Analysis of data from survey with Dashboard .

Cheuk Yiu Lee

12 April,2023

IBM Developer

SKILLS NETWORK

OUTLINE

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

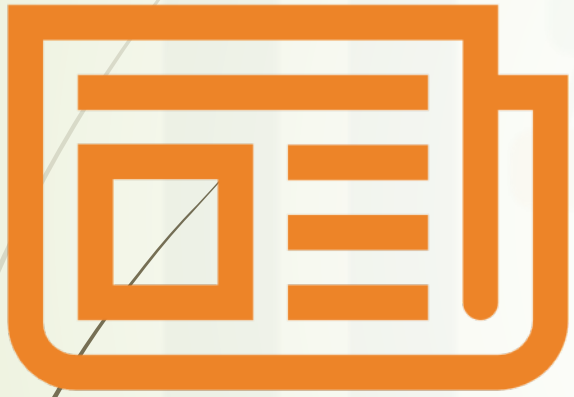
EXECUTIVE SUMMARY

- Compare with Programming language trends between current and next year.
- Compare with databases trend between current and next year.
- DASHBOARD
  - Current Technology Usage
  - Future Technology Trend
  - Demographics Trend
- DISCUSSION
- APPENDIX

INTRODUCTION

- Below Dashboards working with data from the Stack Overflow Developer Survey 2019.
- Create Dashboards in the cloud of IBM Cognos dashboard embedded with Watson studio.
- For findings & implications of top 10 Languages and databases between current year and next year.
- Analysis the trend by three dashboards created as below :
  - Current Technology Usage
  - Future Technology Trend
  - Demographics Trend
- To point out conclusion with discussion about implication in future.

METHODOLOGY



Download Data CSV files from below website:

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

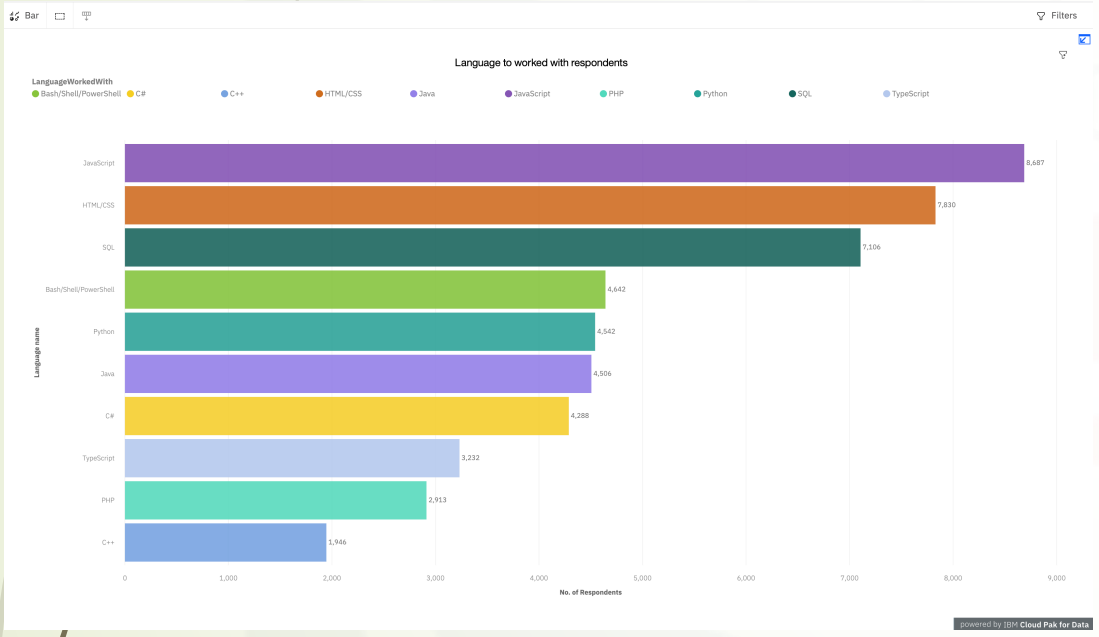
- Using descriptive and predictive analytics by bar charts for top 10 Languages between current year and next year to imply any factors existed.
- Using descriptive and predictive analytics by column charts for top 10 Databases between current year and next year to imply any factors existed.
- Analysis of Current and Future Technology Usage with Platforms and top 10 programming language, databases and webframes by using bar, column, pie charts, word cloud, tree map and hierarchy bubbles for predict the Technology trend in future.
- Analysis of Demographics of respondents with age, gender, education level and countries to understand the data resource(survey) by using pie, line, stack bar charts and map.

RESULTS

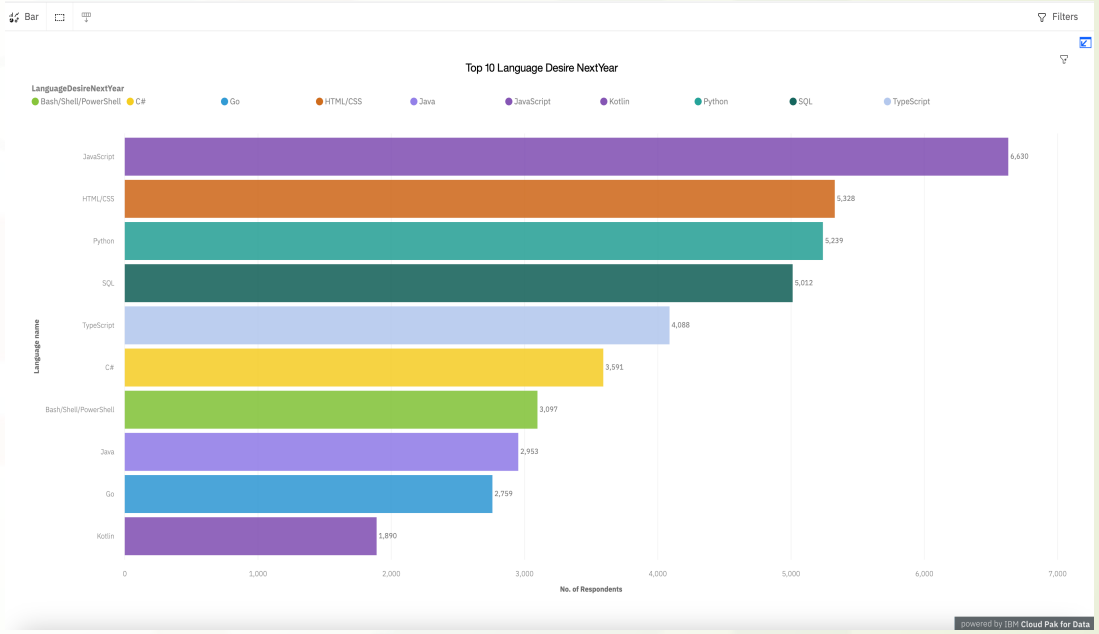
Visualization – Charts Dashboard

Top 10 PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



Top one of Javascript and the increasing trends of TypeScript shown obviously in “Current Year” vs “New Year” charts. Finding that both languages mainly work for web development. this implies that the demand of online services is increasing in market.

IBM Developer

SKILLS NETWORK

Top 10 PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

Compare with Programming language trends between current and next year.

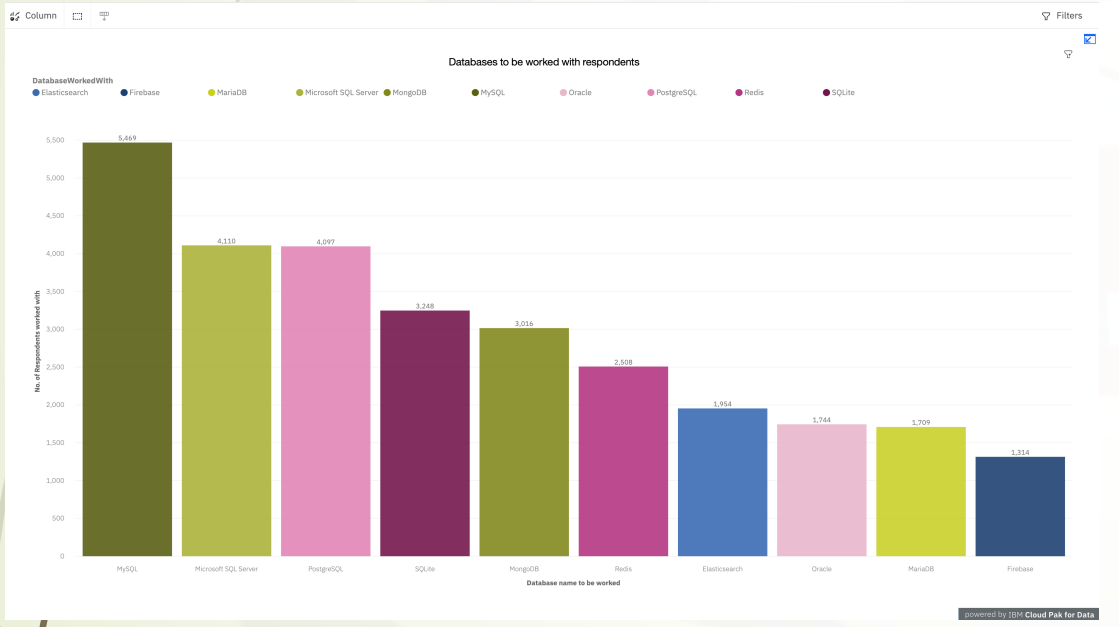
- Javascript is top one in programming language trends both years.
- Sharp increase desire rate of Typescript than that of Javascript.(Typescript rank: 8th up to 4th)
- Sharp increase desire rate of Python.(Rank: 5th up to 3rd)
- Decreasing desire trends of most traditional languages(Bash, C++ and Java).

Implications:

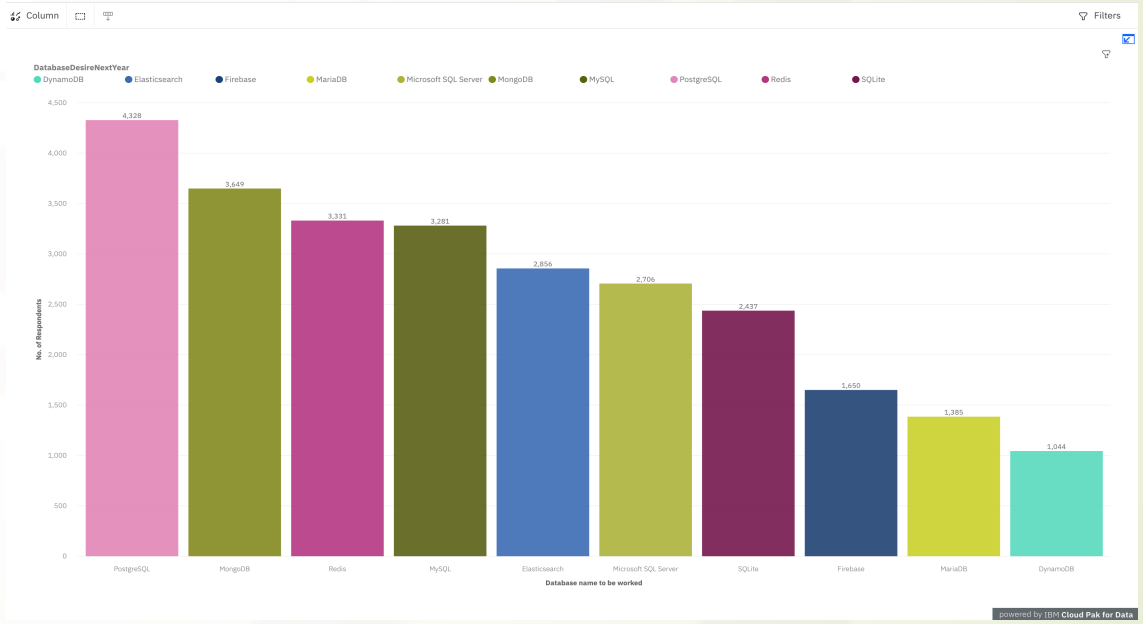
- JavaScript mainly works for web development, implies that the demand of online services is increasing in market.
- TypeScript extends JavaScript, usually not challenging from JavaScript to TypeScript. It is so possible that TypeScript would take over Javascript.
- Not only easy to Learn and Understand, but also has rich libraries for any fields. It will become the main popular programming language in market.
- It implies that most traditional computer languages would gradually not meet the needs of most market.

Top 10 DATABASE TRENDS

Current Year



Next Year



Top one of PostgeSQL and the increasing trends of MongoDB shown obviously in “New Year” chart. Finding that MongoDB mainly work with cloud. this implies that the demand of online services is increasing in market.

IBM Developer

SKILLS NETWORK

Top 10 DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

Compare with databases trend between current and next year.

- Top one of databases trends from MySQL to PostgeSQL between current and next year.
- Desired databases trend from structure SQL to NoSQL.
- Desired databases trend from commercial type to open-source.

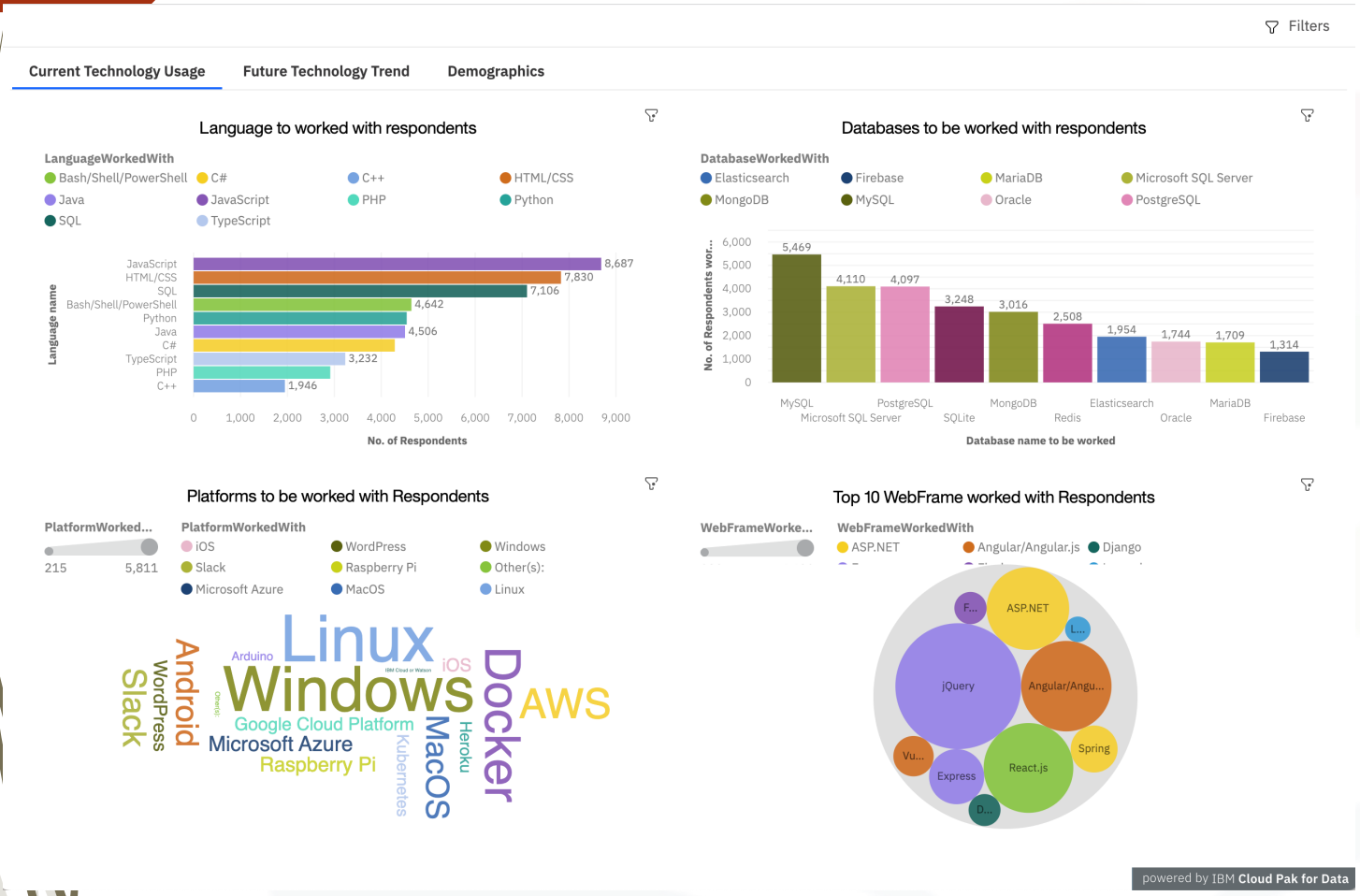
Implications

- It implies that PostgeSQL developers have better prospects due to market needs.
- NoSQL databases have become popular than structure databases in main market.
- It implies that open-source databases would reach the mature level for commercial market use.

DASHBOARD

- To click the below link for my Cognos dashboard :
- The permanent link of My Cognos Dashboard click here

DASHBOARD 1:
Current Technology Usage



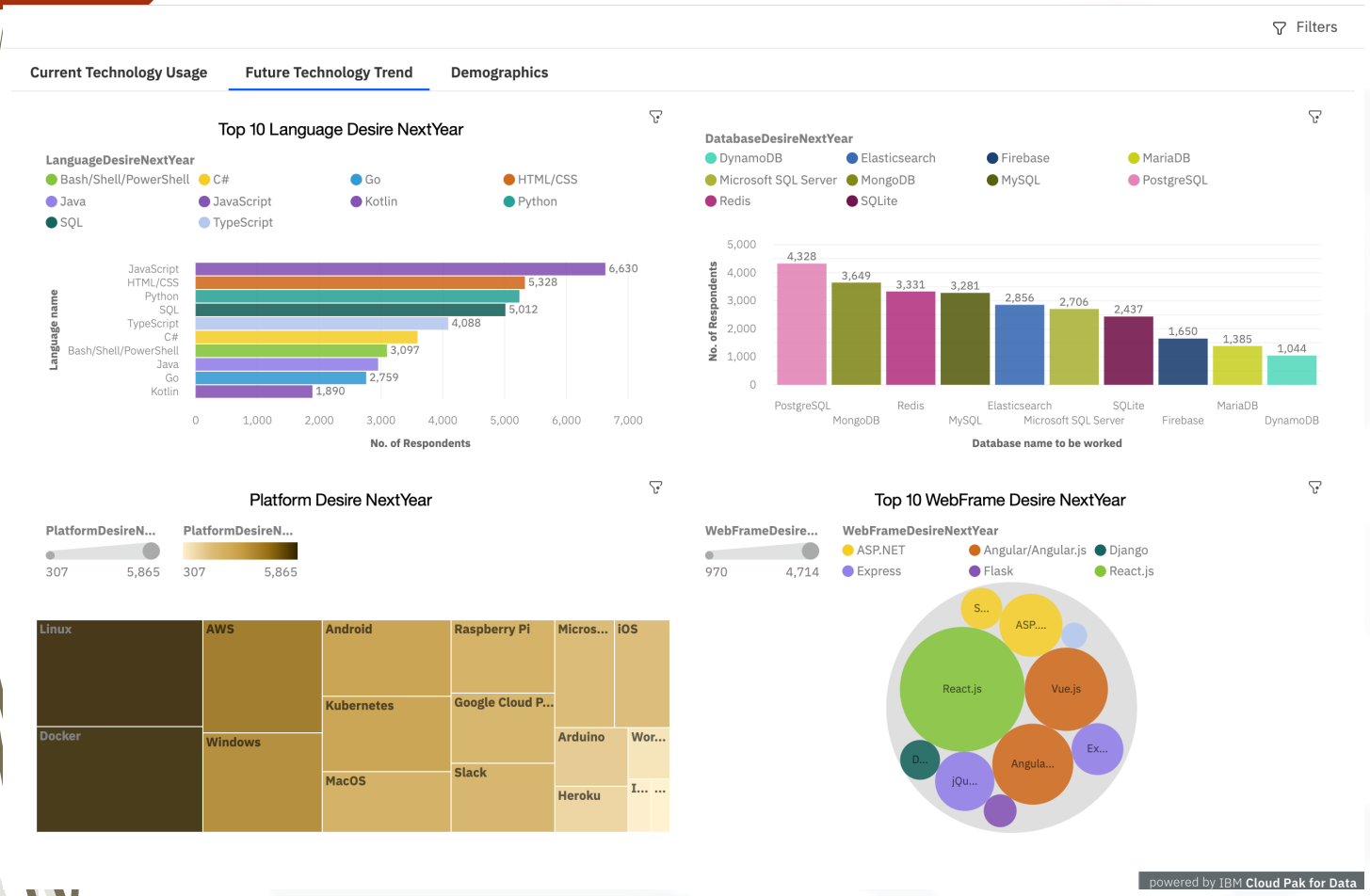
Contains 4 charts:

- Top 10 Languages
- Top 10 Databases
- Platforms
- Top 10 WebFrames

IBM Developer

SKILLS NETWORK

DASHBOARD 2:
Future Technology Trend



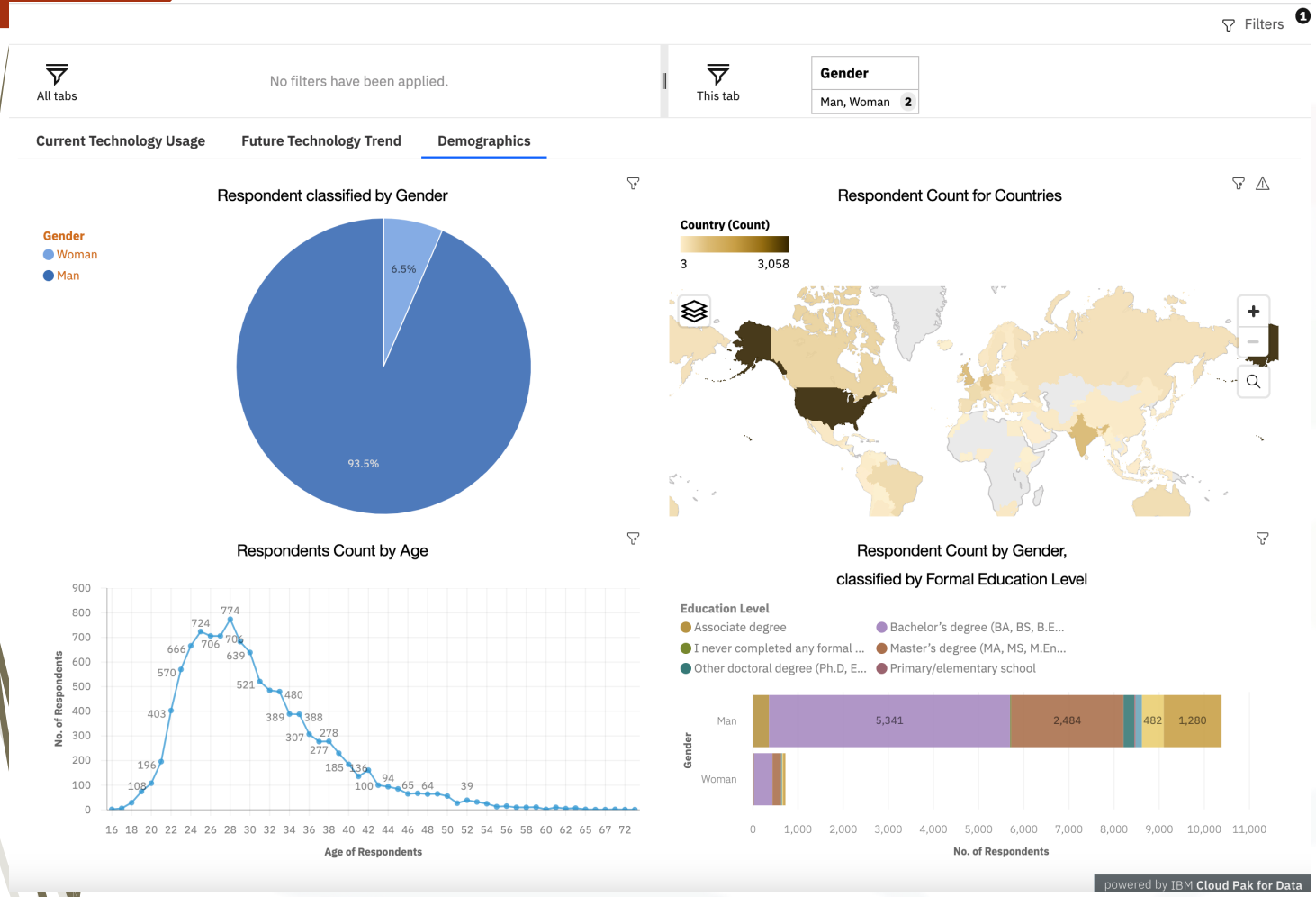
Contains 4 charts:

- Top 10 Languages desired for the next year
- Top 10 Databases desired for the next year
- Desired platforms for the next year
- Top 10 Webframes desired for the next year

IBM Developer

SKILLS NETWORK

DASHBOARD 3: Demographics Trend



Contains 4 charts:

- Respondent classified by gender
- Respondent count for countries
- Respondent count by age
- Respondent count by gender and classified by education level

IBM Developer

SKILLS NETWORK

DISCUSSION

- Is only two years of sample survey enough or not ?
- Is the ratio of women worked in IT field lower than that of men or not get enough data from survey ?
- Is salary of respondent major factor for deciding what language and database desired ?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Javascript is top one in programming language trends both years. Platforms to be used, will be stable in future.
- Sharp increase desire rate of Typescript than that of Javascript.
- Data of Survey trends to developed countries, age of 27-29, male gender and high education level of Bachelor's degree.

Implications

- Windows and linux platforms is mainly used in future. Databases trend for cloud development and JavaScript mainly works for web development. These imply that the demand of online services is increasing.
- Main Webform is still Javascript, but Typescript would take over in future
- It imply that survey data is not even distribution whatever age, gender and education level and location. It exists high deviation with real.

CONCLUSION

- Pure relational Database cannot meet most market need. NoSQL and open-source database will be popular in market.
- Market trends to manage business in cloud due to sharp increase of web development tools for implement online services.
- A new programming language tool is generally rather good fix to current market need.
- More sample of survey for different countries, gender and age, get more accuracy under normal distribution.

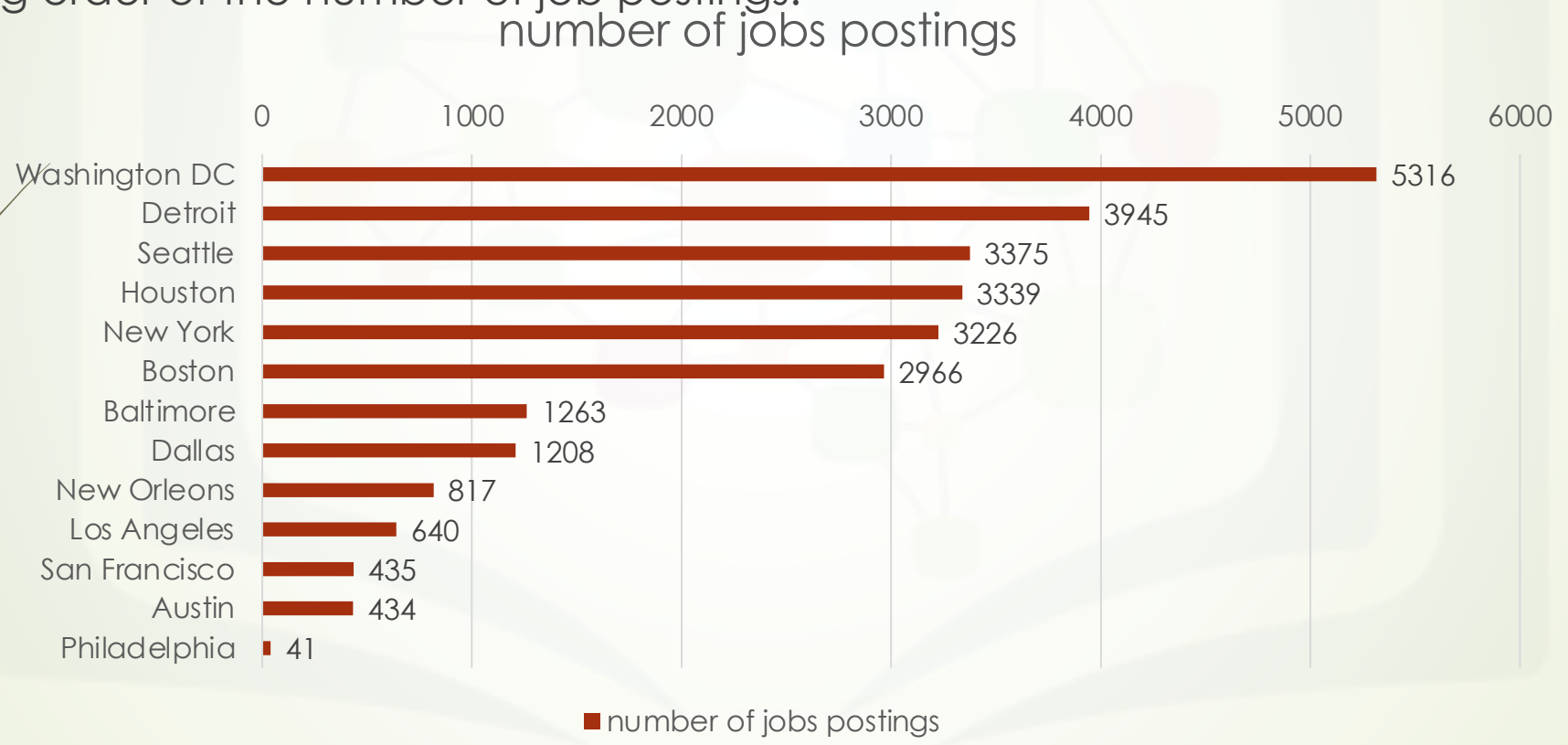
APPENDIX

- Include testing table that you may have created during the analysis phase as below:

Respondent	LanguageWorkedWith	LanguageDesireNextYear	DatabaseWorkedWith	DatabaseDesireNextYear	PlatformWorkedWith	PlatformDesireNextYear	WebFrameWorkedWith	WebFrameDesireNextYear
4	C	C	MySQL	MySQL	Linux	Linux		
4	C++	C#	SQLite	SQLite	Windows	Windows		
4	C#	JavaScript						
4	Python	SQL						
4	SQL							
9	Bash/Shell/PowerShell	Bash/Shell/PowerShell	DynamoDB	PostgreSQL	AWS	AWS	Express	Express
9	C#	C	PostgreSQL	Redis	Docker	Docker	Ruby on Rails	Ruby on Rails
9	HTML/CSS	HTML/CSS	SQLite	SQLite	Heroku	Heroku	Other(s):	Other(s):

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.

IBM Developer

SKILLS NETWORK