Metrics Findings Presentation

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OUTLINE

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

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EXECUTIVE SUMMARY

- Review of Programming Languages revealed Trends:
  - Top 3 are changing from: Bash/Shell/PowerShell, HTML/CSS, C#
  - Trend towards: JavaScript, HTML/CSS, Python
- Review of Platforms revealed:
  - Windows, Linux and Docker are popular
  - AWS is growing in popularity
- Review of Databases revealed:
  - Top 3 changing from: ElasticSearch, DynamoDB, MongoDB
  - Trend towards: PostgreSQL, MongoDB, Redis
- Review of Demographics showed:
  - Vast majority are Male (96.7%) with a Bachelor's Degree
  - Majority are located in the US and Canada
  - Majority are between 24-32 years old
- Review of Jobs and Salaries per Programming Language showed:
  - Language C has more jobs than all languages combined
  - Swift programmers make the highest salary

INTRODUCTION

- Objective was to gather data from multiple sources and analyze for trends using visualization

- Tools used included:
  - Python, SQL, Webscraping, Jupyter Notebooks, IBM Cognos Analytics, Microsoft Excel

- Data reviewed included:
  - Programming Language Trends
  - Database Usage Trends
  - Platform Usage Trends
  - Webframe Usage Trends
  - Respondents Gender
  - Respondents location by Country
  - Respondents Age
  - Respondents Education Level
  - Job Postings per Programming Language
  - Annual Salaries per Programming Language

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METHODOLOGY

1. **Data Gathering and Wrangling**
   - Sourced From Coursera IBM Data Analyst course. Dataset sources:
     - url = https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html
     - https://www.kaggle.com/promptcloud/jobs-on-naukricom
   - API requests
   - BeautifulSoup used for Webscraping
   - Python code using Pandas, Requests, Flask, SQL

2. **Data Cleaning**
   - Imputing values
   - Adjusting data types
   - Data Calculations

3. **Data Visualization**
   - Using Microsoft Excel and IBM Cognos Analytics Dashboard

4. **Data Presentation**
   - Using Microsoft PowerPoint and Google Slides

RESULTS

58%

of Americans say it is harder to be informed today because of the plethora of information and news sources available.

American Views: Trust, Media and Democracy, John S. and James L. Knight Foundation, January 2018
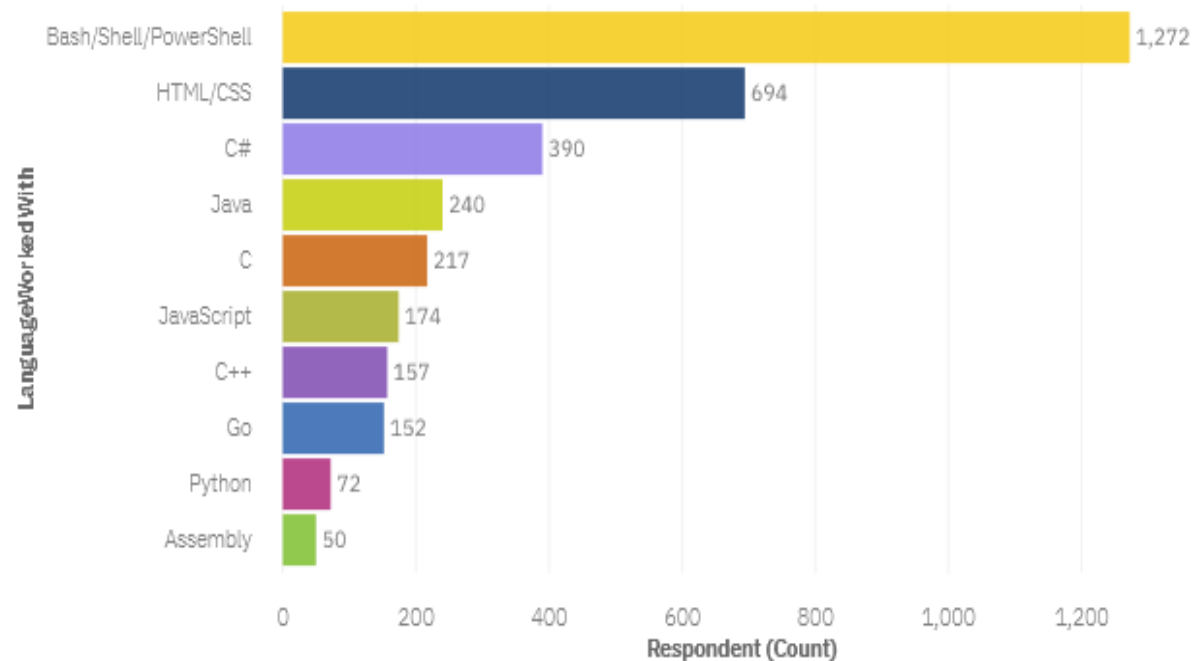
#DidYouKnow

News Literacy Project

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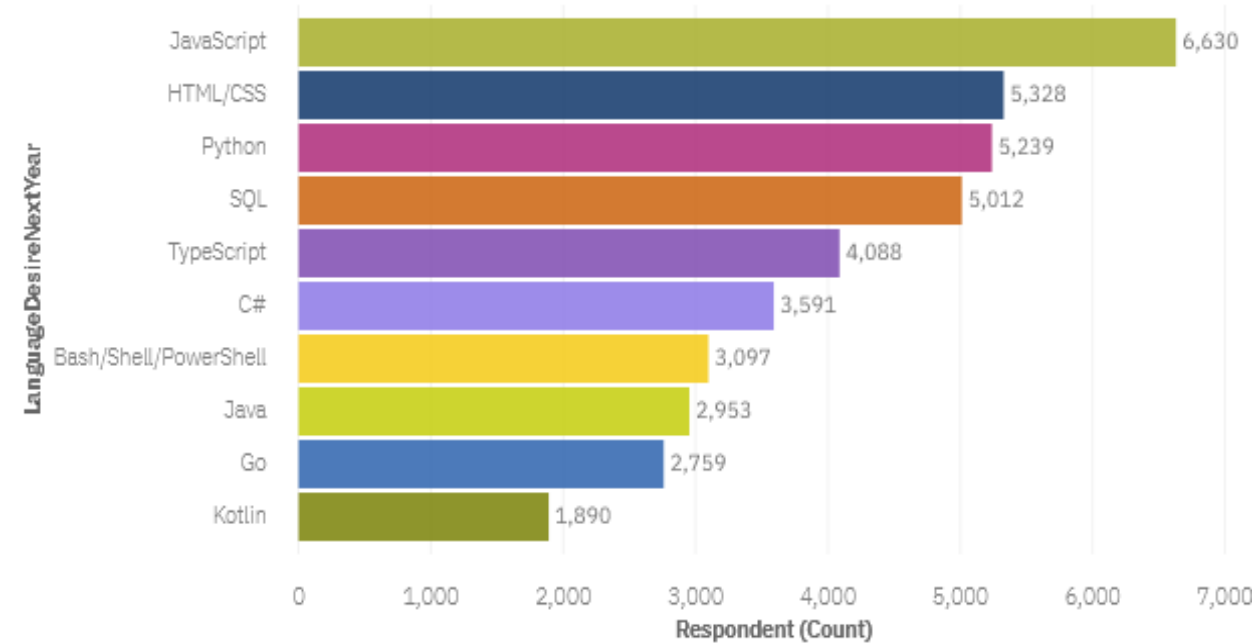
PROGRAMMING LANGUAGE TRENDS

Current Year

Next Year

Top 10 Languages Respondents Worked With

Language Worked With	Respondent (Count)
Bash/Shell/PowerShell	1,272
HTML/CSS	694
C#	390
Java	240
C	217
JavaScript	174
C++	157
Go	152
Python	72
Assembly	50

Top 10 Languages Respondents Desire Next Year

Language Desire Next Year	Respondent (Count)
JavaScript	6,630
HTML/CSS	5,328
Python	5,239
SQL	5,012
TypeScript	4,088
C#	3,591
Bash/Shell/PowerShell	3,097
Java	2,953
Go	2,759
Kotlin	1,890

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

Top 3 Current Languages

1. Bash / Shell / PowerShell
2. HTML / CSS
3. C#
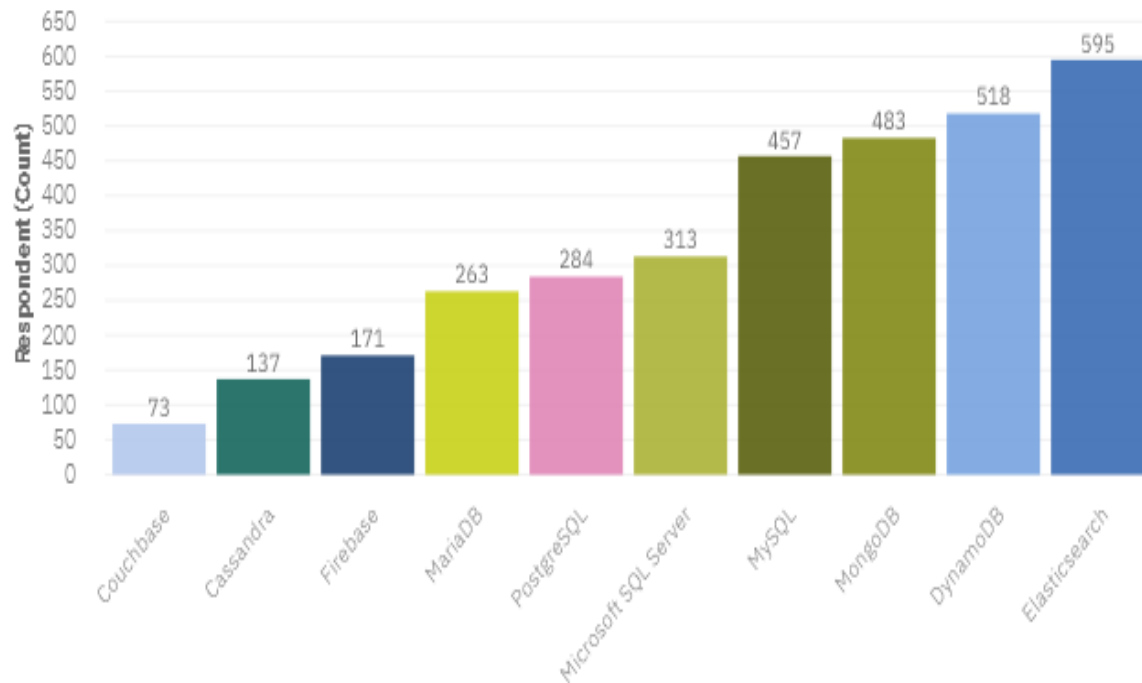
Implications:

From Current to Future trends

- Bash / Shell / PowerShell drops from 1st to 7th place
- HTML / CSS holds 2nd place
- C# drops from 3rd to 6th
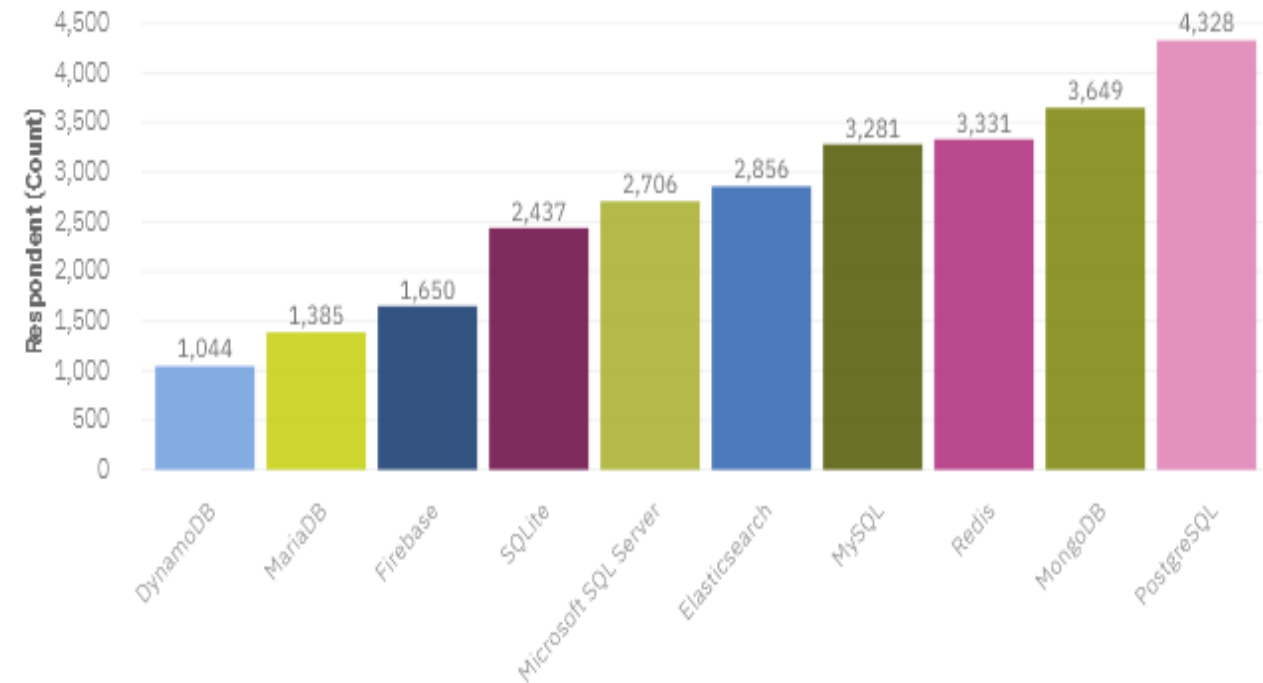- JavaScript is highly favored as the #1 future language
- Python ranks as 3rd

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DATABASE TRENDS

Current Year

Next Year

Top 10 Databases Respondents Worked With

Top 10 Databases Respondents Desire Next Year

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings:

Top 3 Database Trends

1. ElasticSearch
2. DynamoDB
3. MongoDB

(with MySQL closely behind)

Implications:

From Current to Future trends

- ElasticSearch falls 1st to 5th place
- Dynamo DB falls 2nd to 10th place
- MongoDB rises from 3rd to 2nd
- Redis rises to 3rd place

(with MySQL closely behind in 4th place again)

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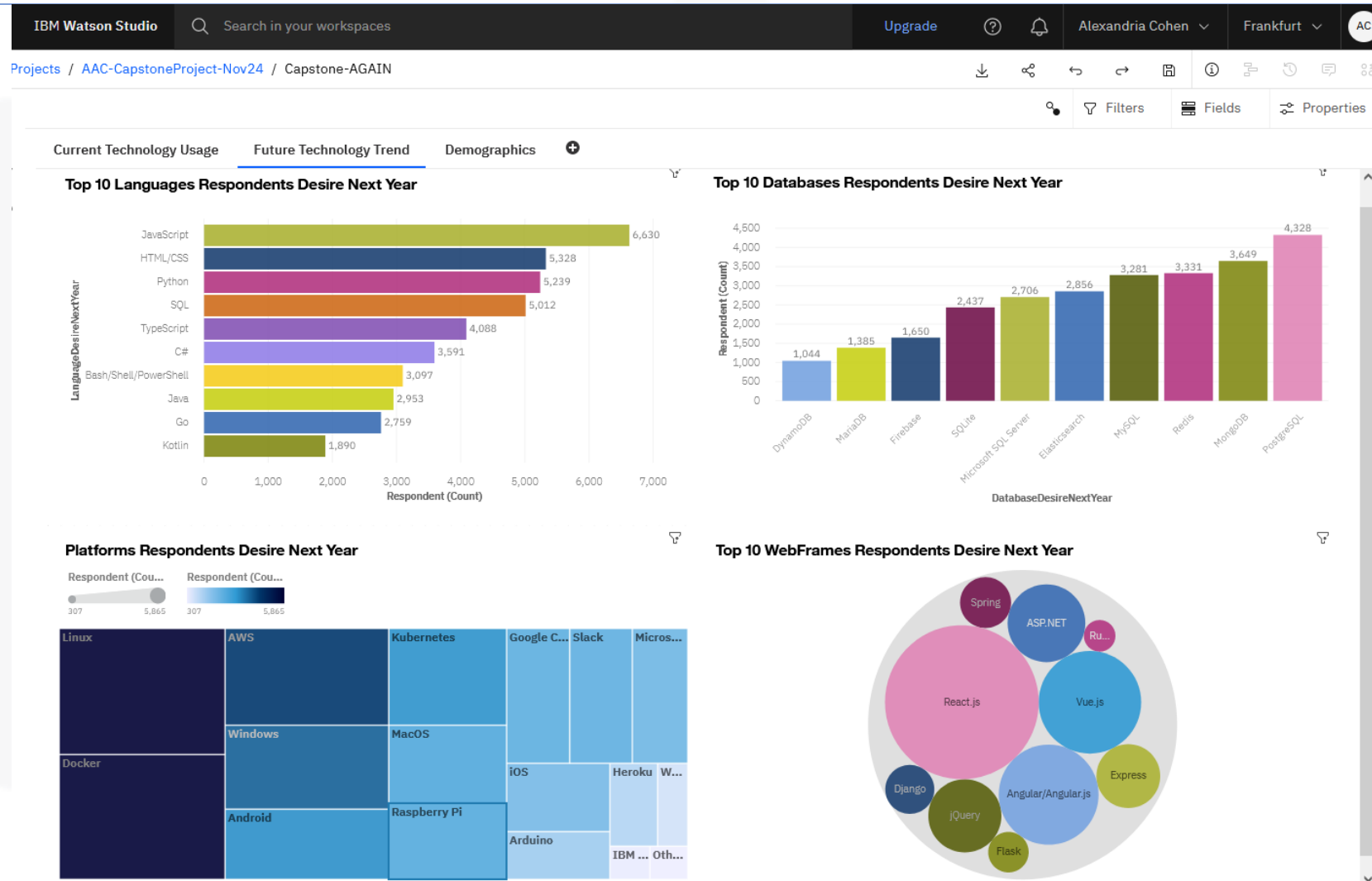SKILLS NETWORK

DASHBOARD

<Link to View Cognos dashboard>

DASHBOARD TAB 1
– Current Technology Usage
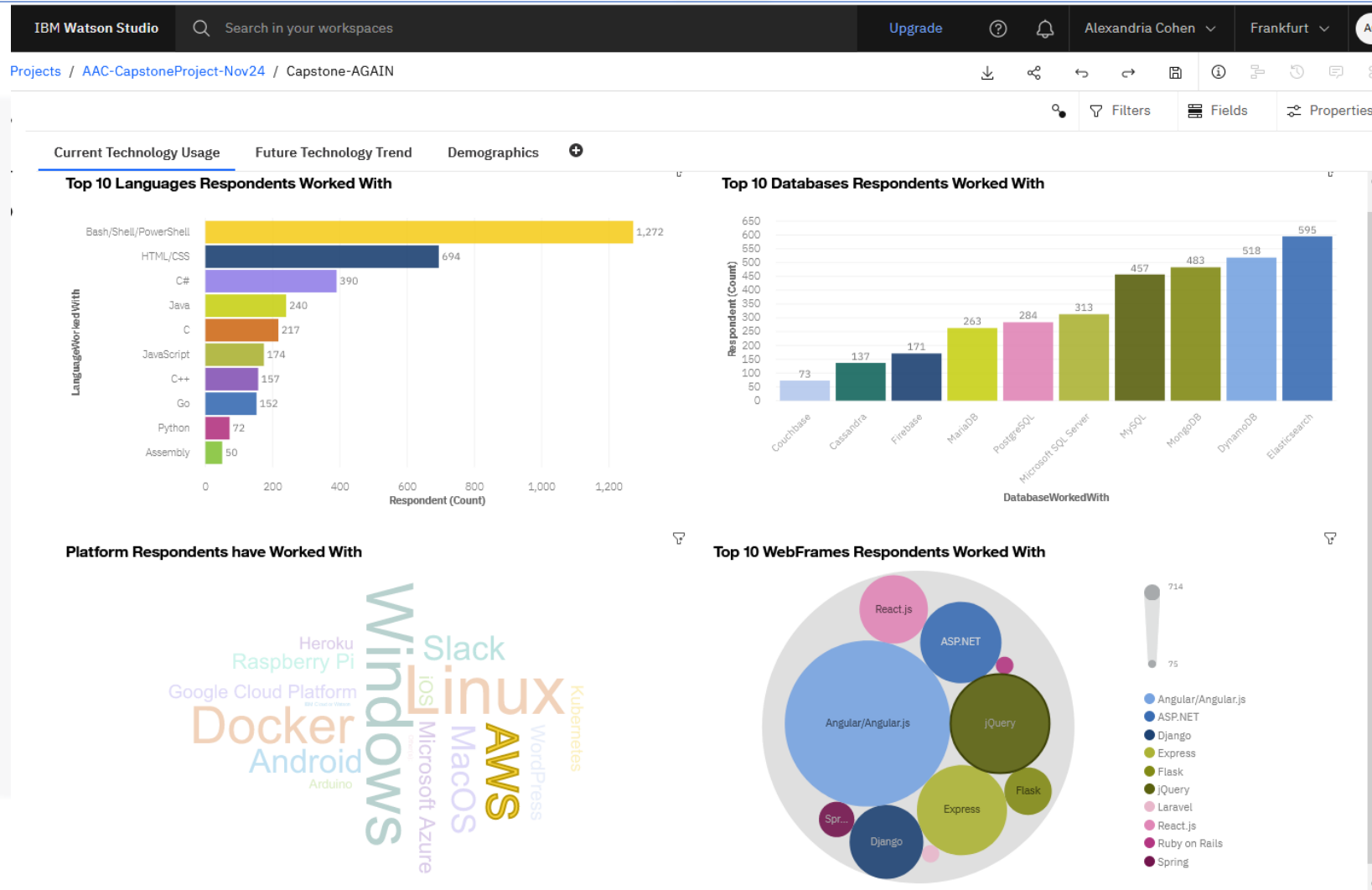
DASHBOARD TAB 2
– Future Technology Trend

DASHBOARD TAB 3 – Demographics

DISCUSSION

We live in a world where there is more and more information, and less and less meaning.
–Jean Baudrillard
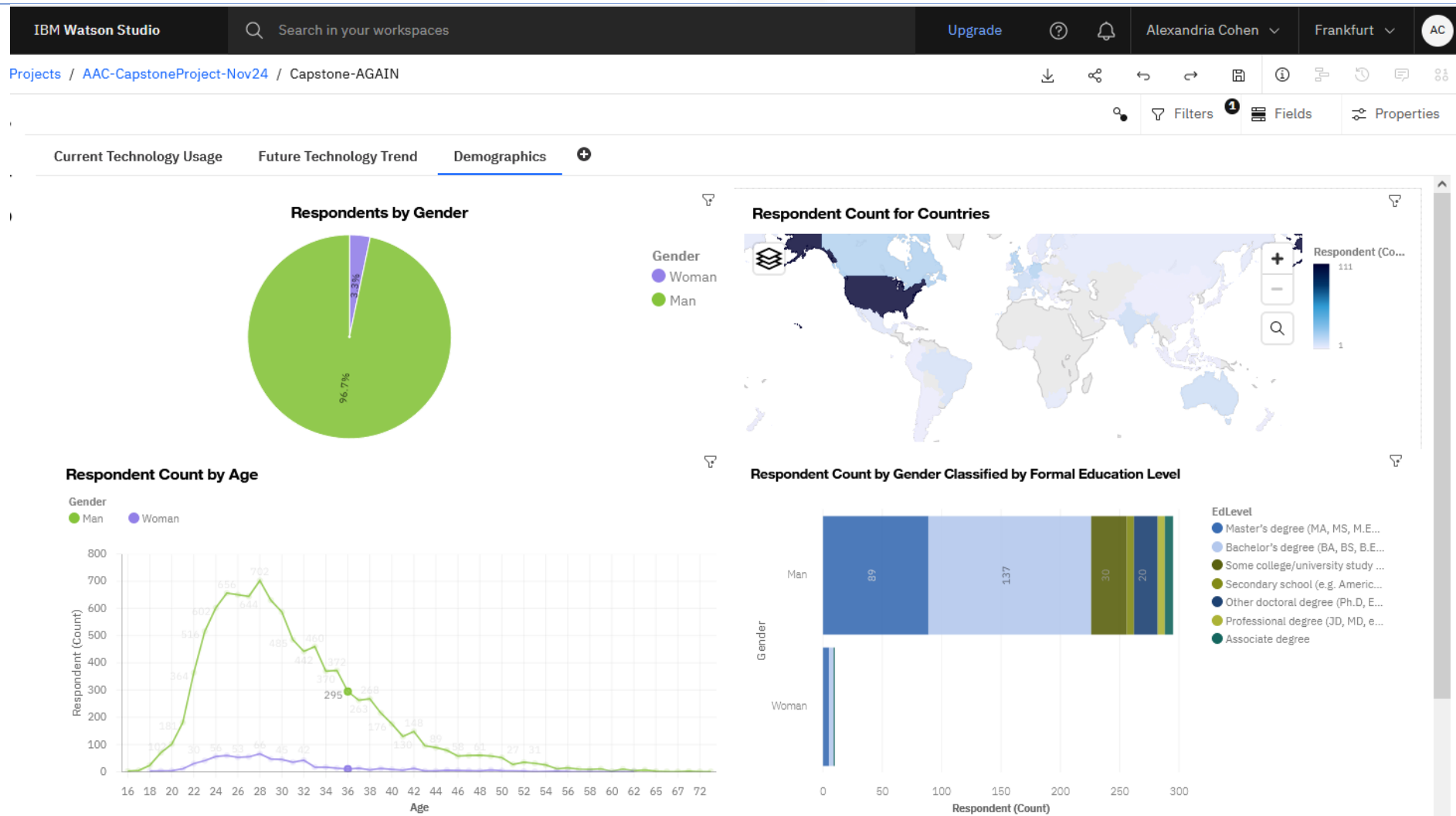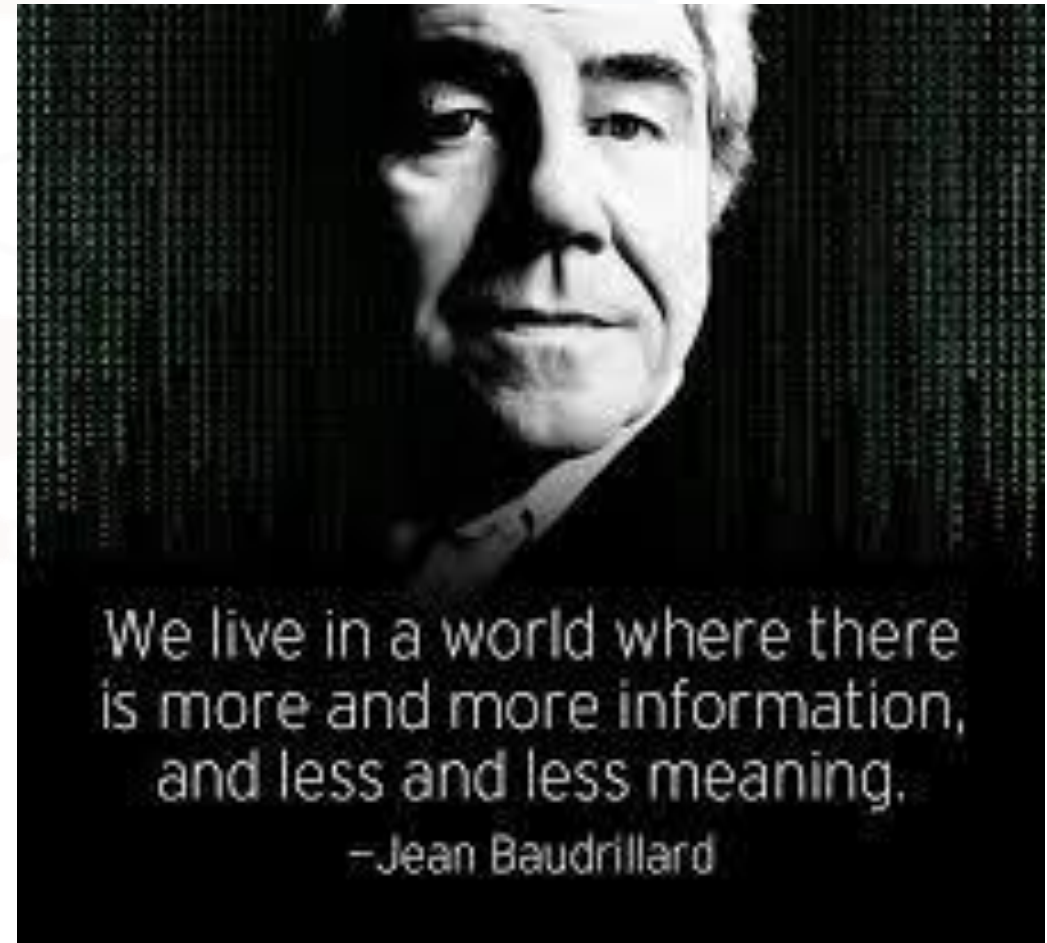
OVERALL FINDINGS & IMPLICATIONS

Findings:

- Top 3 Programming Languages are changing:
  - From: Bash/Shell/PowerShell, HTML/CSS, C#;
  - Trending towards: JavaScript, HTML/CSS, Python
- Analysis of Platform data revealed:
  - Windows, Linux and Docker are popular
  - AWS is growing in popularity
- Analysis of Database data revealed Top 3 changing:
  - From: ElasticSearch, DynamoDB, MongoDB
  - Trending towards: PostgreSQL, MongoDB, Redis
- Analysis of Demographics revealed:
  - Male Majority (96.7%) with a Bachelor's Degree
  - Majority located in the US, then Canada
  - Majority are between 24-32 years old
- Analysis of Jobs and Salaries showed:
  - Language C had more jobs than all languages combined
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Implications:

- Trend seen away from the Front-End programming languages as A.I. tools assist that knowledge
- **Python, JavaScript, PostgreSQL, Mongo DB, Redis** and **AWS** are all growing in popularity
- Hiring will most likely focus on **Women**
- **C Programmers** have highest demand with the most job opportunities

CONCLUSION

- A.I. Tools *(eg. Chat GPT)* are changing the landscape and future trends in programming by making it easier to learn the front-end developer languages. This is causing a shift in the languages that programmers are desiring to learn next.

- Hiring of females is lagging in the Programming industry

- Most Programmers are in the US and Canada with a Bachelor's Degree
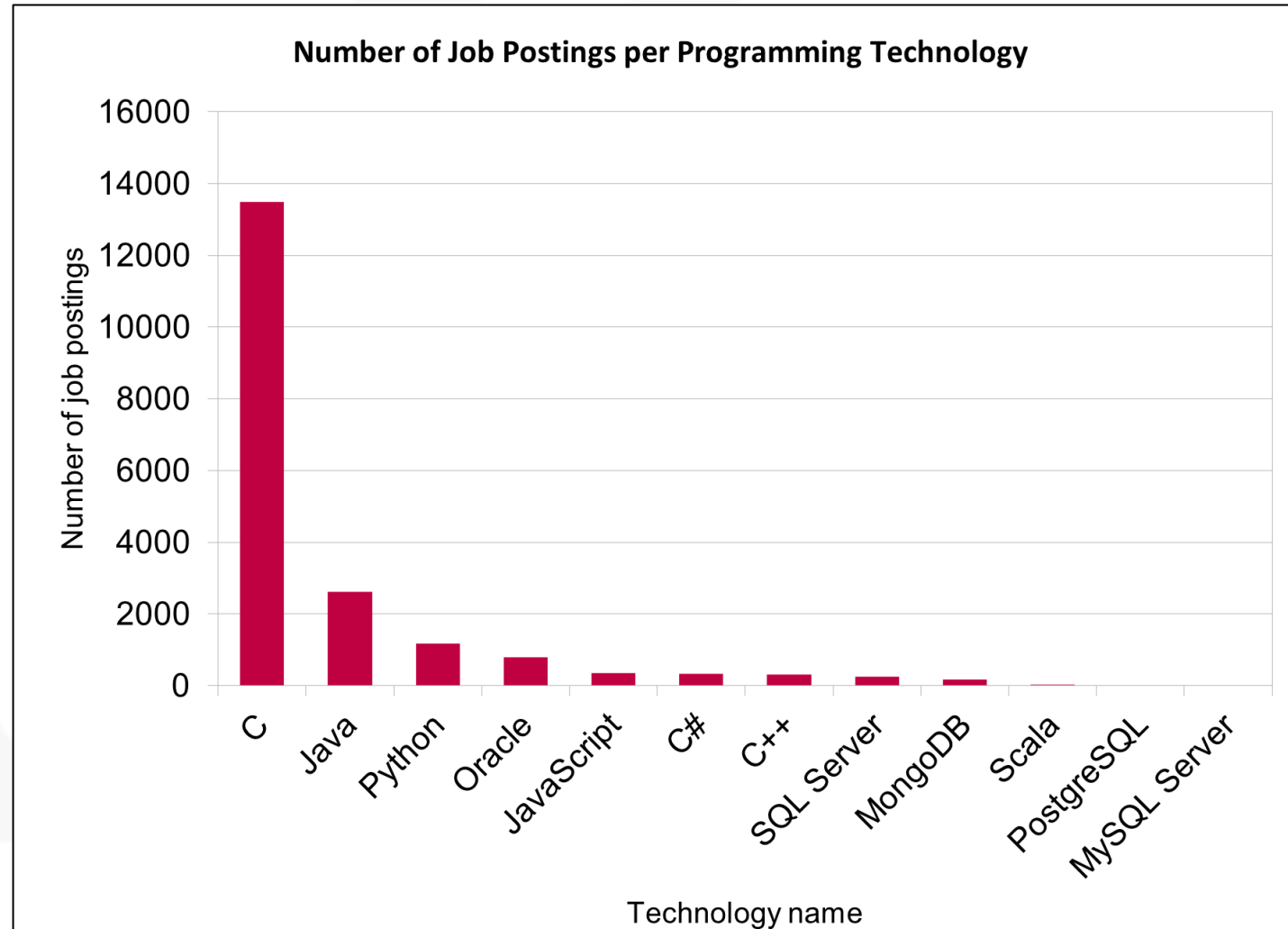
APPENDIX

- The following slides are relevant additional charts, or tables created during the analysis phase.

JOB POSTINGS

Module 1: Collected job posting data.
Bar Chart in descending order of number
of job postings found per Technology.

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