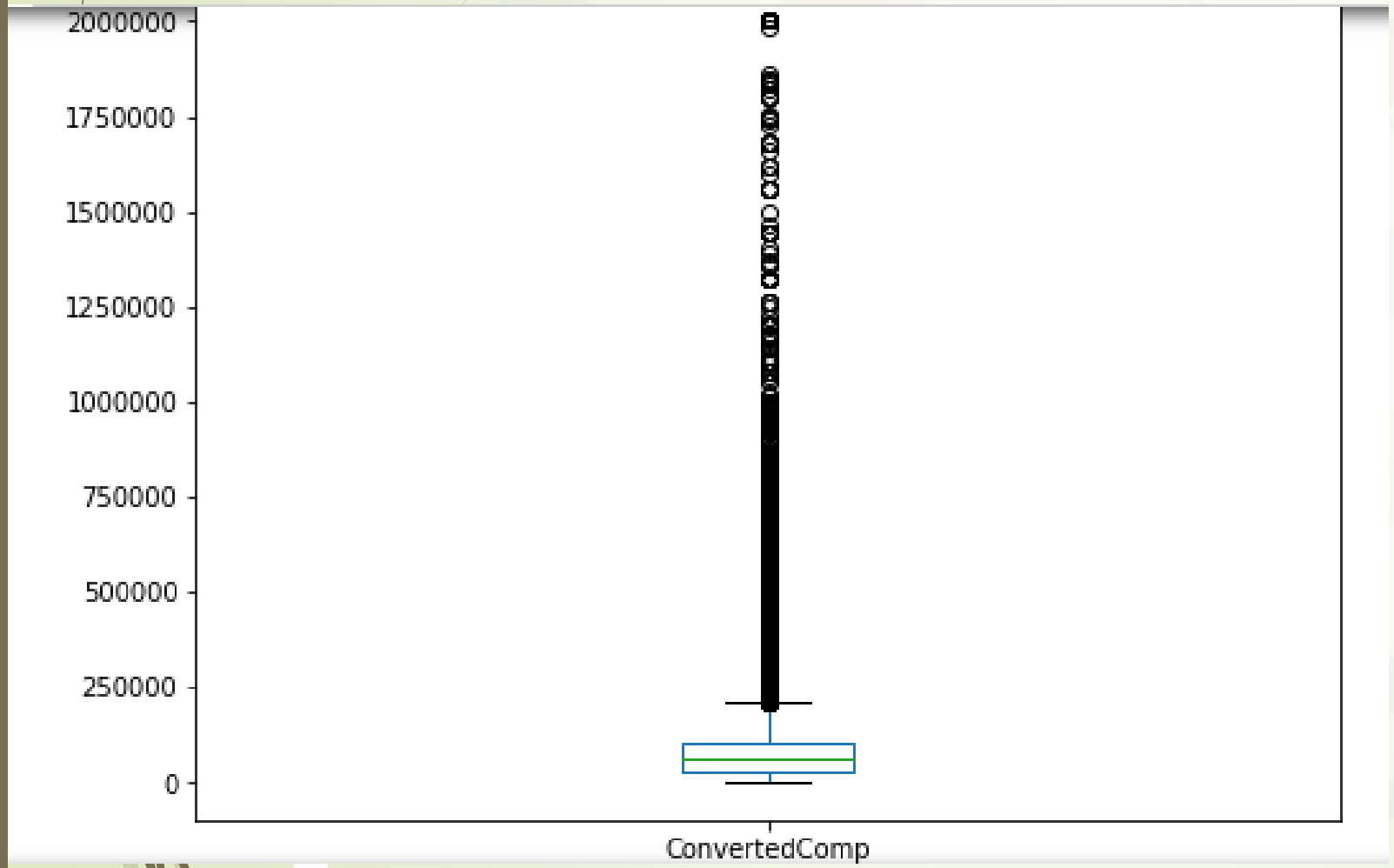
Age boxplot



We see from the age box plot, that there are already many people from a wide range of ages working in the technology secto.

We expect this variation to increase through the time and also the median is expected to grow.

ConvertedComp Boxplot



We found that there are 888 outliers for the Converted Annual USD Salaries (ConvertedComp), which is highly correlated with age, hence experience.

This outliers are expected to decrease with time, since much more people is expected to have high experience in the technology sector.