Technology analysis and trends

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11/July/2023

OUTLINE

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EXECUTIVE SUMMARY

- Gender pay gap
- Overall pay distribution
- Trends in programming language and database
- Demographic distribution

INTRODUCTION

- Data source:

The dataset is a randomized subset from a Stack Flow Survey

- About: Analysis of demographics and technology trends in software professionals
- Purpose
  - Define pay gap and gender distribution
  - Find out the most popular and desired programming languages and databases
  - Insights from findings
- Audience: HR and IT head

METHODOLOGY

- Use API and Web Scrapping to retrieve data
- Explore Dataset (columns, shape, data types, and describe)
- Data Cleaning:
  - Remove duplicates
  - Replace missing values
  - Normalise data
- EDA – Exploratory Data Analysis:
  - Data distribution
  - Finding outliers
  - Data correlation

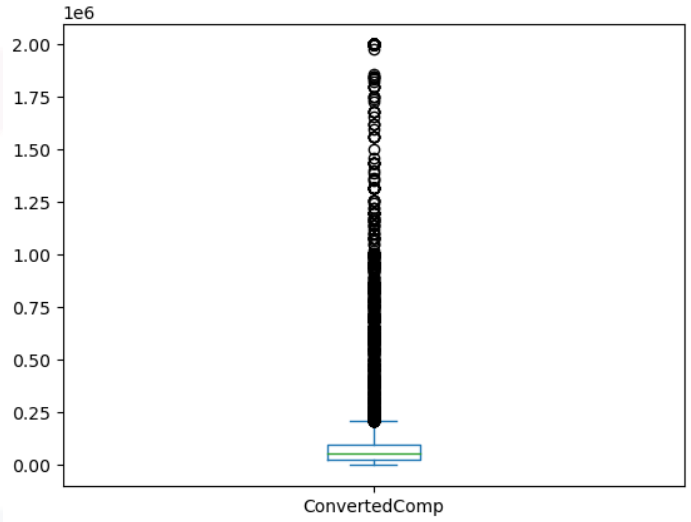
RESULTS

- The dataset contains 11553 respondents from 135 countries with average age around 31, with more than 2/3 of them as male

- The median annual compensation is $100k, while the median salary of women is $57.7k

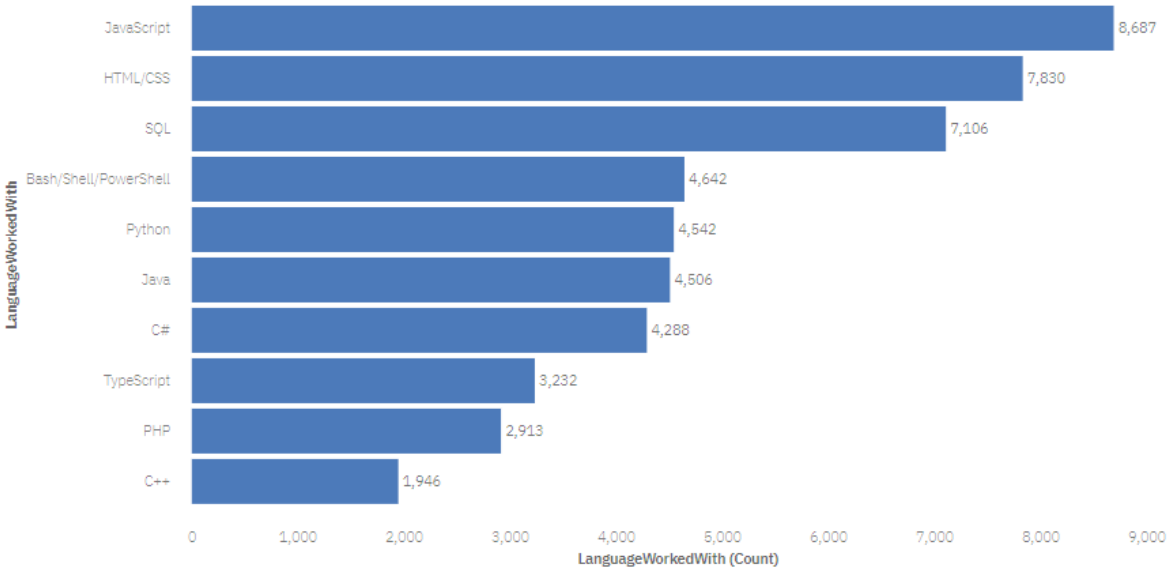
- Besides, the distribution of annual salary has many outliers (879 respondents) – box plot on the right
- Excluding outliers, the median of annual salary is $52k

- Among all numerical values, Age has the strongest correlation with annual compensation

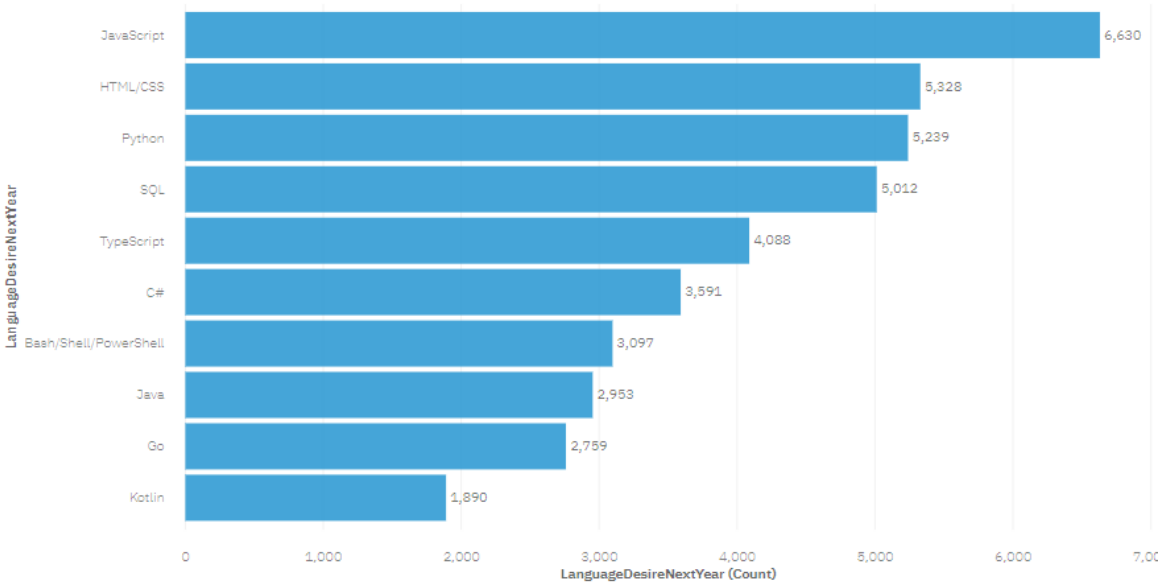


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

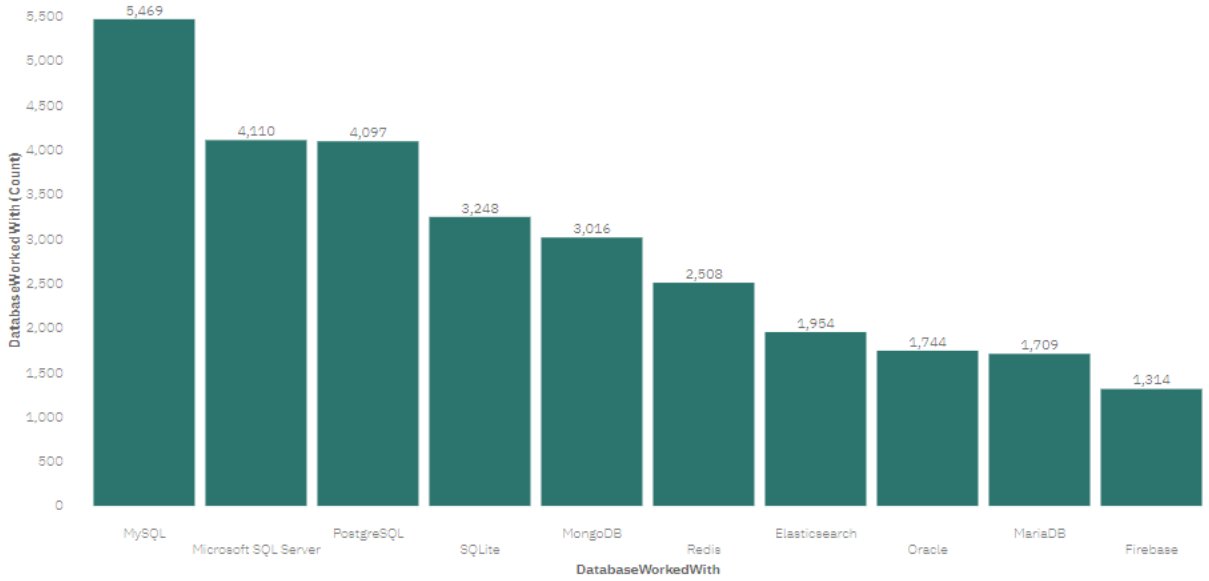
- The top 3 skills in current year are JavaScript, HTML/CSS and SQL
- The top 3 skills in next year are JavaScript, HTML/CSS and Python

Implications

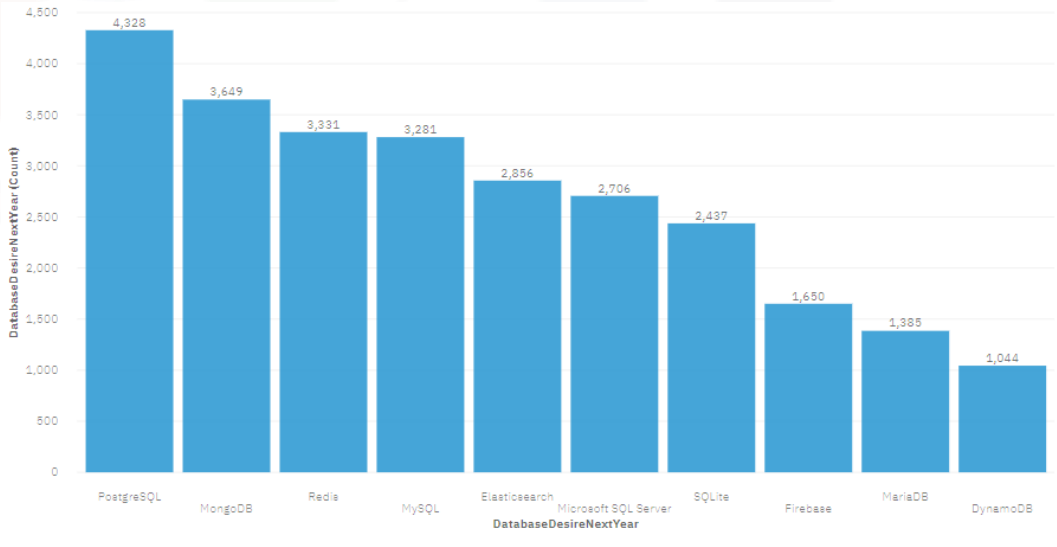
- JavaScript is the most popular and desired language
- Python becomes more desired next year
- Kotlin and Go are getting more popular, listed on Top 10 desired language next year

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is mostly used database currently
- 6/10 current databases are SQL database
- PostgreSQL is the most desired next year

Implications

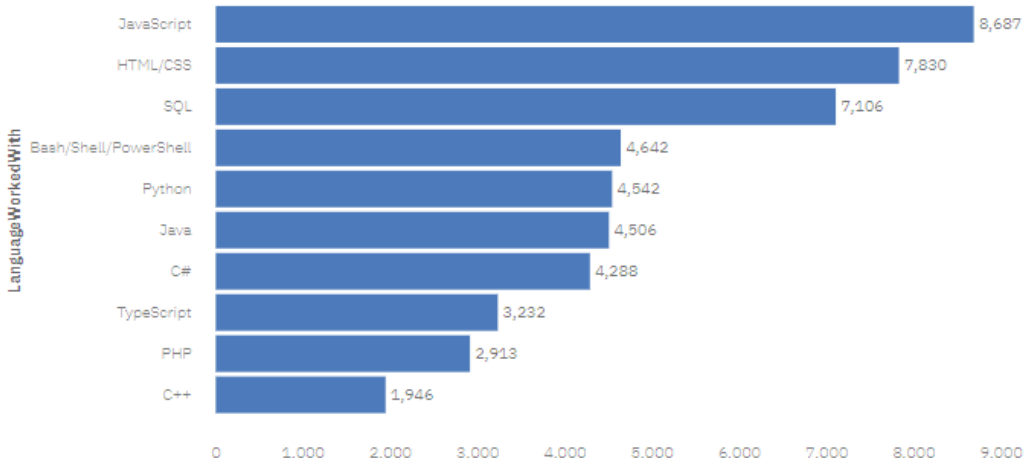
- SQL databases are more popular and more wildly used
- Non-SQL databases are also desired next year (Mongo DB #2 and Redia #3)

DASHBOARD

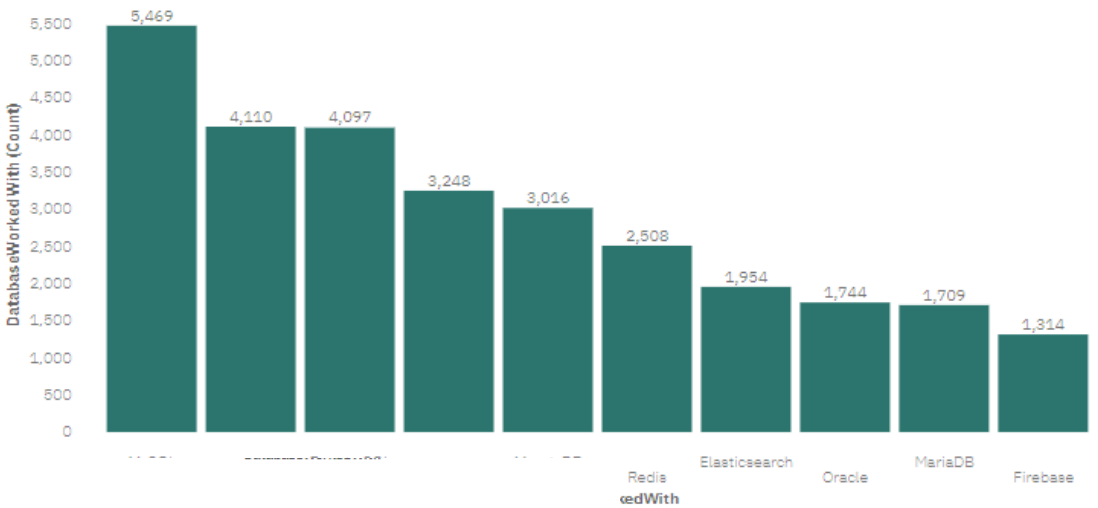
For all the dashboards of this data analysis, please click here to launch.

DASHBOARD TAB 1

Top 10 Language Worked With

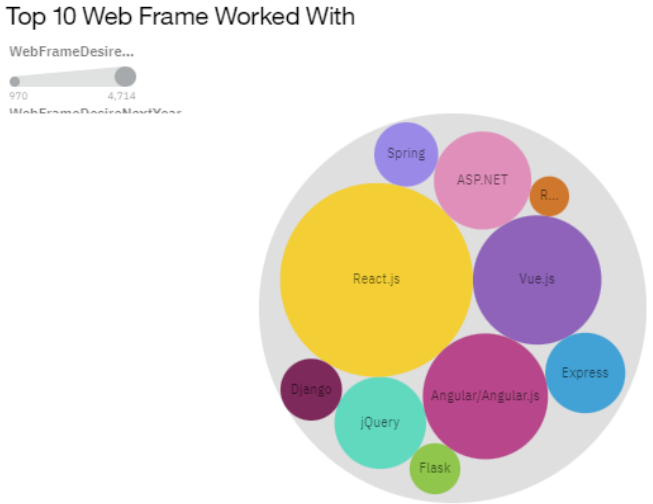


Top 10 Database Worked With



Platform Worked With

Top 10 Web Frame Worked With



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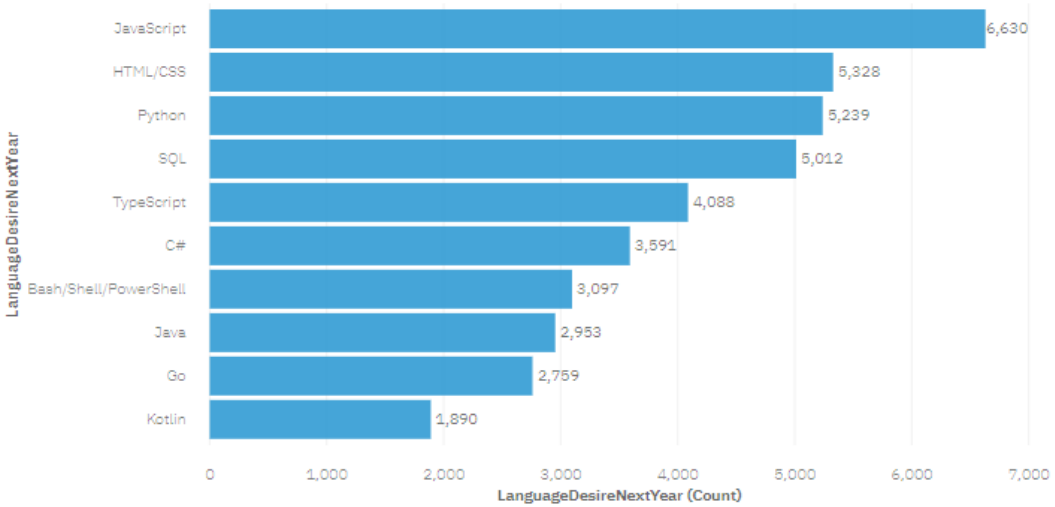
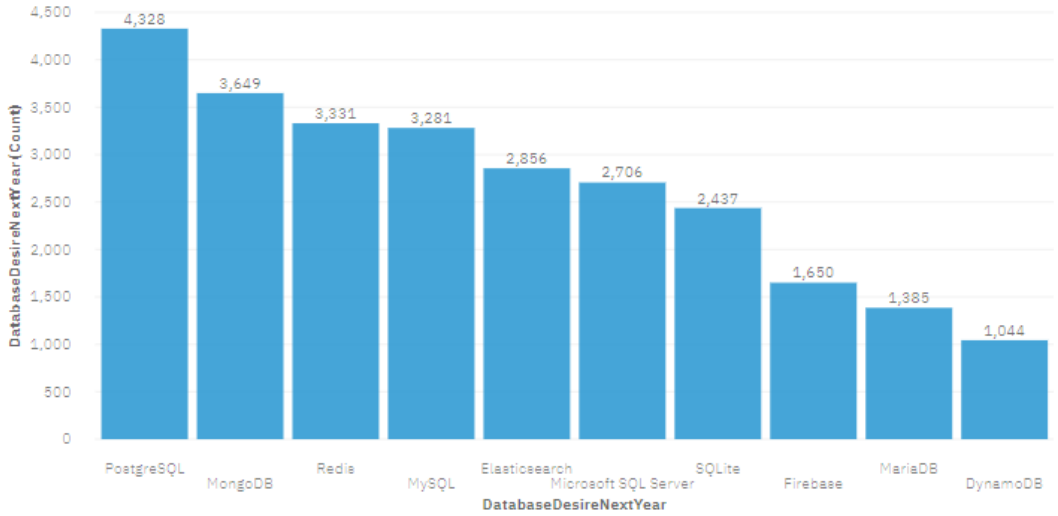
SKILLS NETWORK

DASHBOARD TAB 2

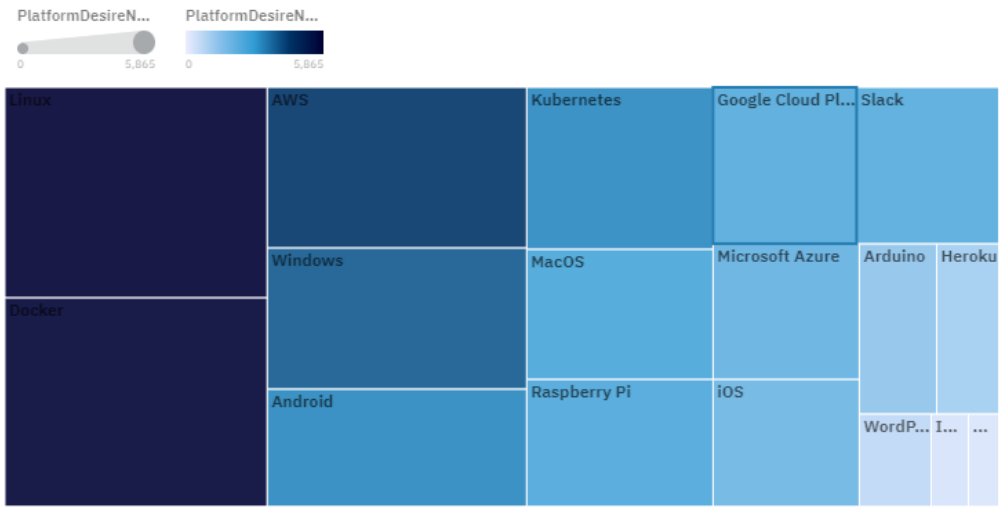
Top 10 Language Desired NextYear

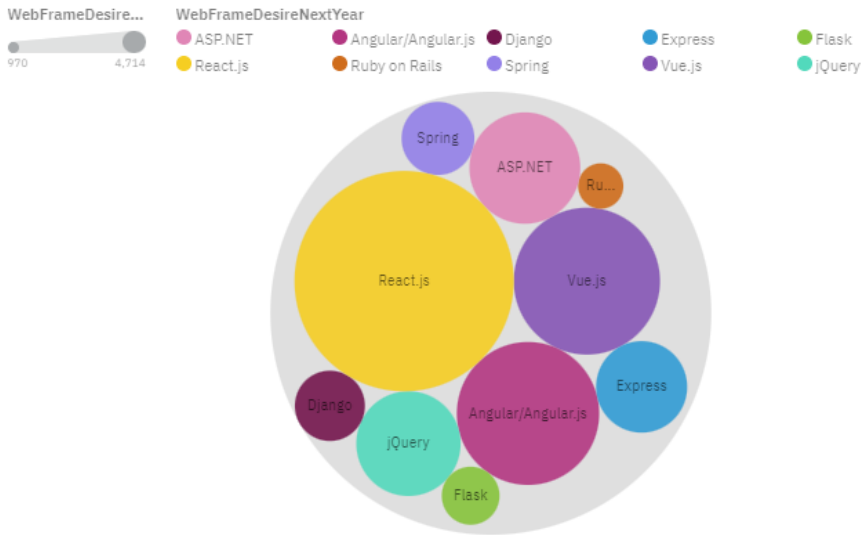


Top 10 Database Desired NextYear



Platform Desired Next Year





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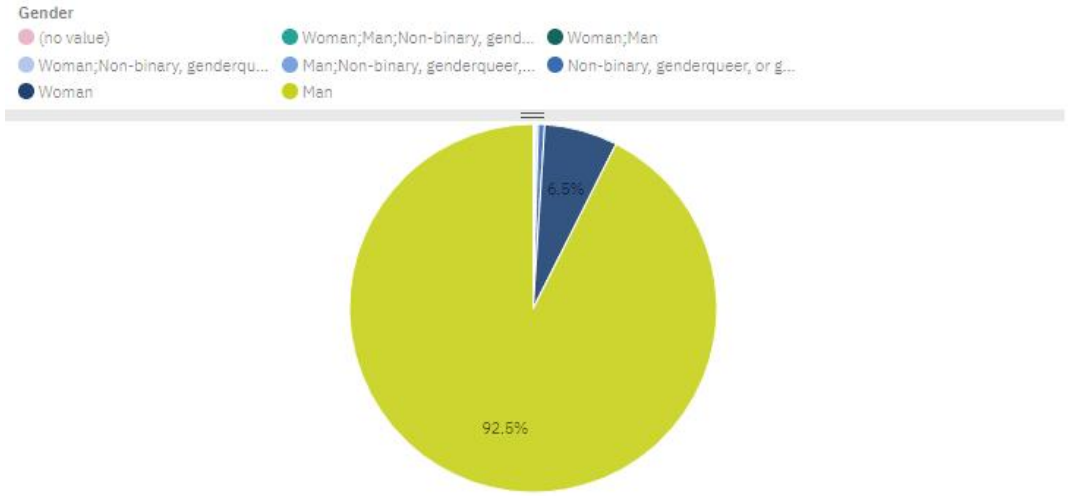
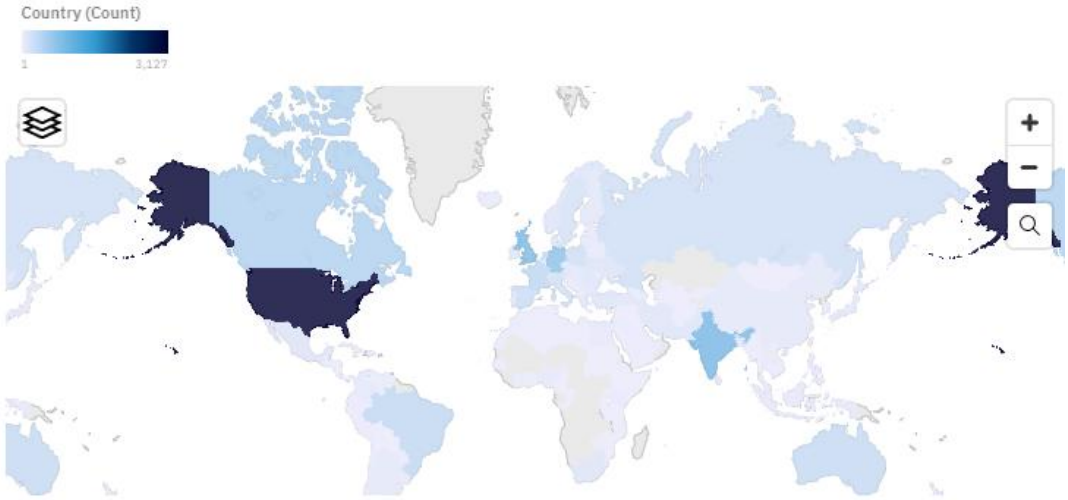
SKILLS NETWORK

DASHBOARD TAB 3

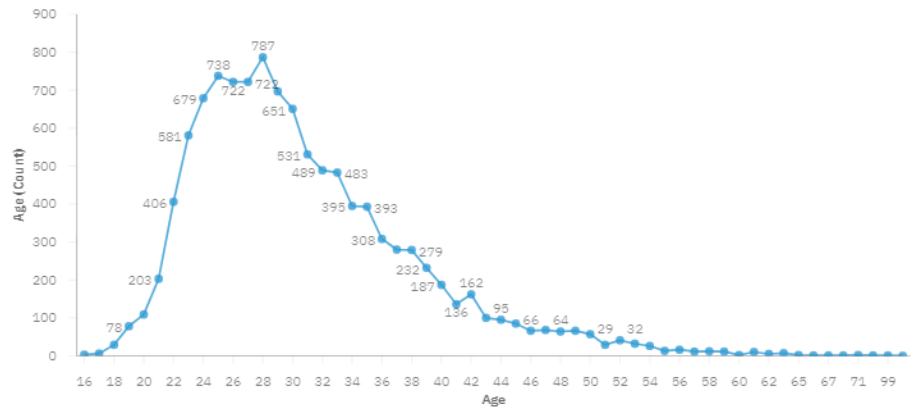
Respondent classified by Gender



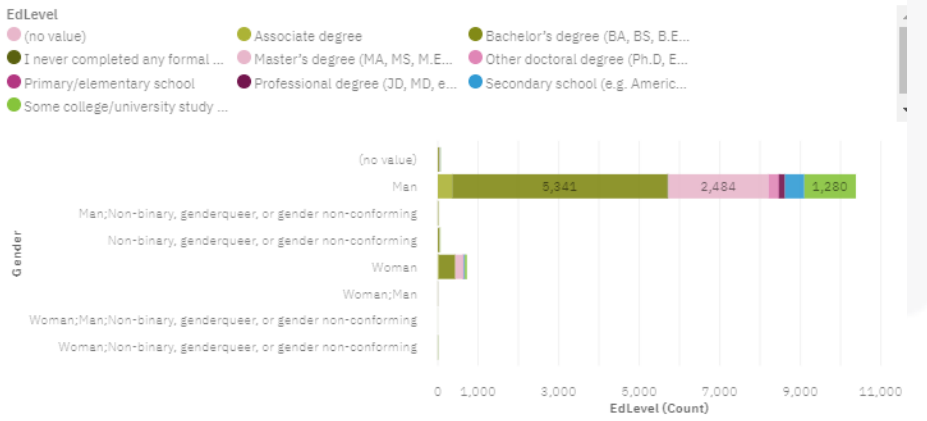
Respondent Count for Countries



Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level



OVERALL FINDINGS & IMPLICATIONS

Findings

- Annual compensation has quite a few outliers
- Male has higher pay than female
- SQL-Databases are mostly used and desired
- Technologies change fast

Implications

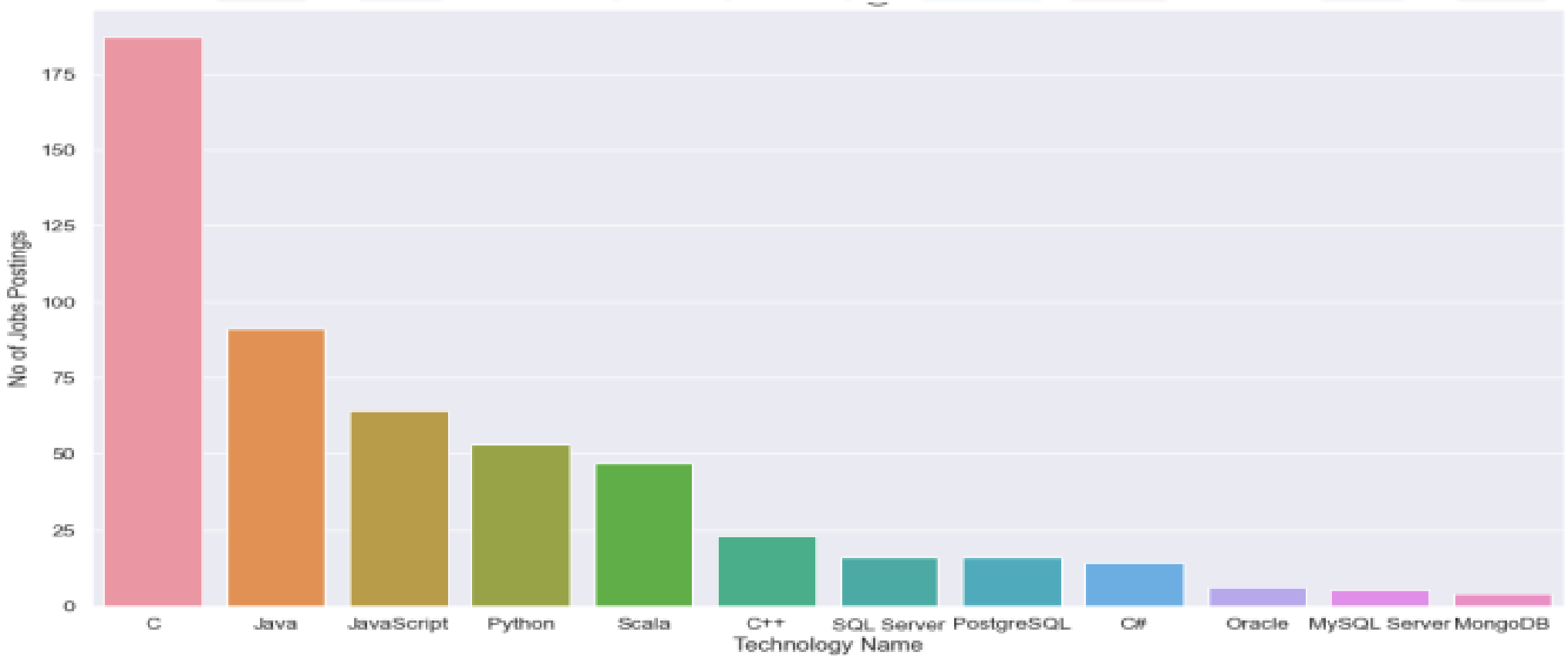
- The salary is not distributed evenly
- Women maybe underpaid
- SQL-Databases will continue to be popular
- Companies need to be more flexible on adopting technologies

CONCLUSION

- 2/3 positions are occupied by male
- Gender pay gap exists in favor of male
- Salary is distributed unevenly
- JavaScript and SQL-Datavases continue to be popular
- Actions to be taken

APPENDIX

JOB POSTINGS



POPULAR LANGUAGES