IBM Capstone Project for Professional Data Analyst

https://github.com/fahadmhd/IBM-Data-Analyst-Capstone-Project

Analysis on Emerging Technology Skills and Trends

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IBM Developer

SKILLS NETWORK

OUTLINE

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

EXECUTIVE SUMMARY

- Job Market analysis and trend analysis
- To get actionable insights, I perform
  - Data Gathering
  - Data Cleaning
  - Data Analysis
  - Data Visualization
- Different sort of findings are achieved
  - Which programming language is most popular
  - Use of Highest DB
- Survey is conducted to observer which gender is max respondents in USA

INTRODUCTION

- This project is designed for data analysis and prediction of trends related to programming languages, dbs, platforms and web frames.
- Stack Overflow's annual Developer Survey is the largest and most comprehensive survey of people who code around the world.
  - Results don't represent everyone in the developer community evenly.
  - Nearly 90,000 developers.
  - Trends to predict where the developers are going.

Target Audience : HR managers, IT professionals, etc.

METHODOLOGY

- Data Collection
  - Various methods are used (Web Scraping, APIs, Request library)
- Data Wrangling
  - Cleaning, handling missing values, remove inconsistencies
- Exploratory data analysis
  - Analyzing data distribution, Handling outliers, Correlations
- Data Visualization
  - Highlight distribution of data, relationships, the composition and comparison of data.
- Dashboards
  - Pivot charts

RESULTS

PROGRAMMING LANGUAGE TRENDS

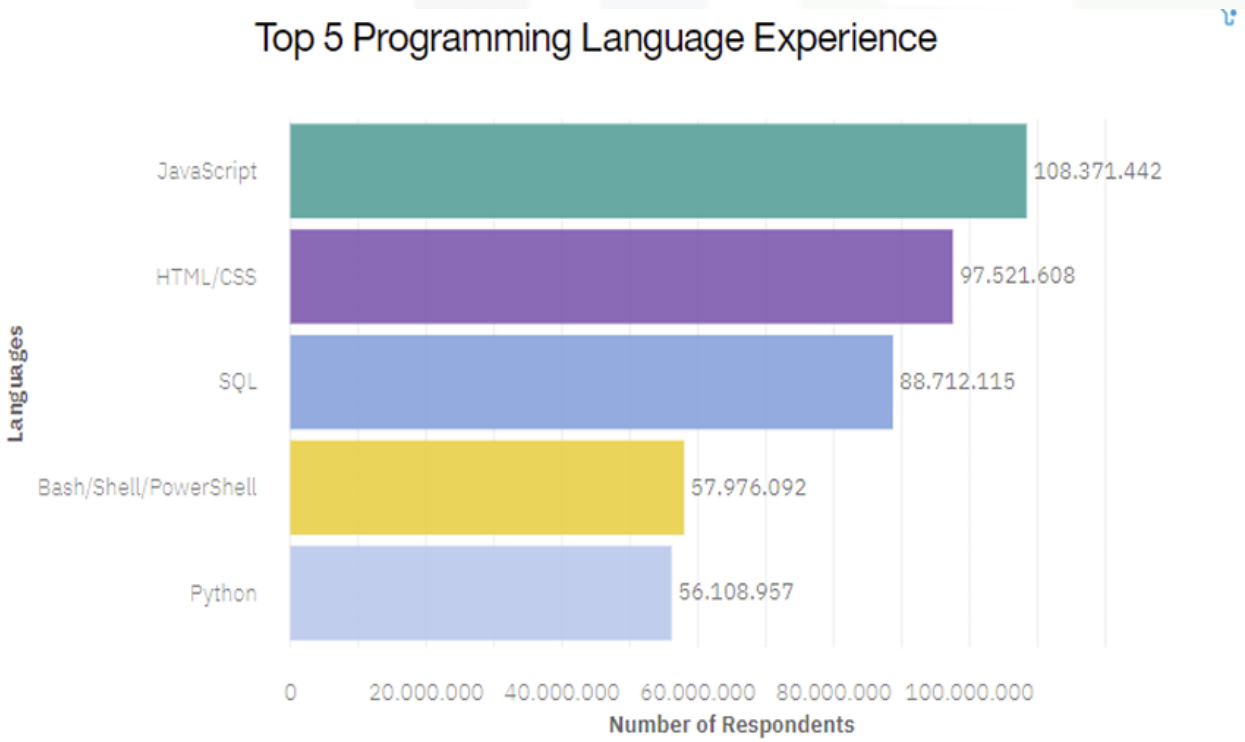
- JavaScript seems to keep as leading language.
- Python fastest-growing.
  - More demand than SQL next year
- Great interest in TypeScript

DATABASE TRENDS

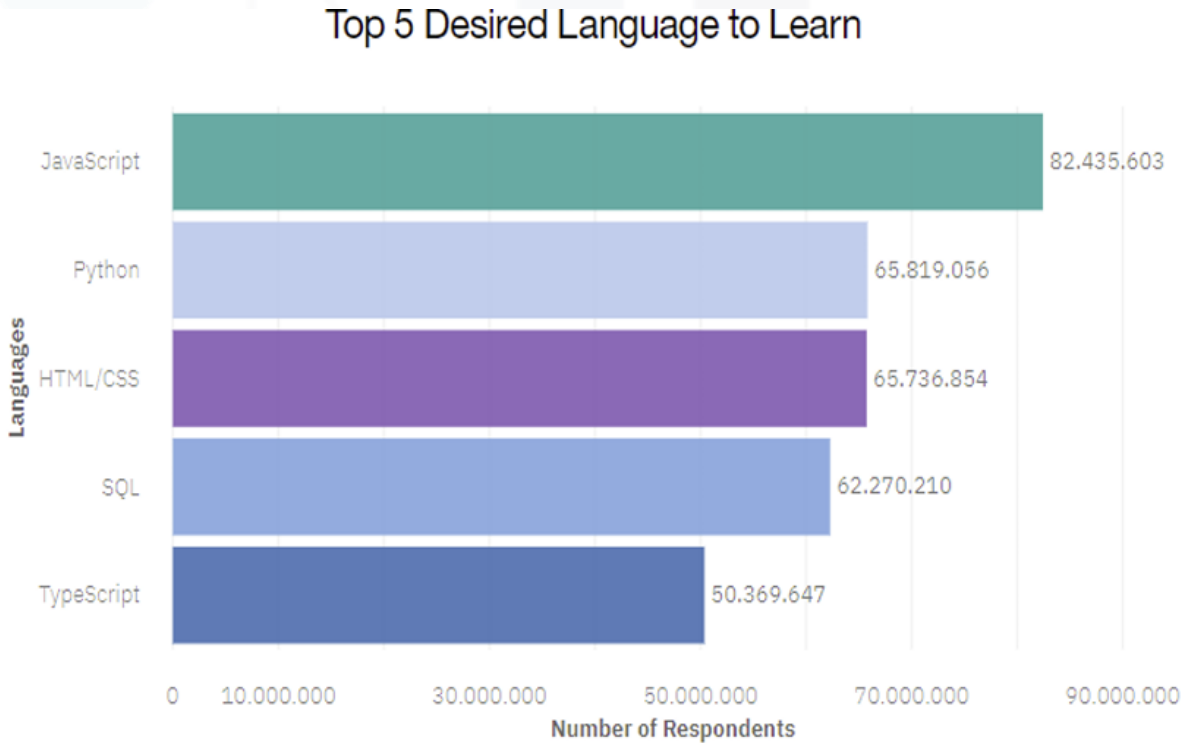
- MySQL as most used database
- Lack of interest in Microsoft SQL Server and SQLite
- Increasing interest in PostgreSQL and MongoDB.
- New Tools are Redis and Elasticsense

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

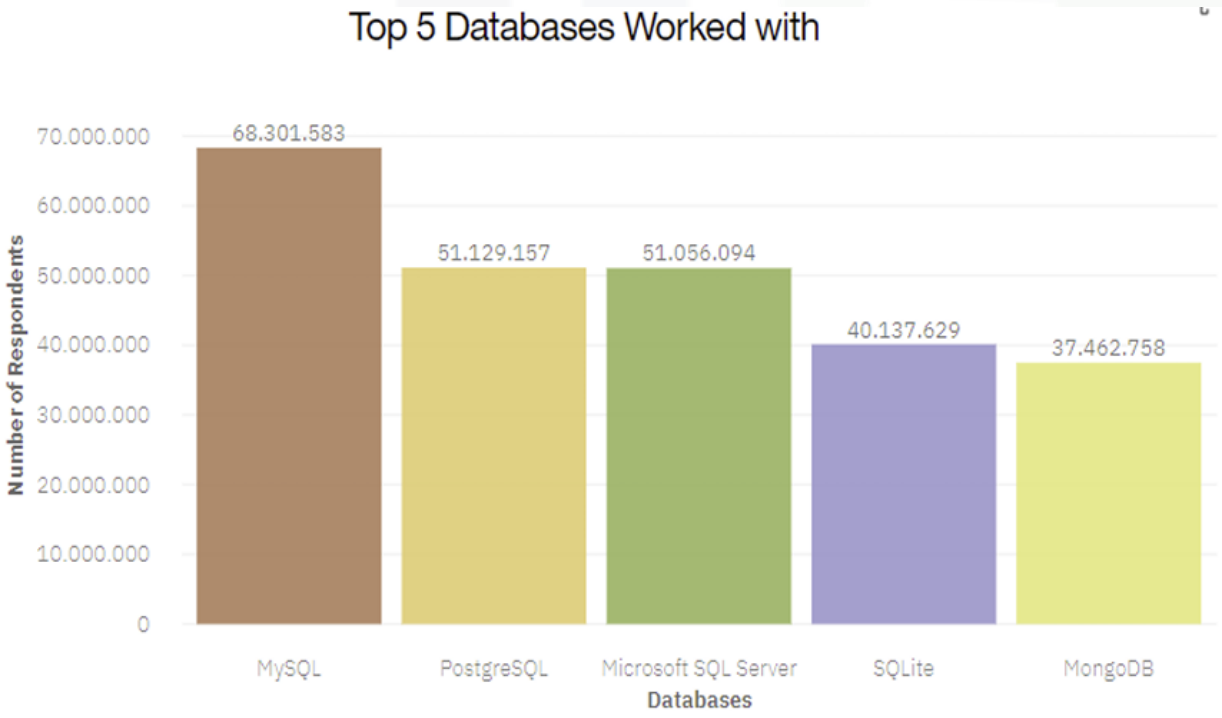
- JavaScript seems to keep as leading language.
- Python fastest-growing.
  - More demand than SQL next year
- Great interest in TypeScript

Implications

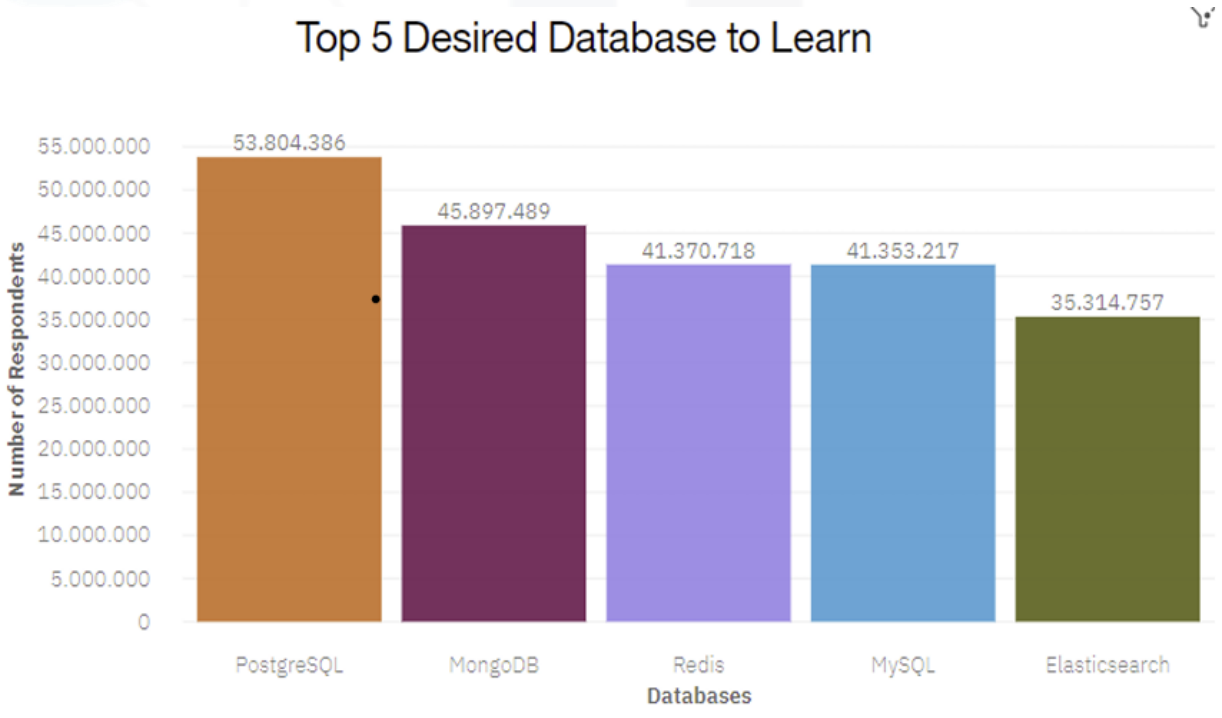
- Python is getting more attention
- Possible developers migration from JavaScript to TypeScript.
- SQL is most relevant lanugage and will be used more and more industry professionals

DATABASE TRENDS

Current Year



Next Year



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SKILLS NETWORK

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL as most used database
- Lack of interest in Microsoft SQL Server and SQLite
- Increasing interest in PostgreSQL and MongoDB.
- New Tools are Redis and Elasticsense

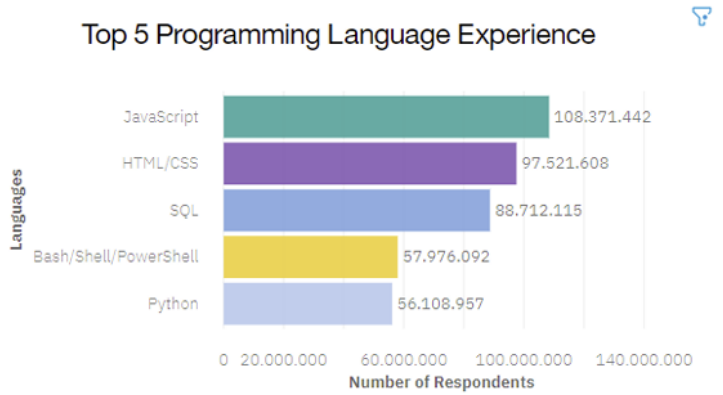
Implications

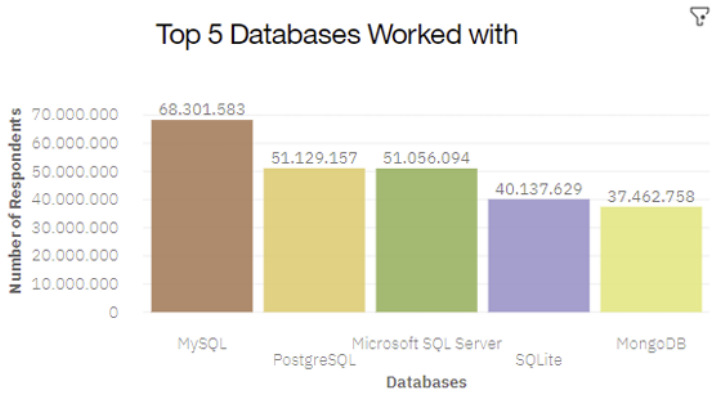
- SQL is still a top tool
- Microsoft SQL Server and SQLite losing ground in the market.
- PostgreSQL and MongoDB establishment in the market
- Open source DBs are on demand

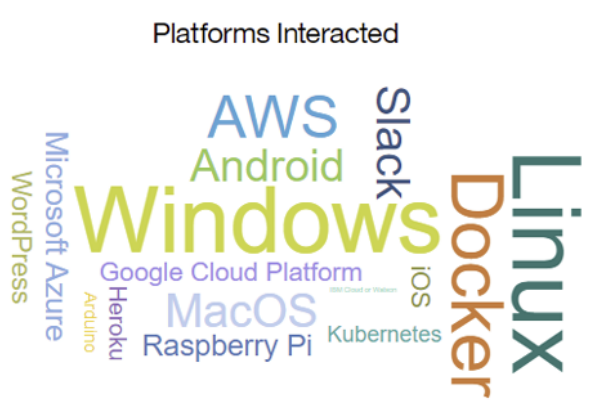
DASHBOARD

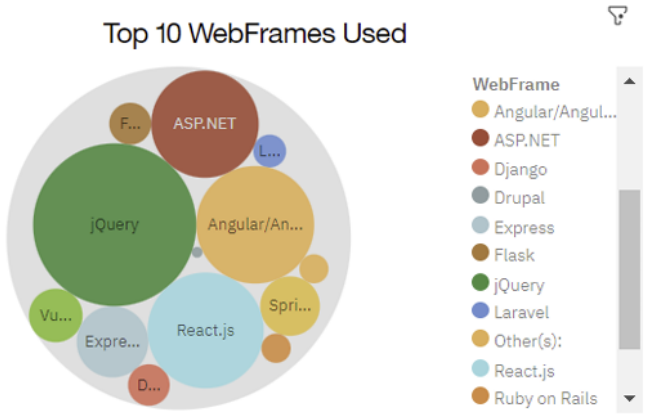
https://github.com/fahadmhd/IBM-Data-Analyst-Capstone-Project/blob/main/7-Dashboard-with-Cognos-Dashboard-Embedded-(CDE).pdf

DASHBOARD TAB 1

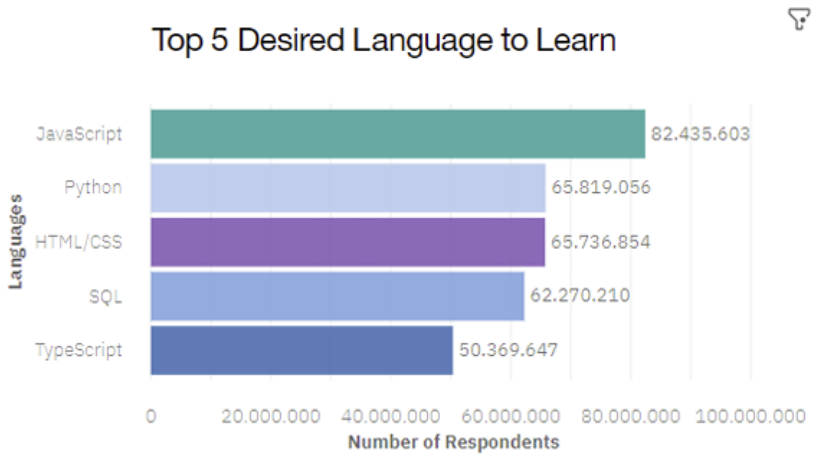


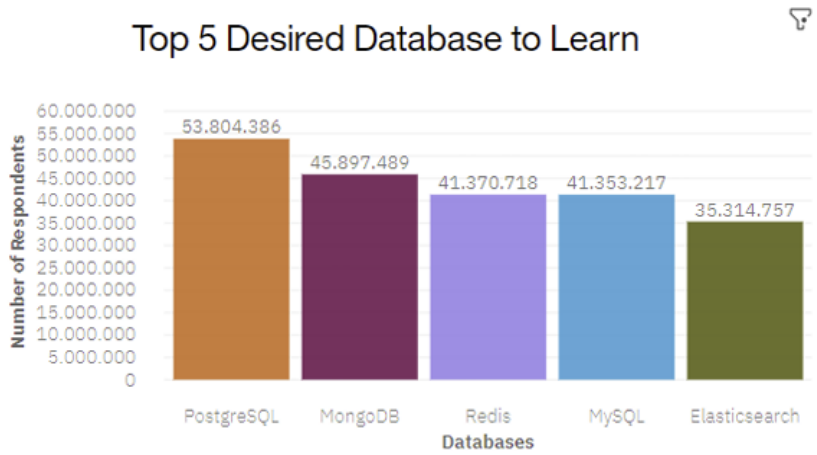


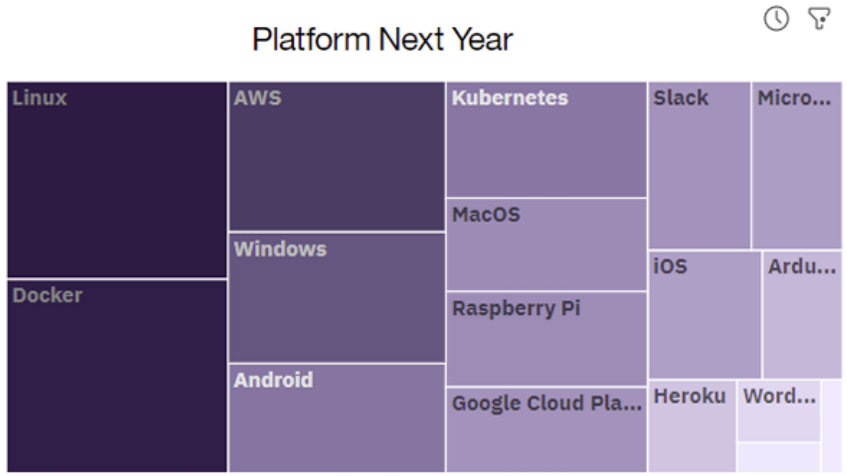


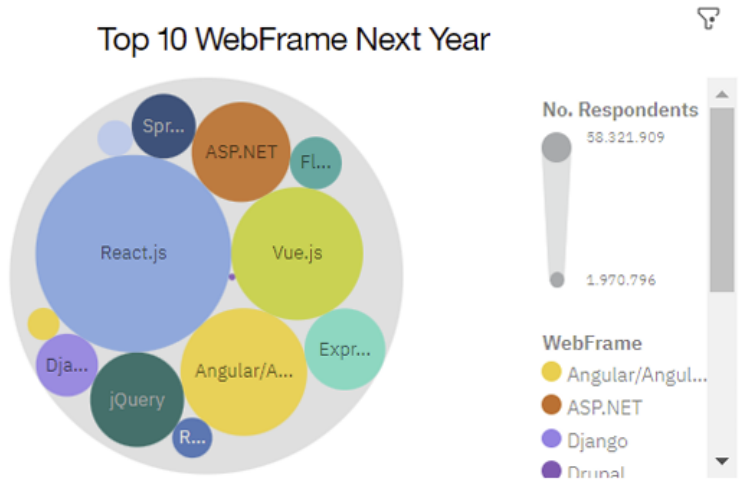


DASHBOARD TAB 2

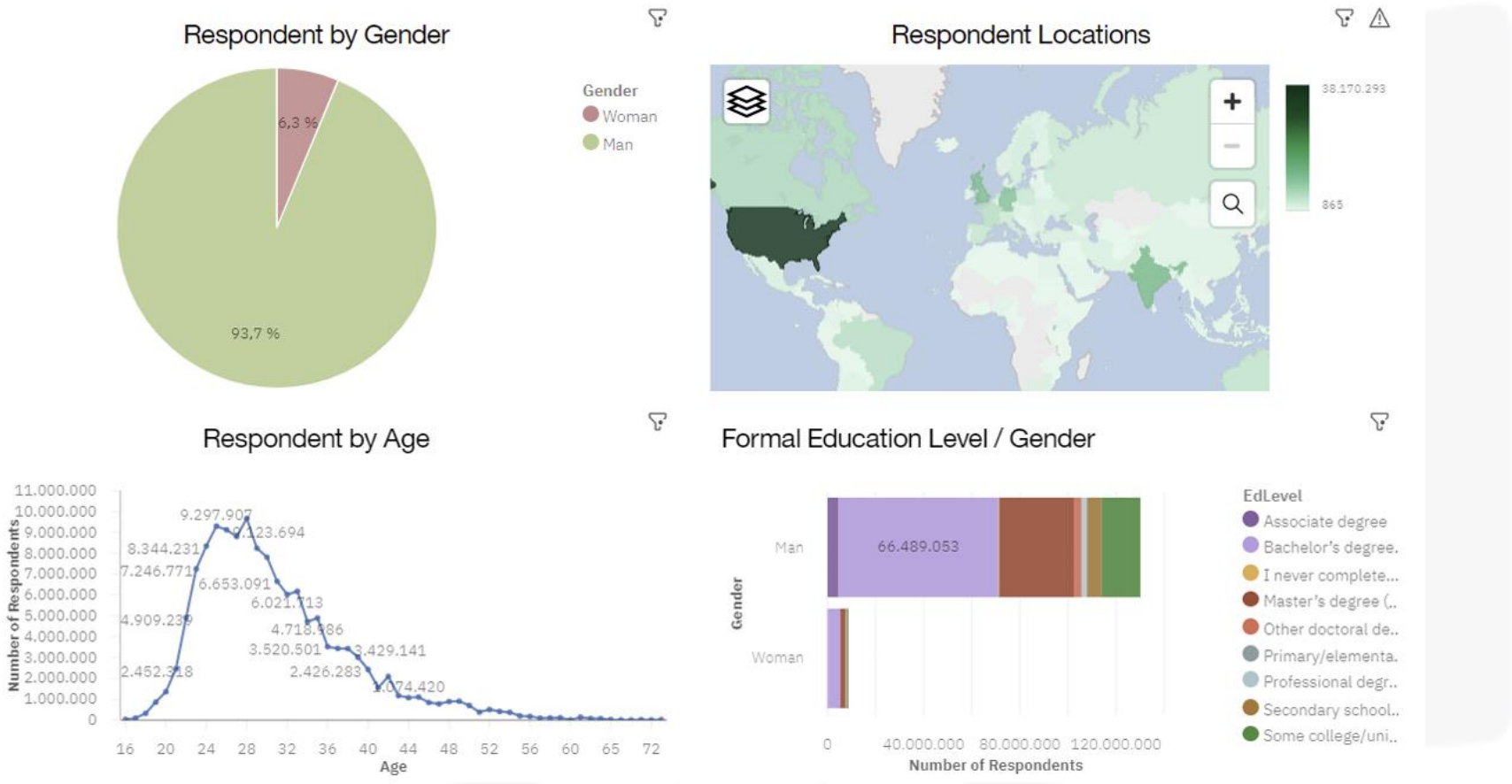








DASHBOARD TAB 3



DISCUSSION

- How do we recover the gender gap in the technology sector ?
- Education just uptill Bachelors is ok or should we go beyond; MS/PhD?
- How to promote education and skills in lesser developed regions ?
- What about future trends, how to cope with them ?

OVERALL FINDINGS & IMPLICATIONS

Findings

- Education level in the IT field is just Bachelors
- Youngesters with age lesser than 40 are working in IT fields
- JavaScript widely used and TypeScript getting popular.
- Over 90% young male developers.
- Developers mostly located in developed countries.

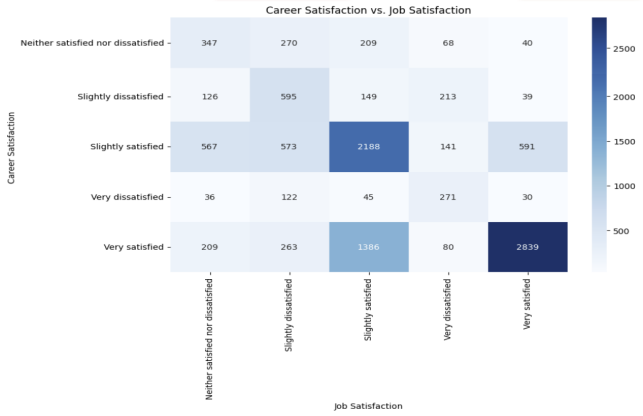
Implications

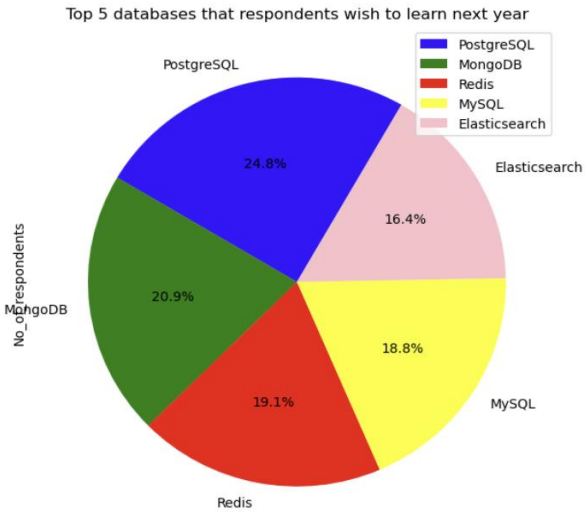
- With SQL, NoSQL should also be focused and adopted
- Web development is still on demand
- JavaScript and TypeScript web frames gaining followers.
- Global polarization of developers location and gender.
- Young developers without postgrad studies on its majority.
- Less developed countries need more traning and education programes

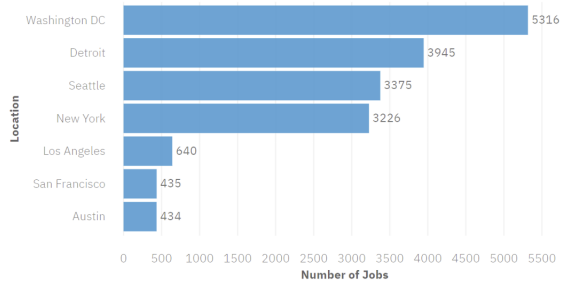
CONCLUSION

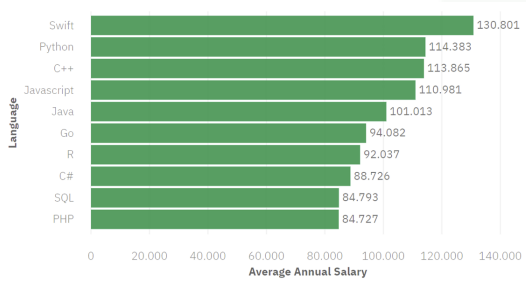
- Trends and technology is keep on changing, one must stay uptodate
- IT jobs are common in young guys with only bachelor education , more education can be achieved to go for research oriented jobs
- Less developed countries should not be ignored, more training should be promoted

APPENDIX

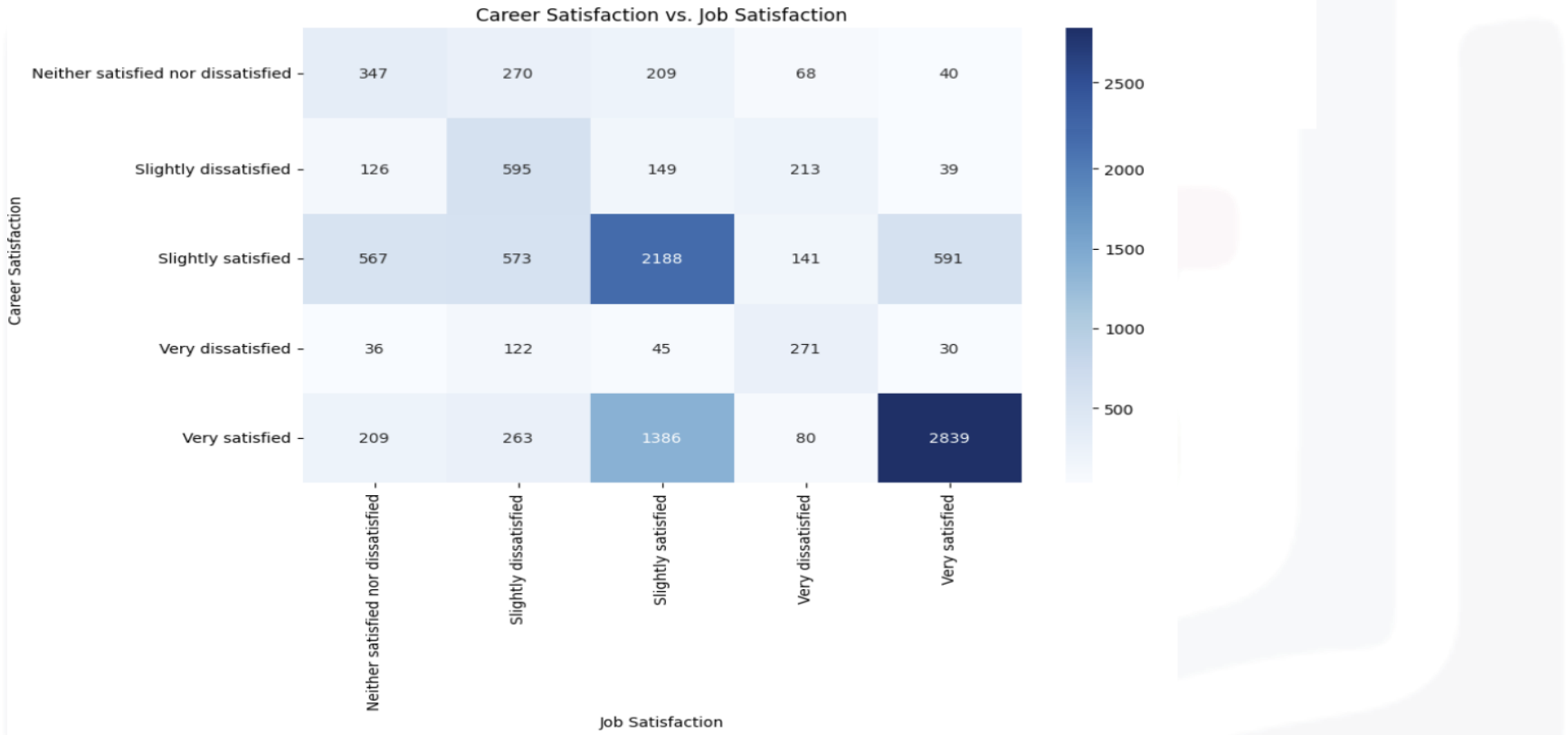

Career Satisfaction vs. Job Satisfaction
Neither satisfied nor dissatisfied
Slightly dissatisfied
Slightly satisfied
Very dissatisfied
Very satisfied
347 270 209 68 40
126 595 149 213 39
567 573 2188 141 591
36 122 45 271 30
209 263 1386 80 2839
Career Satisfaction
Job Satisfaction
2500
2000
1500
1000
500


Top 5 databases that respondents wish to learn next year
PostgreSQL
MongoDB
Redis
MySQL
Elasticsearch
24.8%
16.4%
20.9%
18.8%
19.1%
No. of respondents

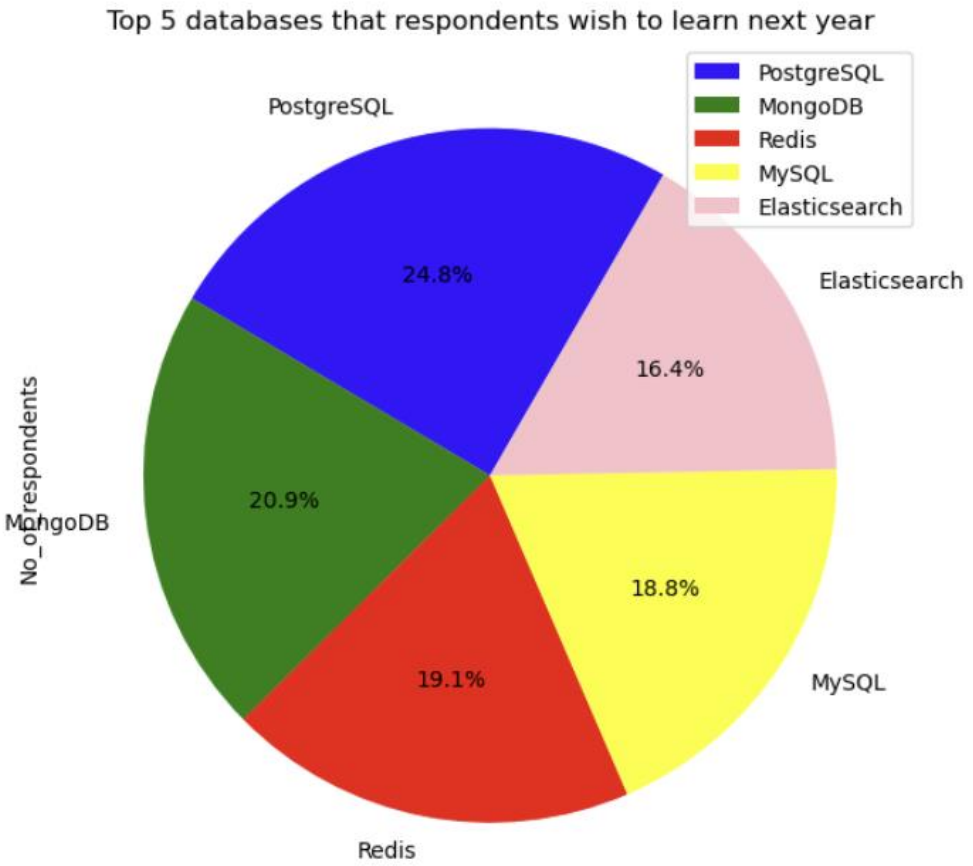

Washington DC 5316
Detroit 3945
Seattle 3375
New York 3226
Los Angeles 640
San Francisco 435
Austin 434
Location
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500
Number of Jobs


Swift 130.801
Python 114.383
C++ 113.865
Javascript 110.981
Java 101.013
Go 94.082
R 92.037
C# 88.726
SQL 84.793
PHP 84.727
Language
0 20.000 40.000 60.000 80.000 100.000 120.000 140.000
Average Annual Salary

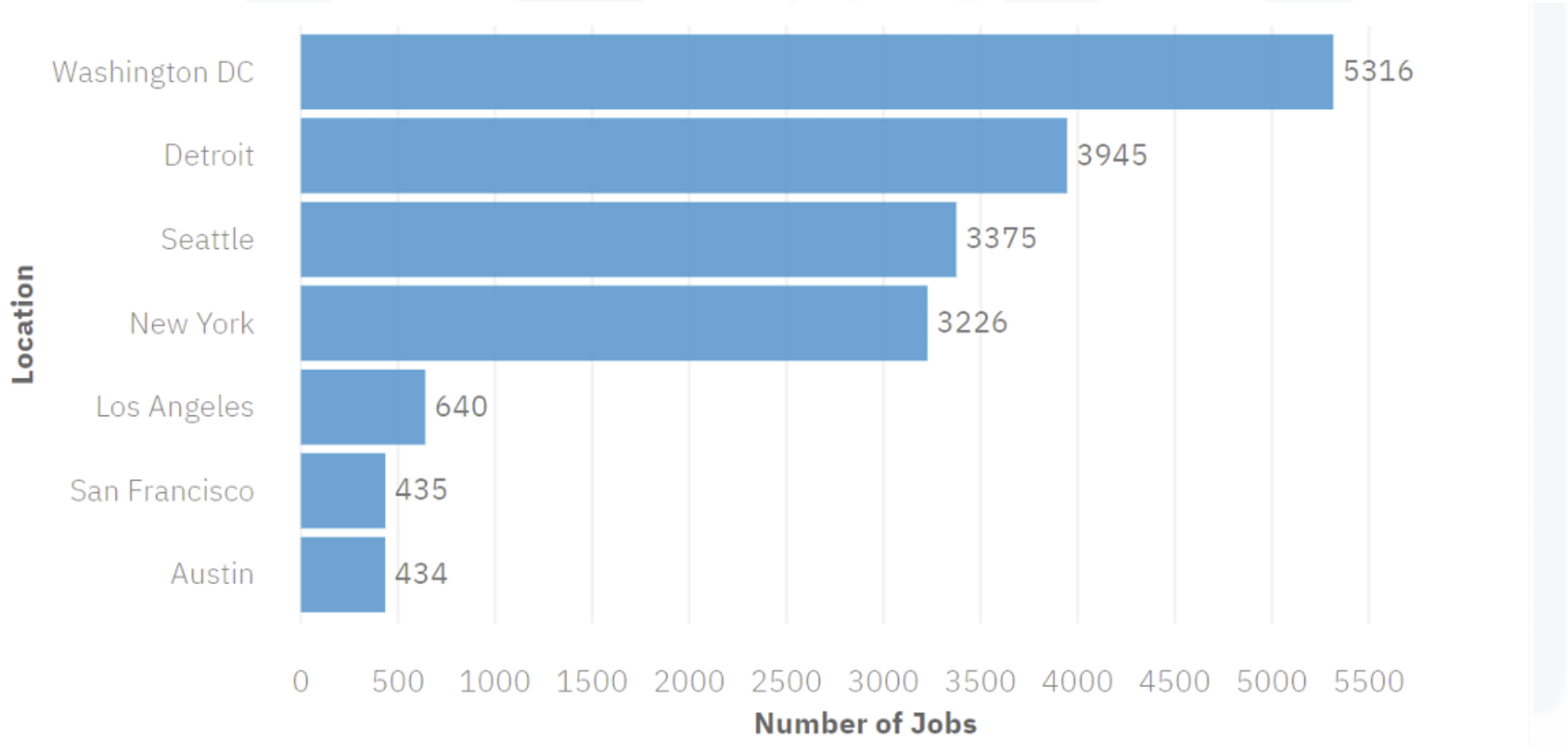
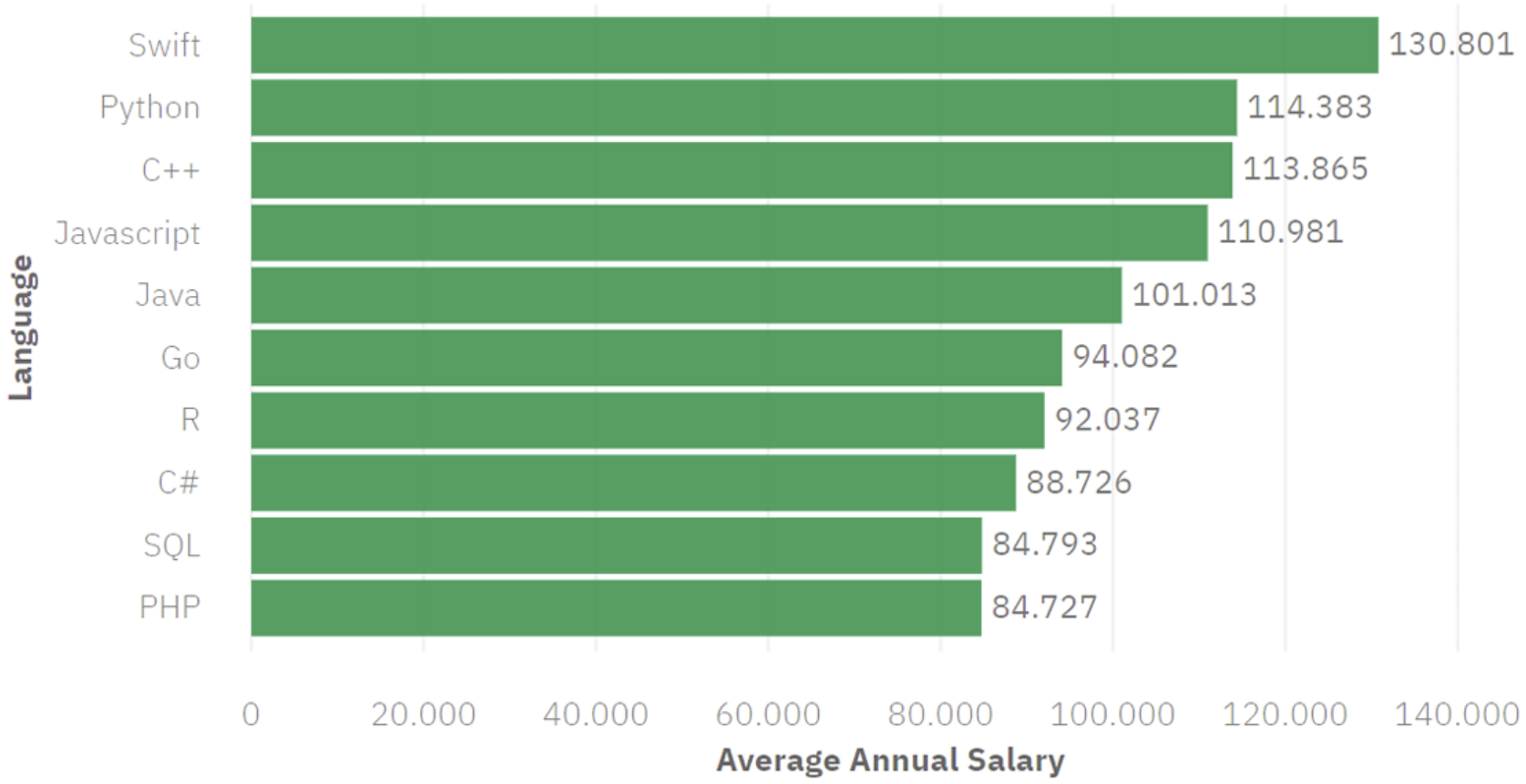
Distribution of Respondents by Career Satisfaction and Job Satisfaction



Top 5 Databases



JOB POSTINGS



POPULAR LANGUAGES