FUTURE SKILLS FORECAST

Joseph Robinson

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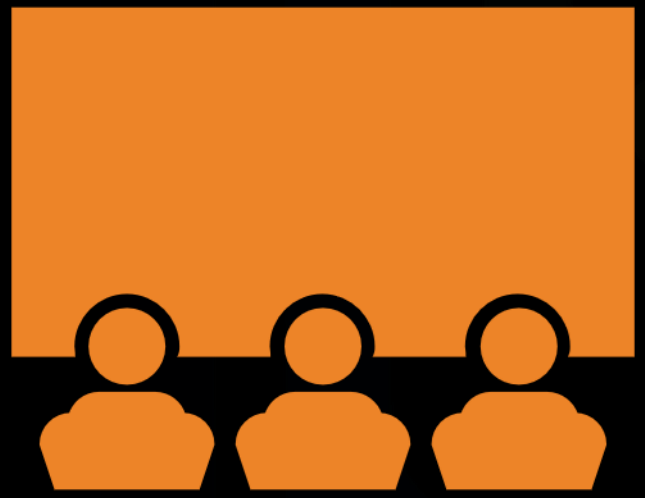
SKILLS NETWORK

OUTLINE



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

EXECUTIVE SUMMARY

- Business task:
  - Identify future skill requirements
- Future In-Demand Skills:
  - Top 3 In-Demand Programming Languages:
    - JavaScript, HTML/CSS, Python
  - Top 3 In-Demand Databases:
    - PostgreSQL, MongoDB, Redis
- Manage Talent & Incentivize Learning:
  - Imperative to double-down on current JavaScript/HTML requirements
  - Incentivize Python learning
  - Double-down on foundational SQL knowledge to mitigate knowledge gaps between different Databases

INTRODUCTION

- Problem Statement:
  - Identify trends for in-demand skills, such as programming languages, databases, and popular Integrated Development Environments (IDEs).
- Guiding Questions:
  - What are the top programming languages in demand?
  - What are the top database skills in demand?
  - What are the popular IDEs?
- Conduct an Exploratory Data Analysis using:
  - Relevant job postings
  - Average Annual Salary reports
  - 2019 Stack Overflow survey

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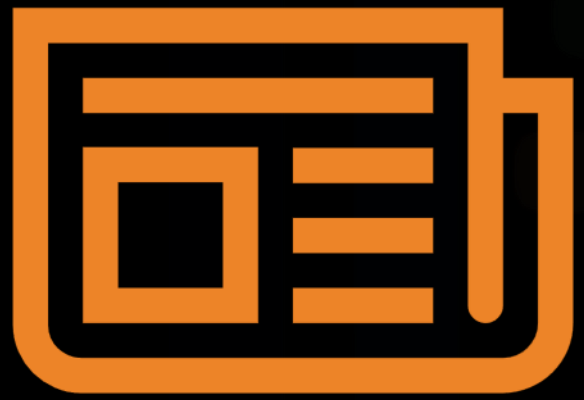
METHODOLOGY



- Data Sources:
  - Job postings were captured using Python via an API
  - Average Annual Salaries were captured via Web Scraping
  - 2019 Stack Overflow Survey is a public domain dataset
- Analysis Tools
  - Python for data collection, initial wrangling, cleaning, and normalization procedures.
  - SQL for querying the Stack Overflow Survey Database
  - Excel for cleaning and refining variables, pivot tables, and charts
  - IBM Cognos for Dashboarding
- Statistical Methods
  - Utilized Seaborn library to analyze scatterplots with correlation lines
  - Utilized Pandas library correlation function to confirm

ASSUMPTIONS & DISCLAIMERS

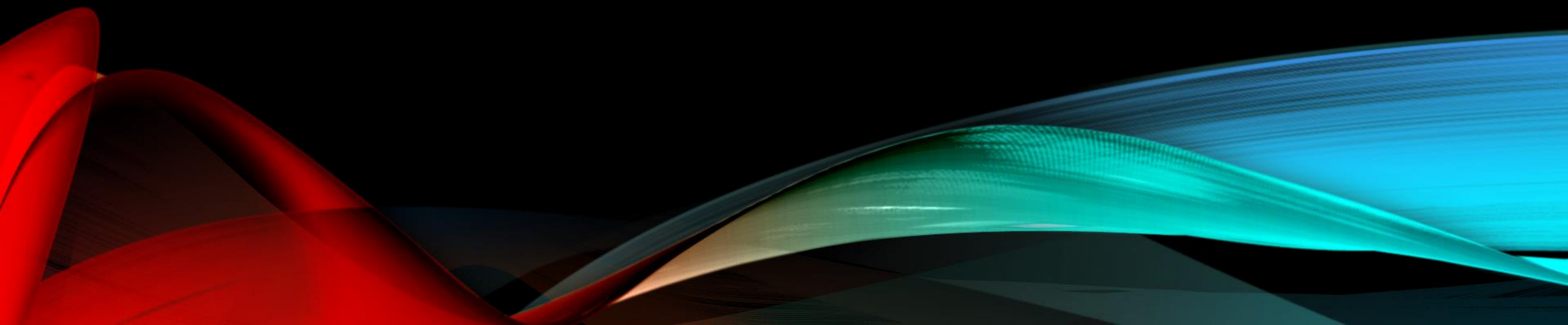
- Demographics
  - Gender— 92% of the respondents are male, which could skew results
  - Age— The age distribution is skewed right
    - Respondents ages 24-28 make up 32.4% of total records
  - Location— 27% of the respondents are from the US
  - Education— Majority of the respondents have a Master's Degree or higher

Based on the above demographics an implicit bias exists within the dataset

- More research will need to be done to apply these findings to a larger population
- Samples should include more women, and the data should also be more current.

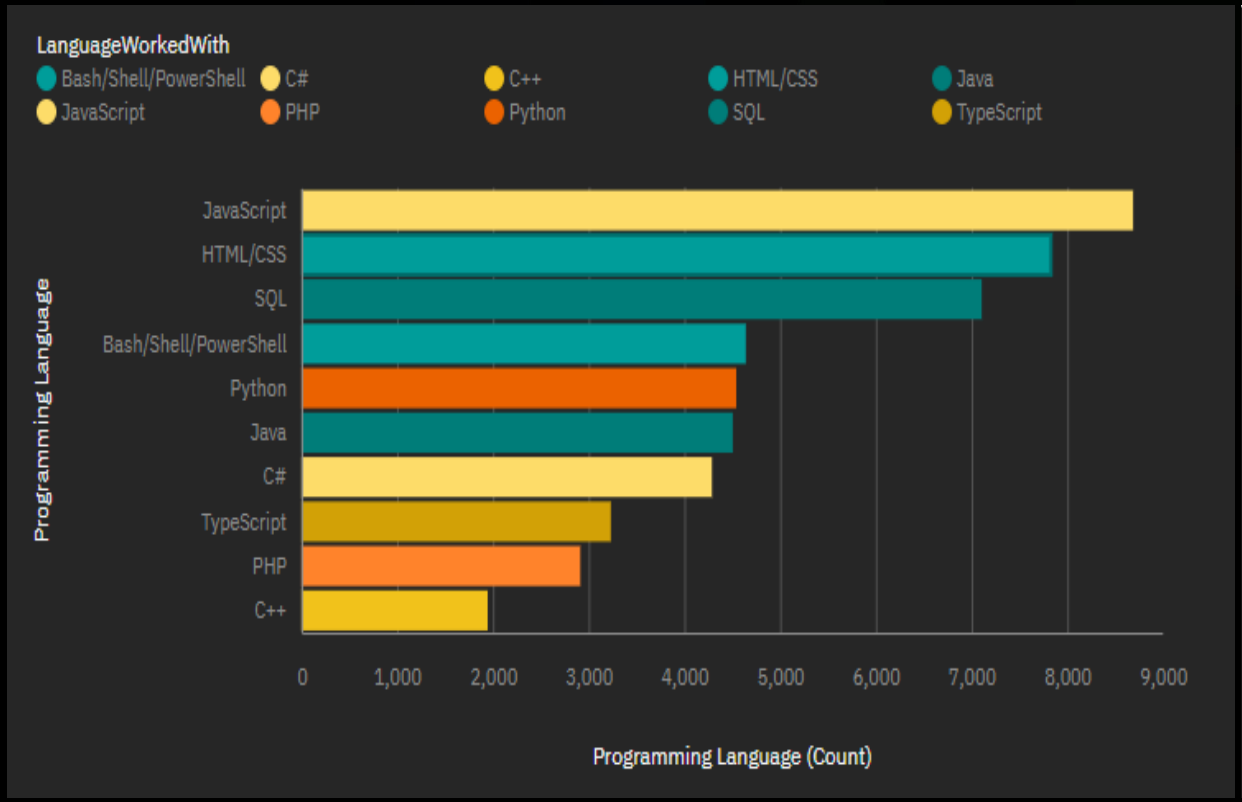
RESULTS

The following section will be broken down by Trends, Findings and Implications

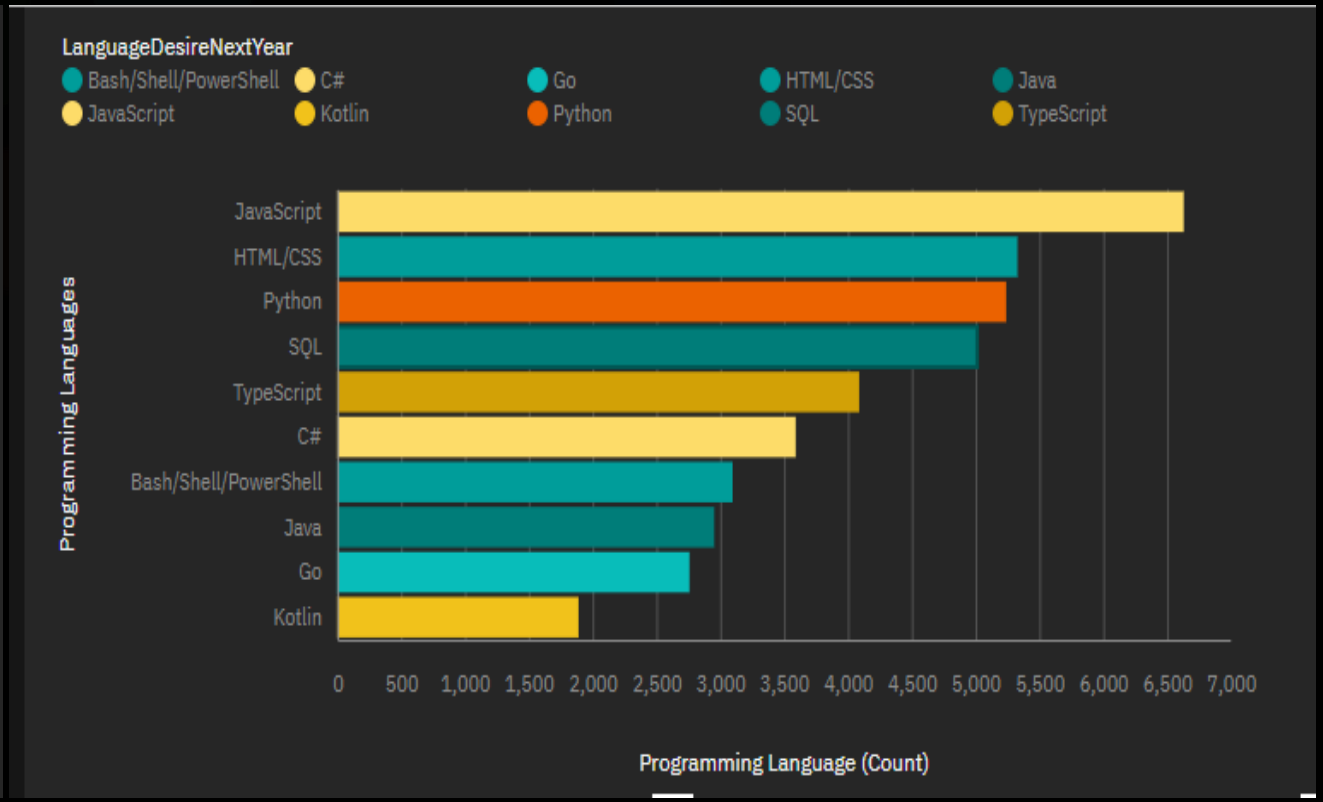


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

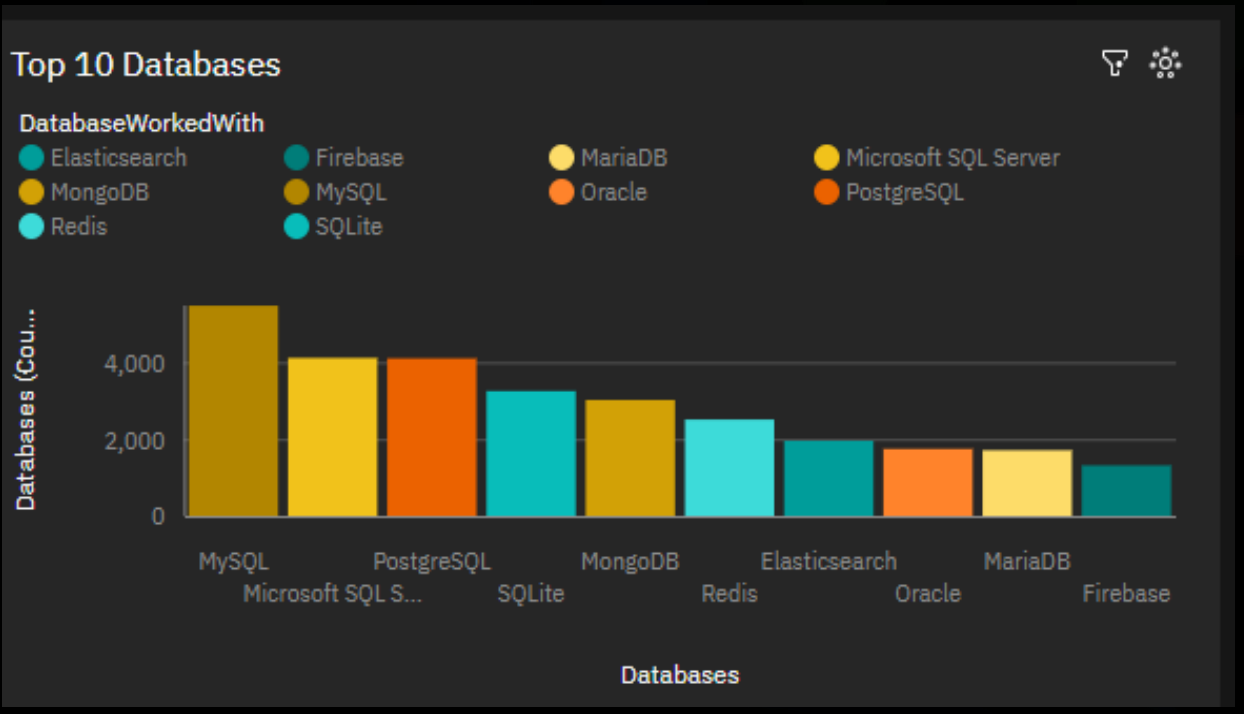
1. No changes for JavaScript & HTML/CSS
2. Python has become part of the Top 3
3. SQL is still a must have skill

Implications

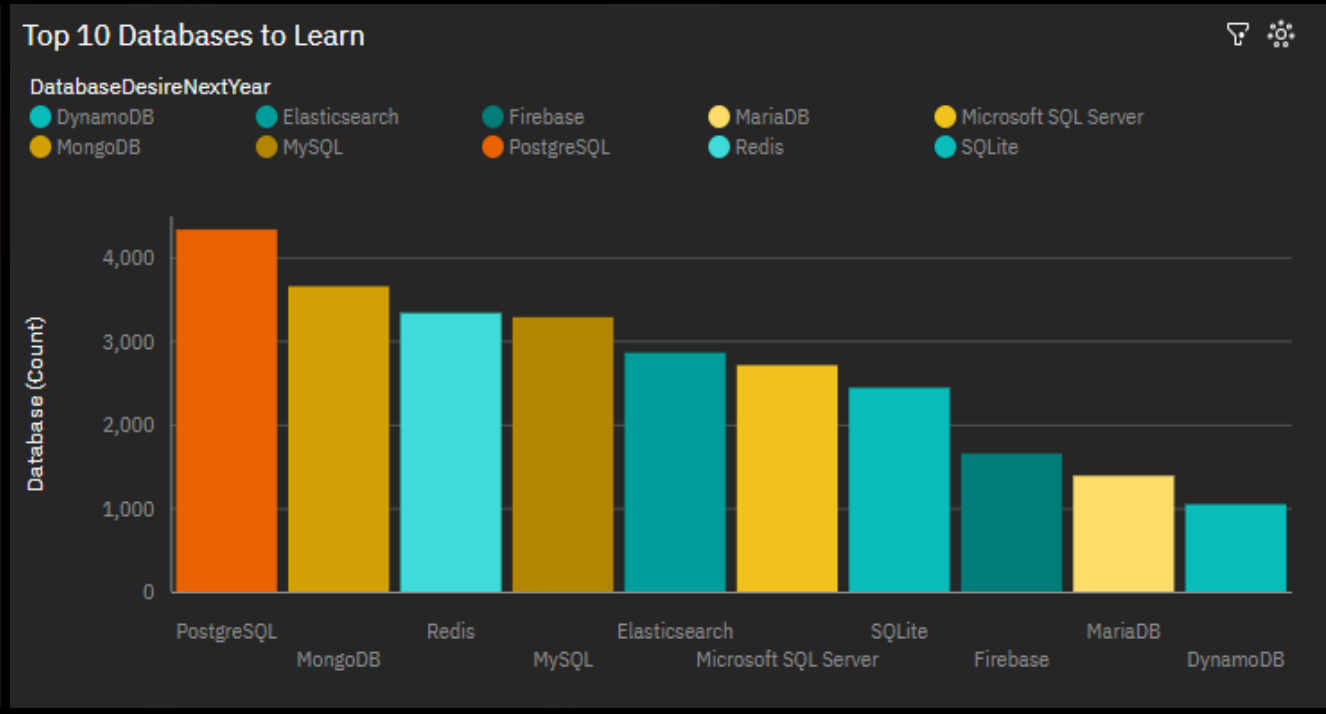
1. Double-down on JavaScript/HTML requirements
2. Incentivize Python learning, since demand is growing
3. Double-down on SQL requirements

DATABASE TRENDS

Current Year



Next Year



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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

1. PostgreSQL, MongoDB, & Redis are Top 3
2. MySQL is #4, Microsoft SQL Server is #5
3. Major shifts in Database (DB) usage

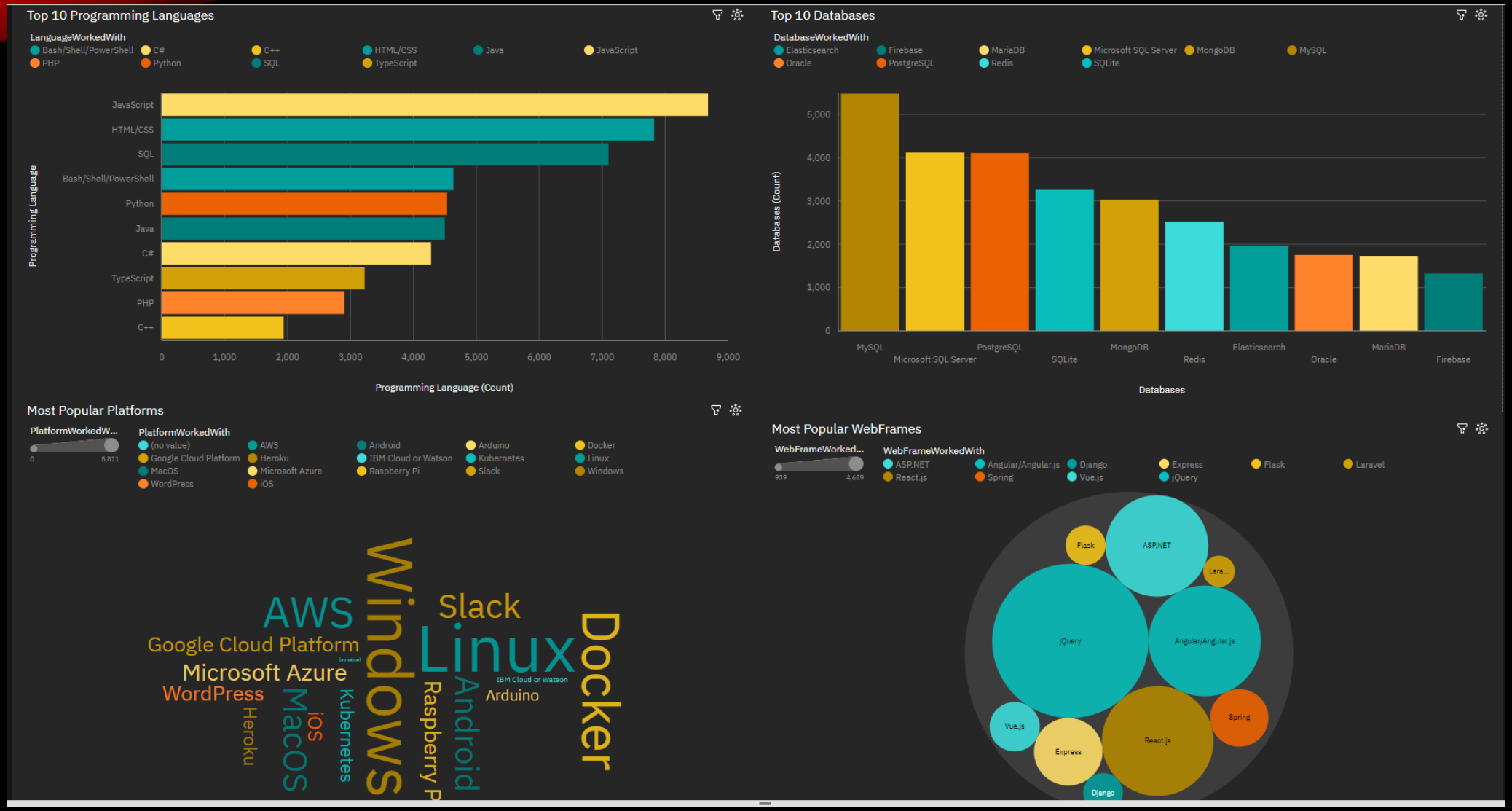
Implications

1. Incentivize learning Top 3 DBs
2. Top 5 DB knowledge should be encouraged
3. Having strong foundational SQL knowledge will mitigate DB shifts

DASHBOARD

Link to Dashboard

DASHBOARD CURRENT TRENDS



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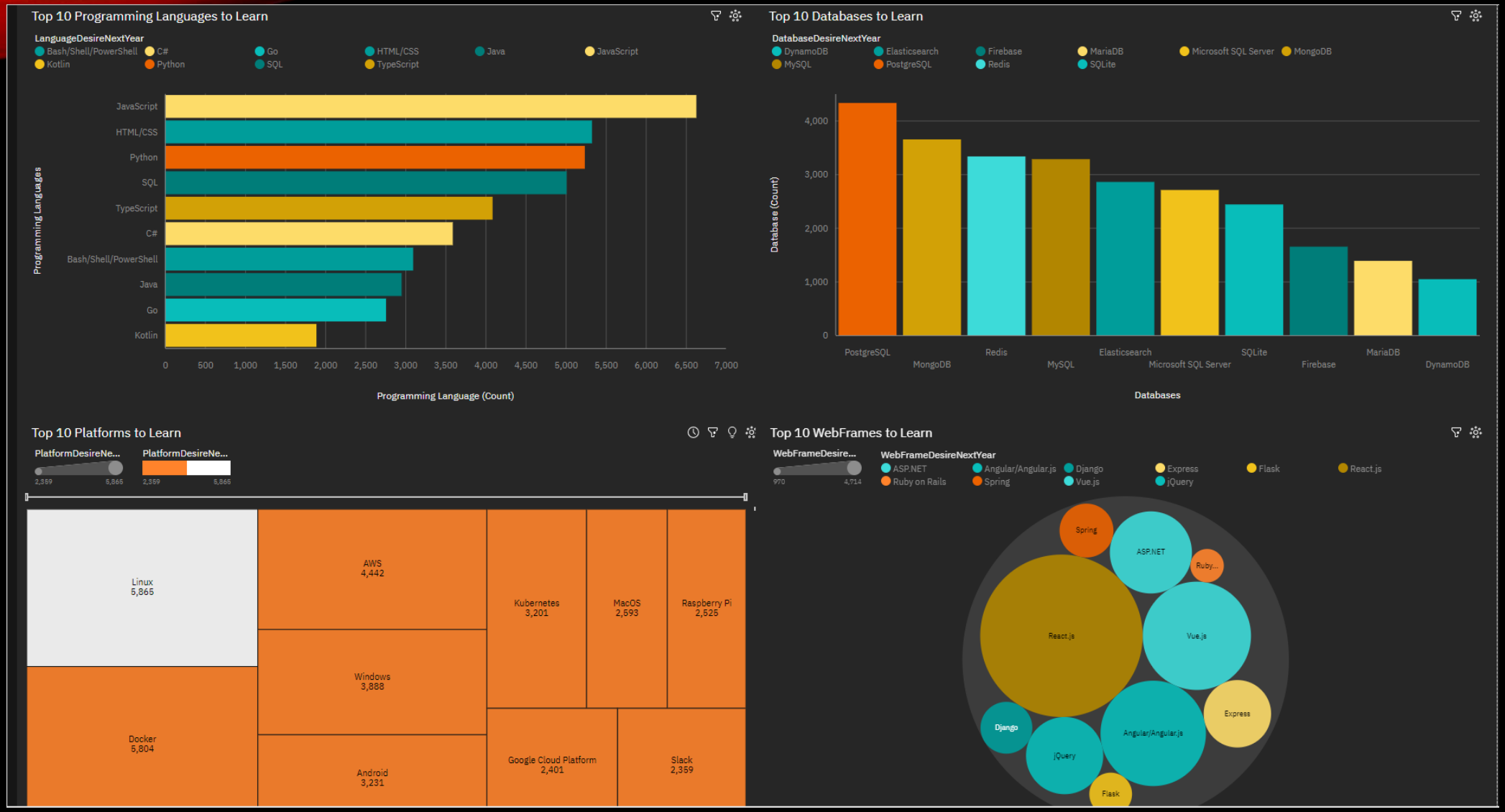
DASHBOARD FUTURE TRENDS



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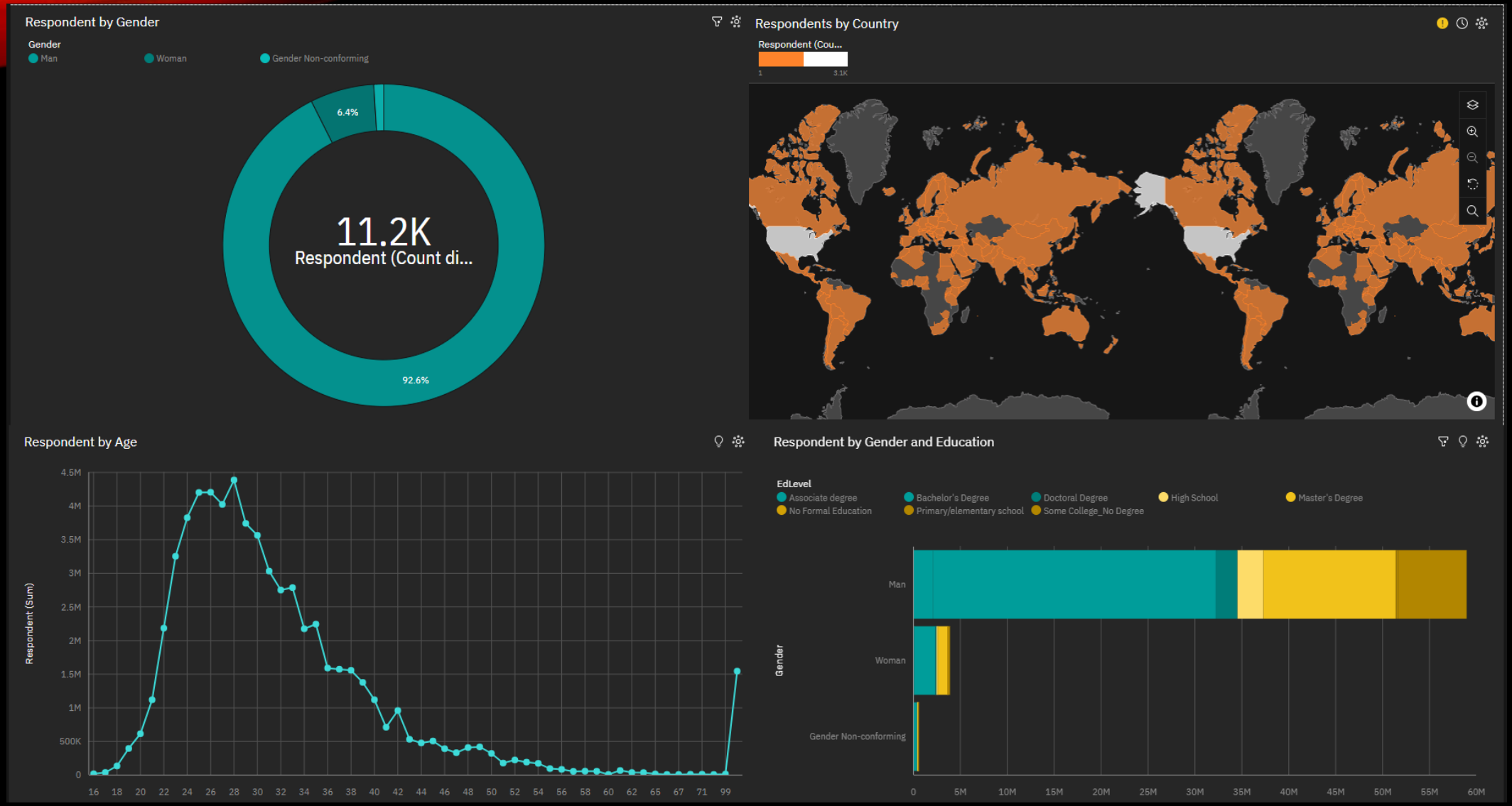
DASHBOARD DEMOGRAPHICS



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DISCUSSION

- Age as a variable, did not correlate strongly with any of the other variables
  - This is because this field is skills-based, more so than seniority-based
- This is why it is imperative that learning new skills be incentivized

OVERALL FINDINGS & IMPLICATIONS

Findings

1. Top 6 in-Demand skills
    - JavaScript
    - HTML/CSS
    - Python
    - PostgreSQL
    - MongoDB
    - Redis

2. SQL foundational knowledge is a necessary

Implications

1. The only two shifts in posture are Python and understanding the new DB landscape

2. New hires should have foundational knowledge of SQL, and Python

3. A training program needs to be developed to ensure current hires are up to speed.

CONCLUSION

- Future In-Demand Skills:
  - Top 3 In-Demand Programming Languages:
    - JavaScript, HTML/CSS, Python
  - Top 3 In-Demand Databases:
    - PostgreSQL, MongoDB, Redis

- Manage Talent & Incentivize Learning:
  - Imperative to double-down on current JavaScript/HTML requirements
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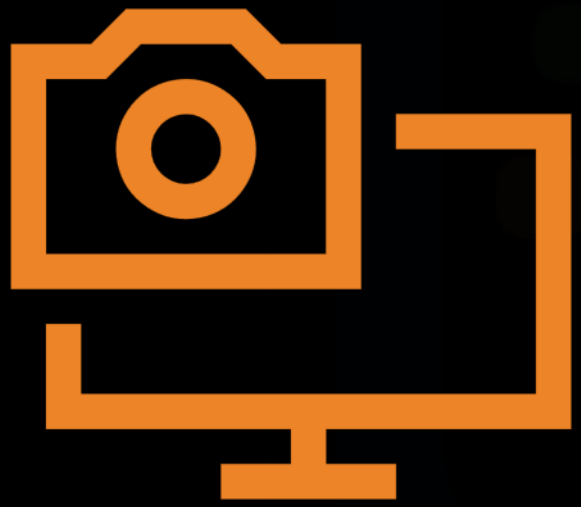
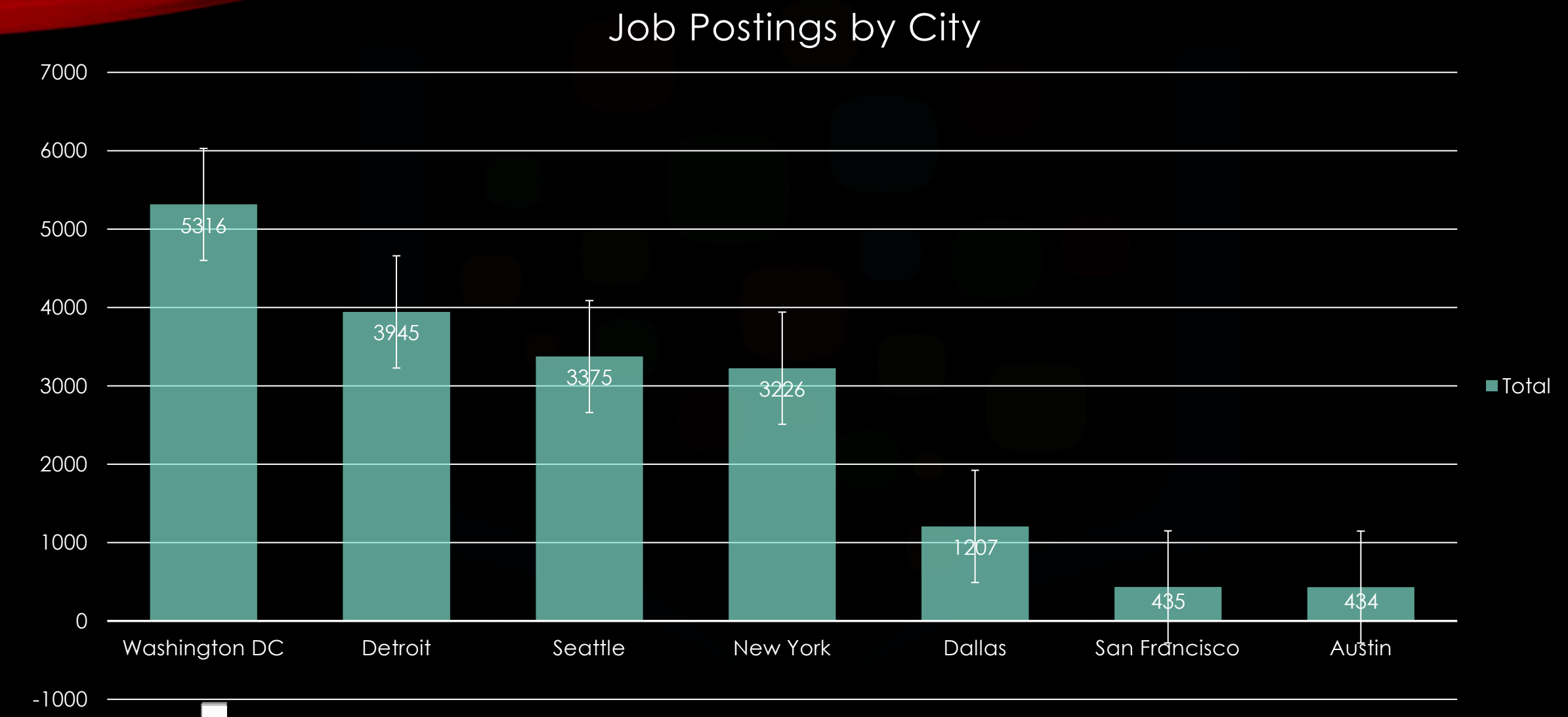
APPENDIX

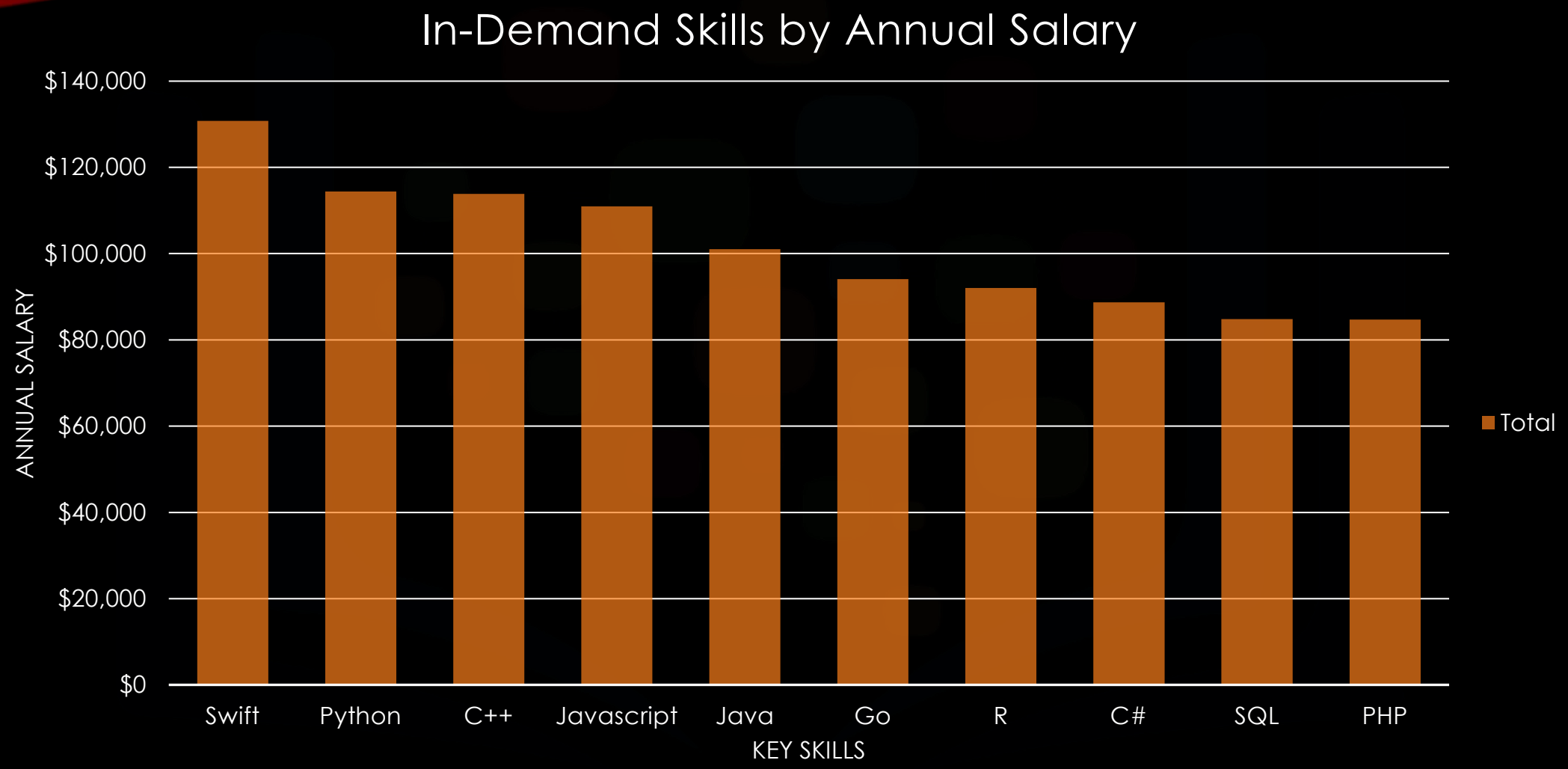


The following are additional charts

JOB POSTINGS



IN-DEMAND SKILLS BY SALARY



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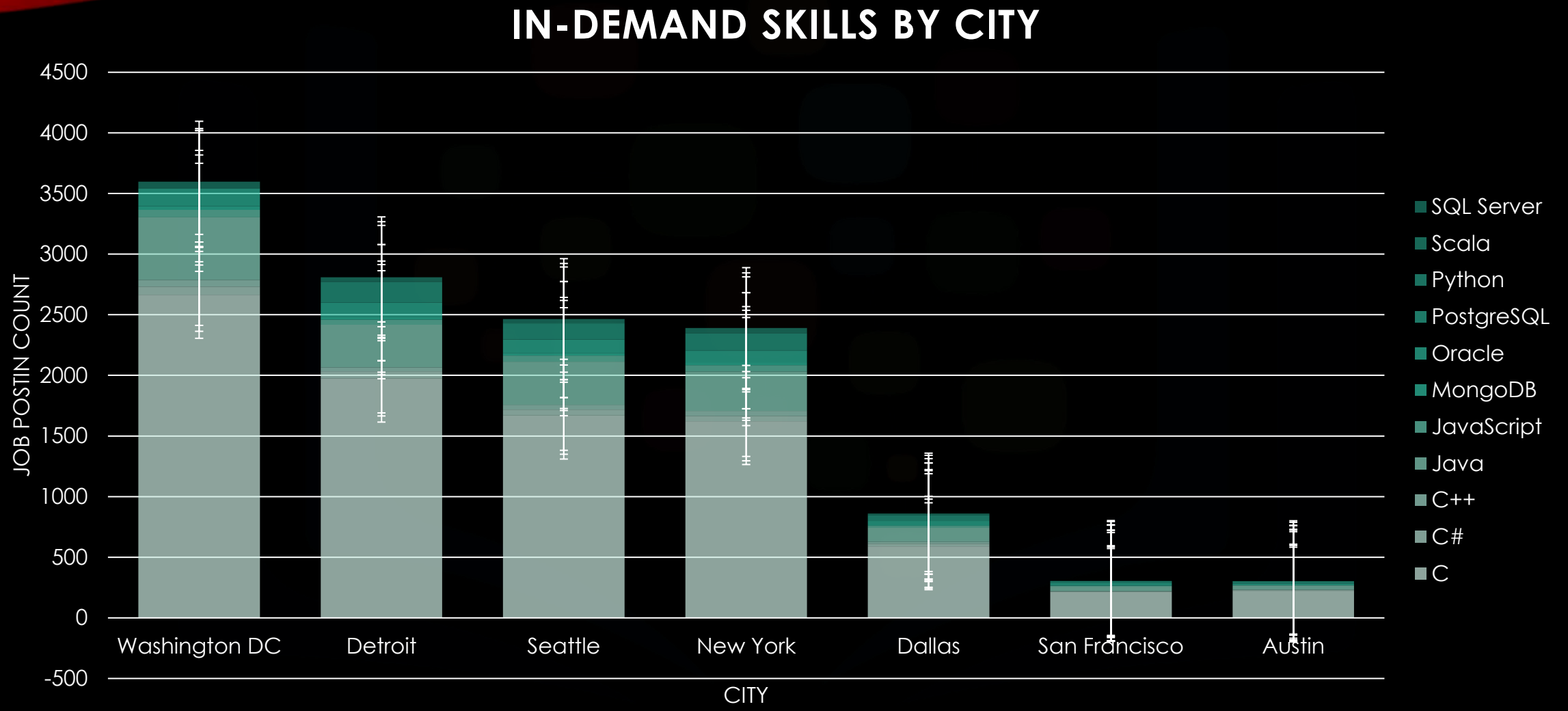
IN-DEMAND SKILLS BY CITY



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