



Future Technology Skills

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OUTLINE



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EXECUTIVE SUMMARY



- Programming languages in demand:
 - JavaScript, HTML/CSS, Python, SQL
- Top database:
 - MySQL, PostgreSQL and MongoDB
- Less than 1 in 10 are female
- While C has an overwhelming of job postings in GitHub, it is not a popular language according to respondents.
- It seem necessary to change the language and database to work with, accordingly. If demand is high but not enough supply, it may lead to many jobless yet companies unable to find suitable employee. Lose-Lose situation.

INTRODUCTION



Nature of the analysis:

- In order to keep pace with changing technologies and remain competitive

Problem:

- Analyzes data to help identify future skill requirements

Questions to answer:

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

METHODOLOGY



- Collect data from various sources:
 - Job postings
 - Surveys
- Understand data
- Prepare, normalizes data
- Analysis data using visualization

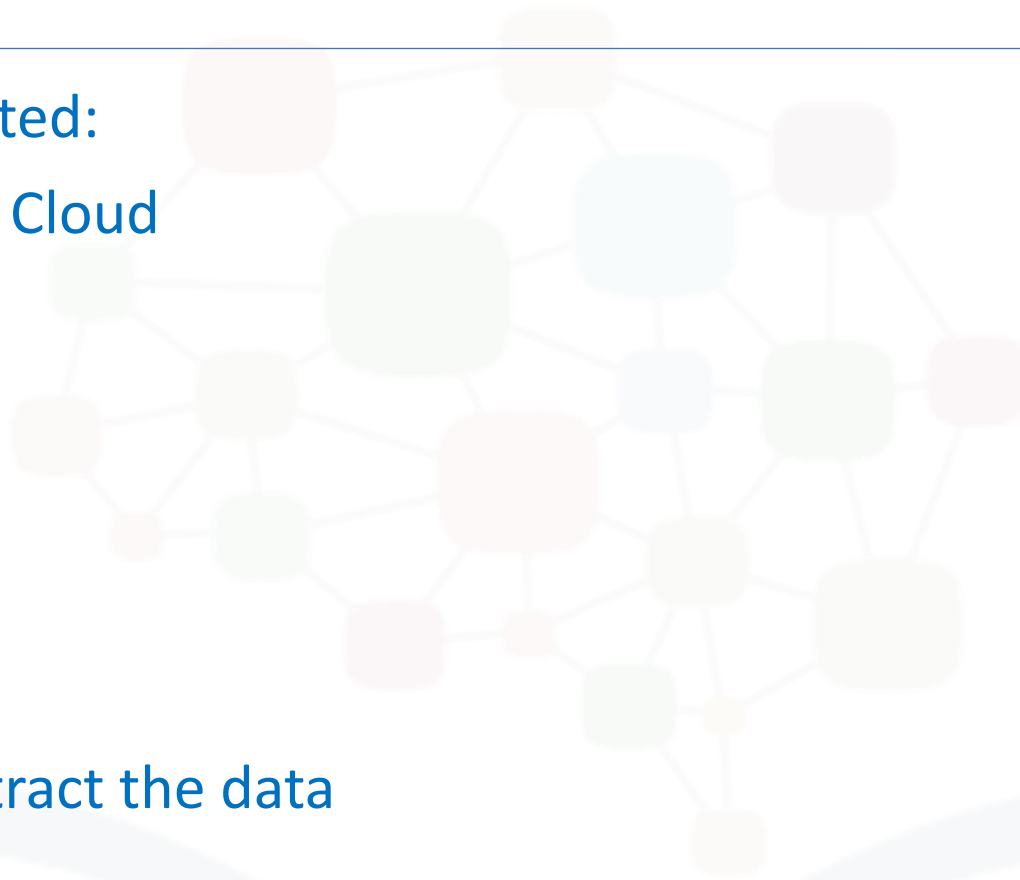
RESULTS

How data are collected:

- Sources from IBM Cloud
- Github API

Method:

- API
- Web-Scraping
- SQL queries to extract the data



PROGRAMMING LANGUAGE TRENDS

Current Year

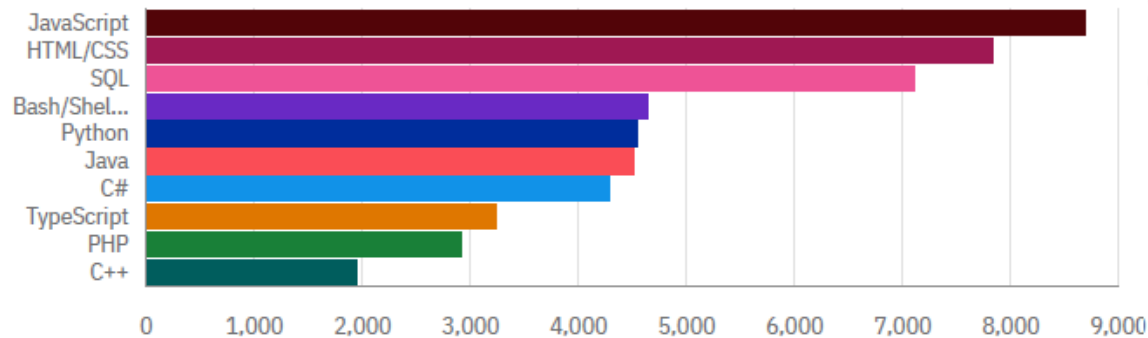
Current Technology Usage

Top 10 LanguageWorkedWith

LanguageWorkedWith



LanguageWorkedWith



LanguageWorkedWith (Count)

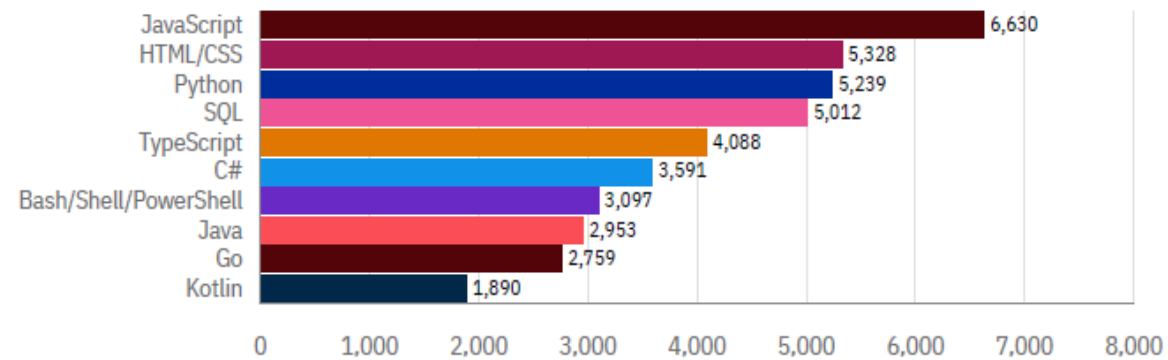
Next Year

Top 10 LanguageDesireNextYear

LanguageDesireNextYear



LanguageDesireNextYear



LanguageDesireNextYear (Count)

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- Top 2 languages worked with and desired next year are the same: JavaScript and HTML/CSS.
- SQL rank 3 language worked with, and is rank 4 language desired next year.
- Python rank 5 language worked with, and is rank 3 language desired next year.

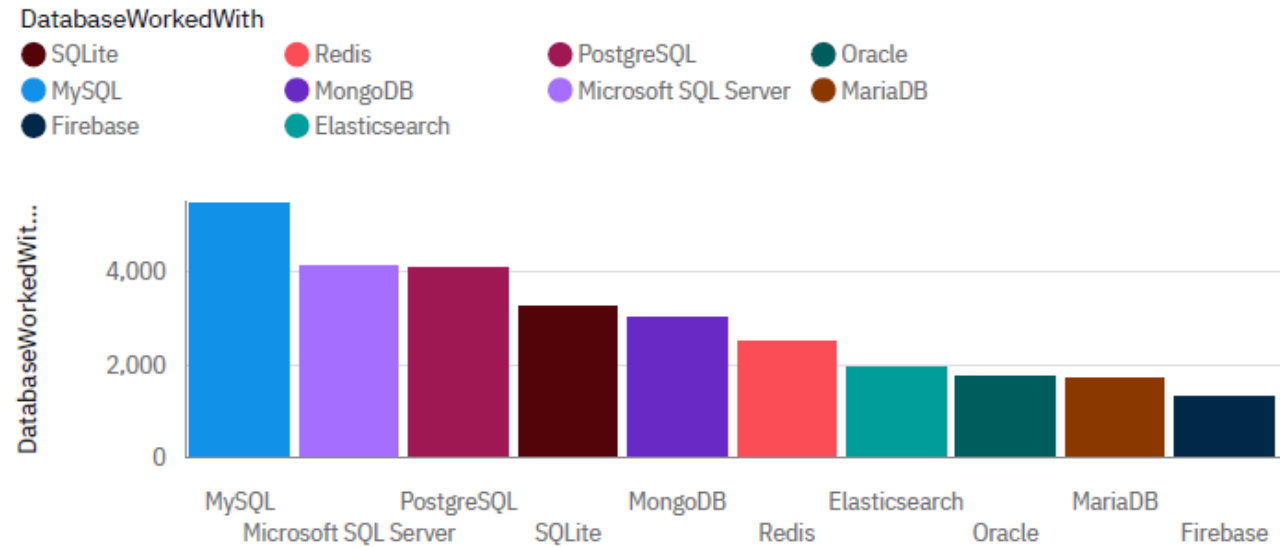
Implications

- It seems JavaScript and HTML/CSS are the most popular languages to learn and use.
- Python and SQL are also good languages to learn as they are top 5 worked with and desired next year.
- C++ and PHP in top 10 languages worked with however are replaced by Go and Kotlin as desired language next year.

DATABASE TRENDS

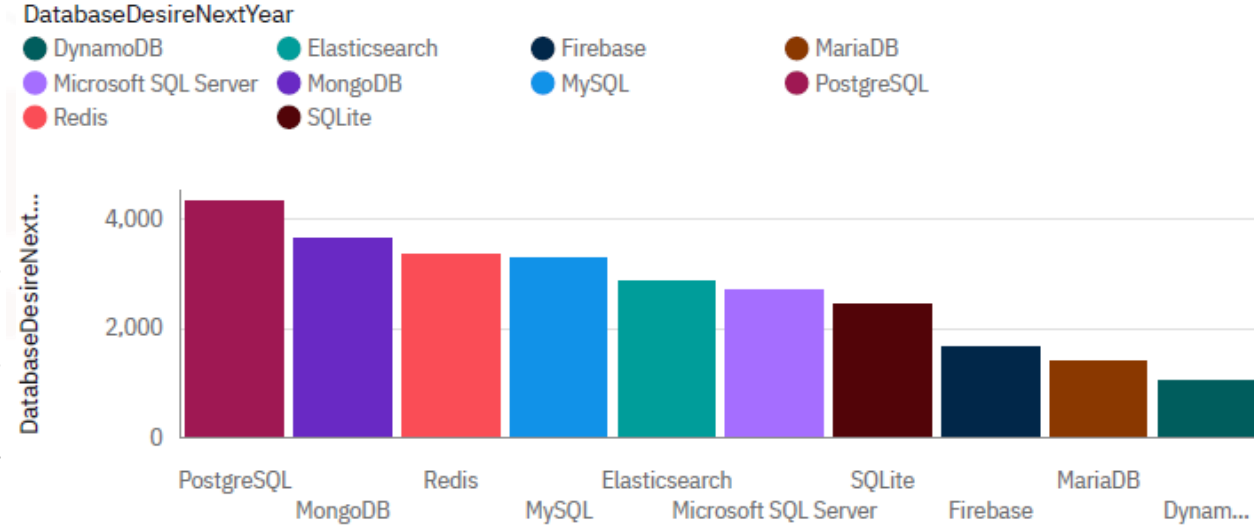
Current Year

Top 10 DatabaseWorkedWith



Next Year

Top 10 DatabaseDesireNextYear



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL rank 1 database worked with, rank 4 database desired next year.
- PostgreSQL rank 3 database worked with, rank 1 database desired next year.
- Oracle is rank 8 database worked with, however is not in top 10 database desired next year.

Implications

- MySQL, PostgreSQL and MongoDB are the database in demand, being top 5 database worked with and desired next year.
- Oracle popularity fall out of top 10 in desired next year.
- Microsoft SQL Server rank 2 worked with but fall to rank 6 desired next year.

DASHBOARD

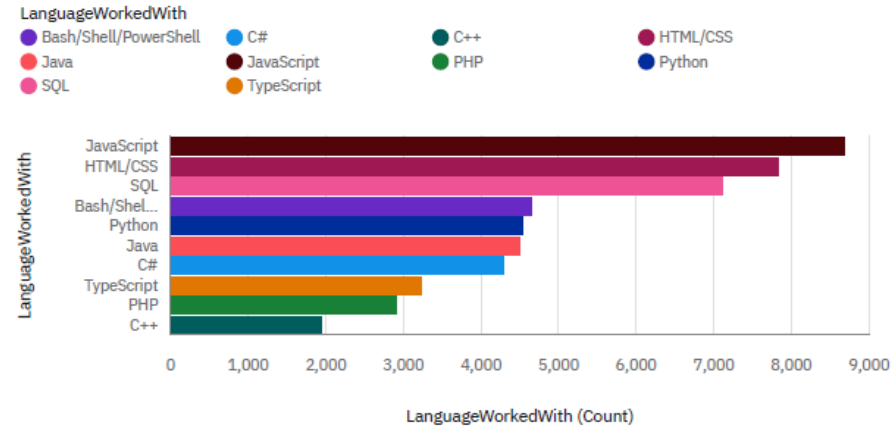


<https://github.com/C-ling0/IBM-Data-Analyst/blob/main/09%20Building%20Dashboard.pdf>

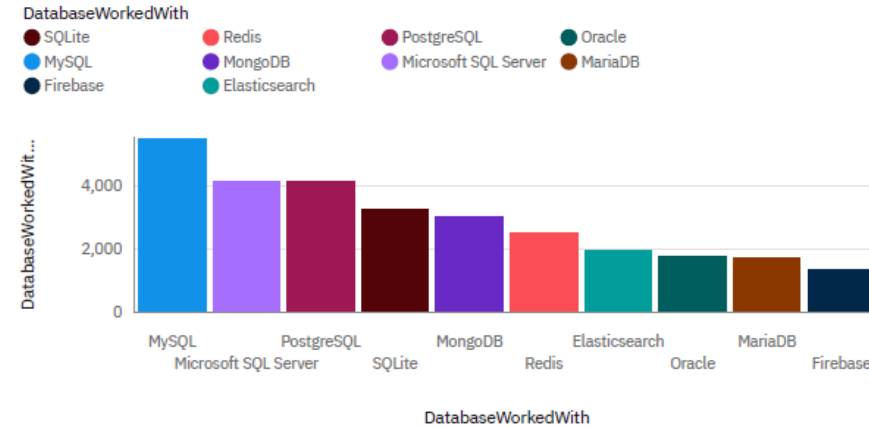
DASHBOARD TAB 1

Current Technology Usage

Top 10 LanguageWorkedWith



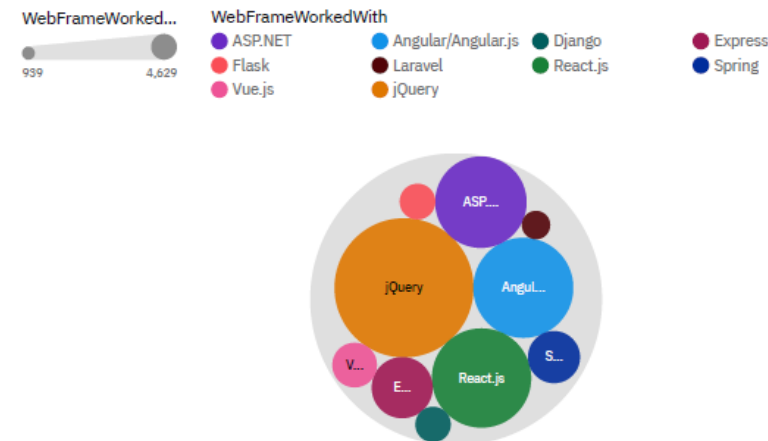
Top 10 DatabaseWorkedWith



Word Cloud- PlatformWorkedWith



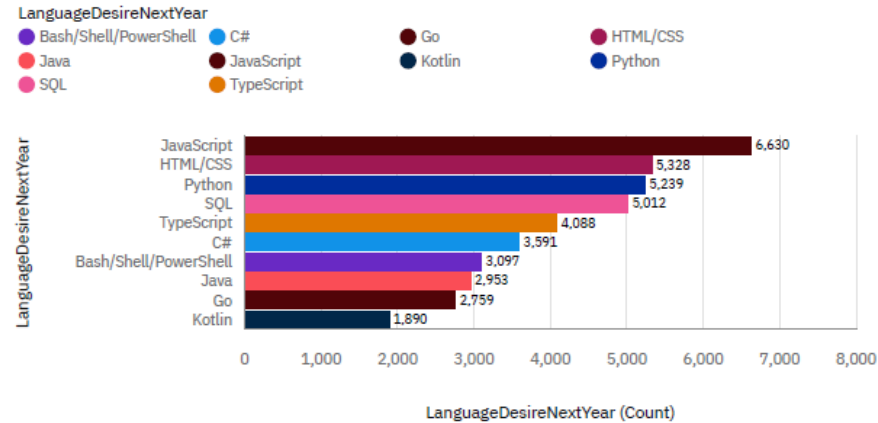
Top 10 WebFrameWorkedWith



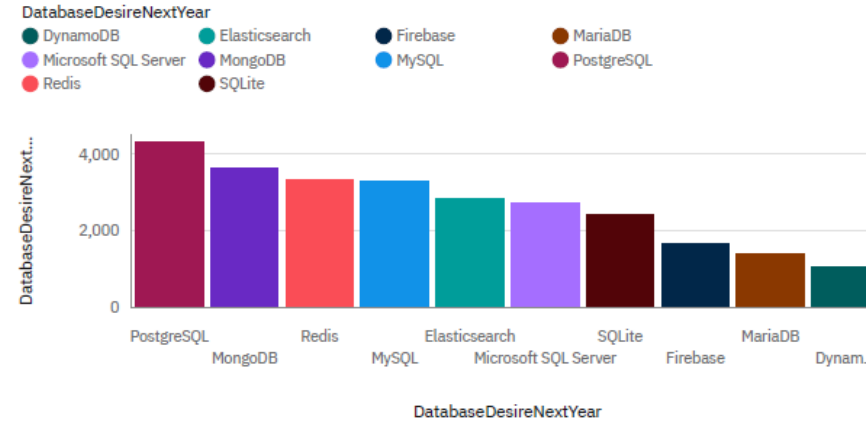
DASHBOARD TAB 2

Future Technology Trend

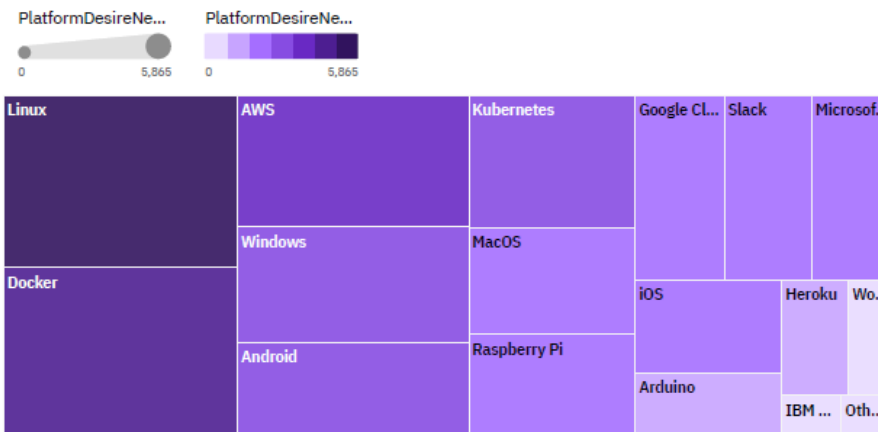
Top 10 LanguageDesireNextYear



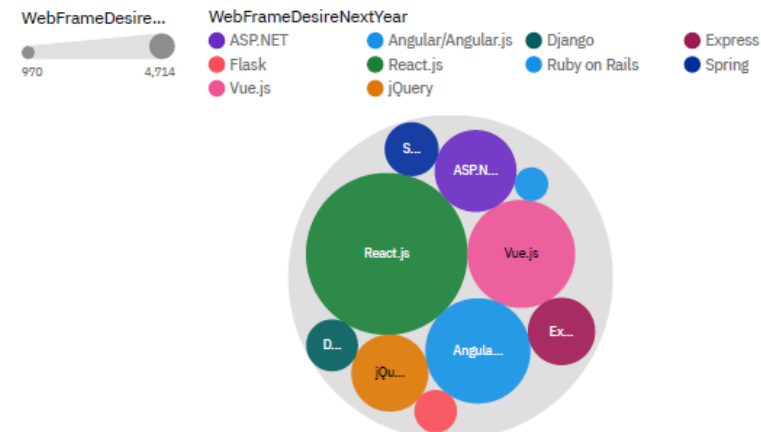
Top 10 DatabaseDesireNextYear



Tree Map of PlatformDesireNextYear



Top 10 WebFrameDesireNextYear

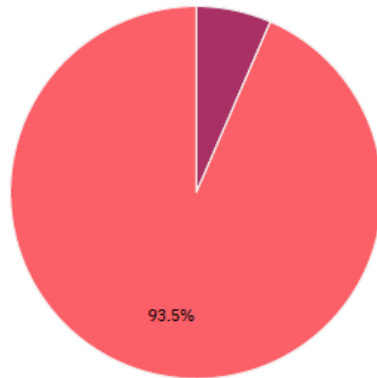


DASHBOARD TAB 3

Demographics

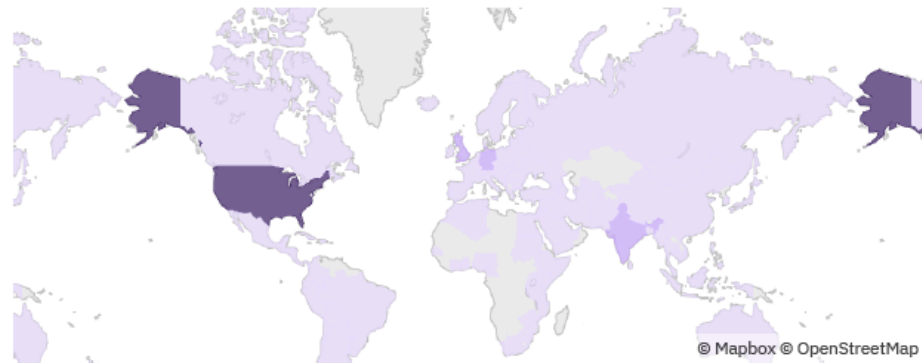
Respondent classified by Gender

● Woman ● Man

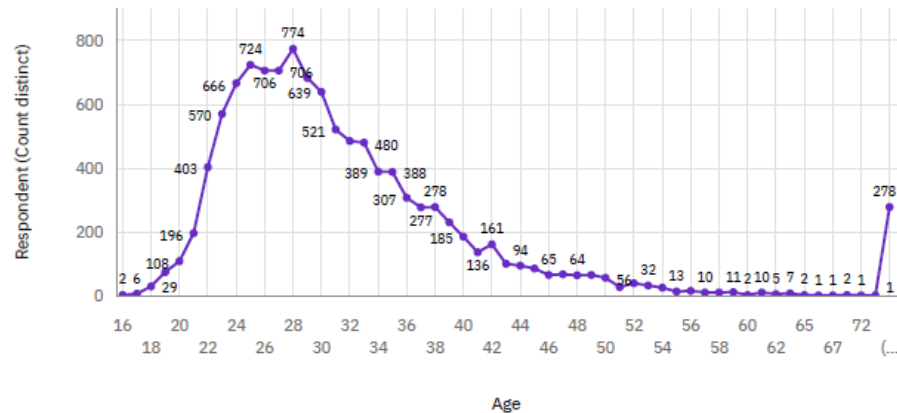


Respondent Count for Countries

Country (Count)



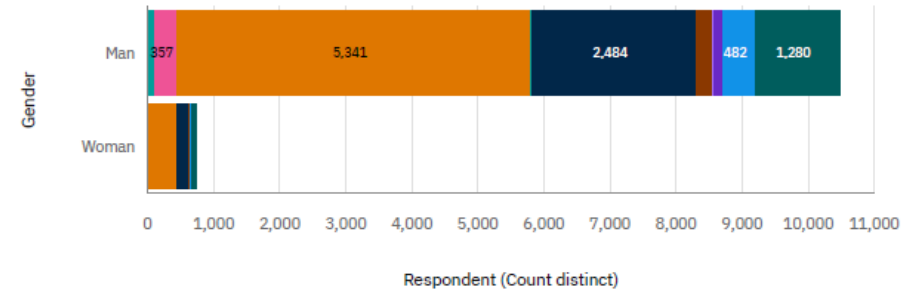
Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level

EdLevel

● (no value) ● Associate degree ● Bachelor's degree (BA, BS, B.Eng....)
● I never completed any formal edu... ● Master's degree (MA, MS, M.Eng.,...
● Primary/elementary school ● Professional degree (JD, MD, etc.) ● Other doctoral degree (Ph.D, Ed.D...
● Some college/university study wit... ● Secondary school (e.g. American ...



DISCUSSION



OVERALL FINDINGS & IMPLICATIONS

Findings

- Top 2 languages survey respondents worked with and desired next year are the same: JavaScript and HTML/CSS.
- 93.5% of survey respondents are males
- Language C has an overwhelming of job postings in GitHub compared to other languages (see Appendix)

Implications

- MySQL, PostgreSQL and MongoDB are the database in demand, being top 5 database worked with and desired next year.
- Less than 1 in 10 are female
- While C has an overwhelming of job postings in GitHub, Swift's job earn the highest but no posting in GitHub

CONCLUSION



- The most popular programming language desired next year is JavaScript, HTML/CSS, and Python.
- MySQL, PostgreSQL and MongoDB are the database in demand, being top 5 database worked with and desired next year. Redis increased in popularity for database desired next year, rank 3.
- It seem necessary to adapt to popular languages and databases to work with, accordingly to what was desired next year.
- The demand for C job posting is overwhelming high currently, however there is not enough supply (remain low popularity in respondents who worked with) which may lead to many jobless yet unable to find suitable employee.

APPENDIX



Sources

Main source url: [m5_survey_data_demographics.csv](#) and [m5_survey_data_technologies_normalised.csv](#)

Original source: <https://stackoverflow.blog/2019/04/09/the-2019-stack-overflow-developer-survey-results-are-in/> under a [ODbL: Open Database License](#).

(All sources are from here, except page 21 onwards)

Collect Jobs Posting Data using GitHub Jobs API:

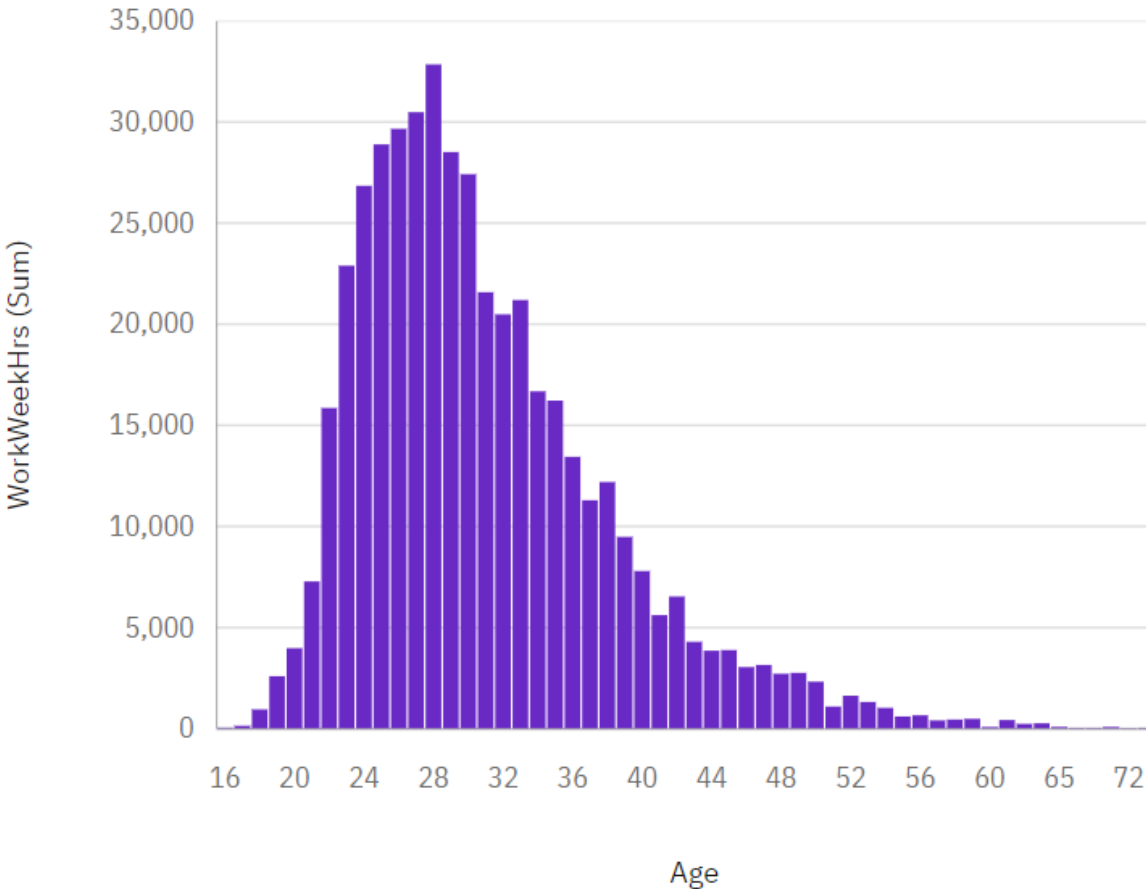
Page 21 Api_url: <http://127.0.0.1:5000/data>

Popular Languages using Web-Scraping:

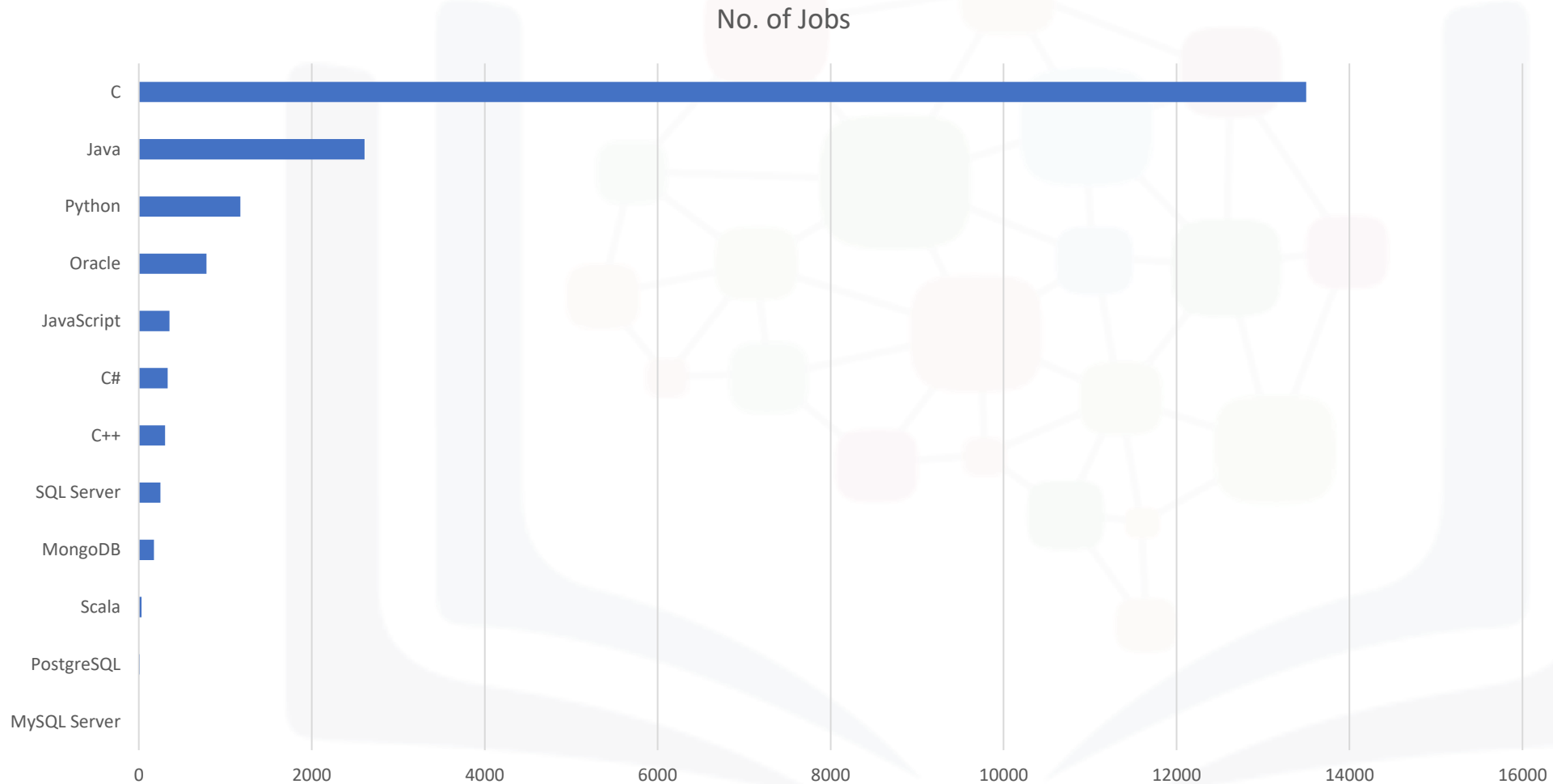
Page 22 onwards, Source url: https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html

Work Week Hrs by Age

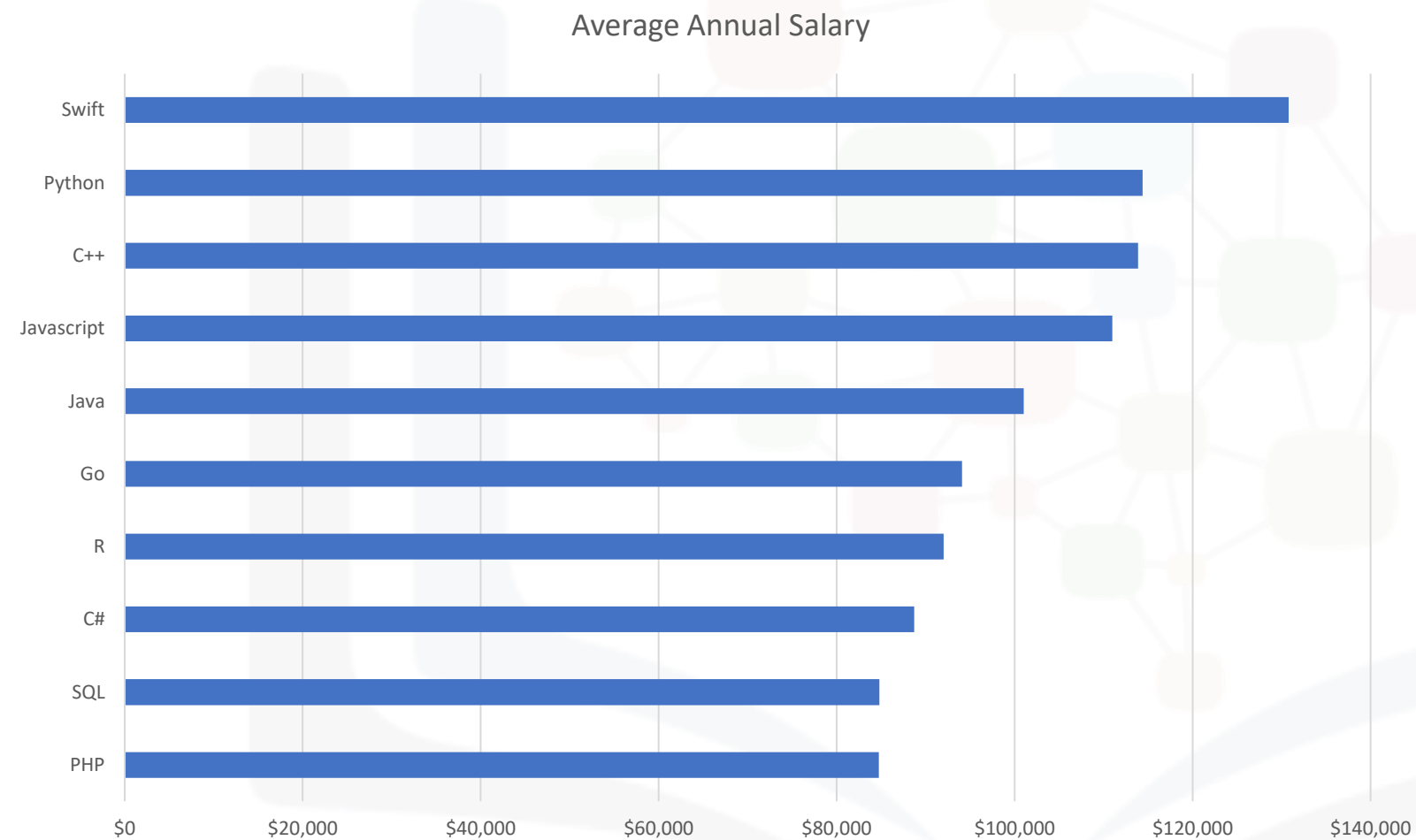
WorkWeekHrs by Age



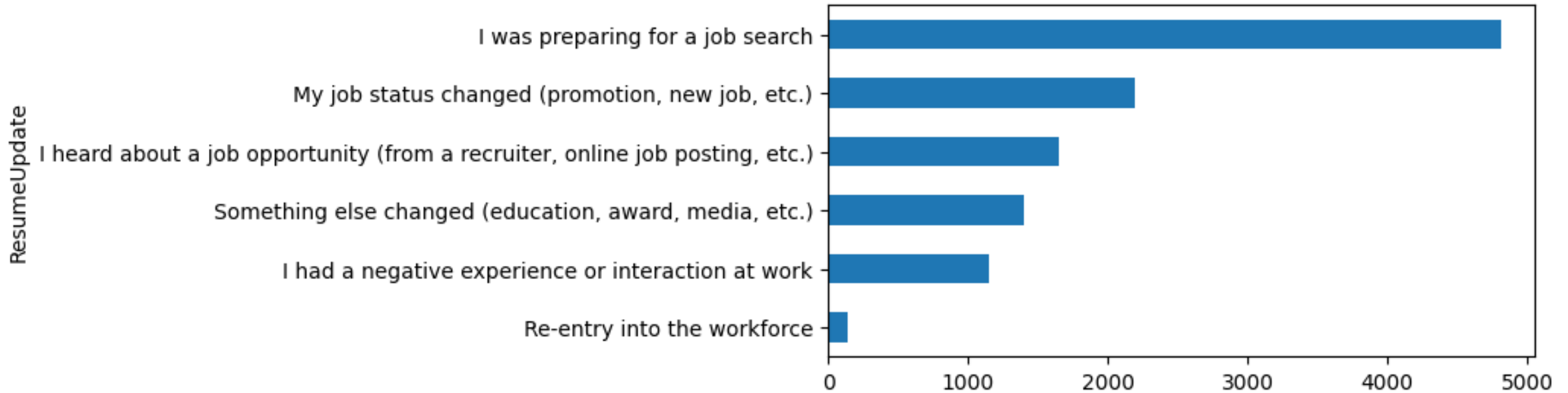
JOB POSTINGS



POPULAR LANGUAGES



Resume Update



Career vs job Satisfaction

