TECHNOLOGY TREND ANALYSIS

Ioannis Stathakis

9/4/2023

IBM Developer

SKILLS NETWORK

OUTLINE

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

EXECUTIVE SUMMARY

- Current Technology Usage Trend
  - Language
  - Database
  - Platform
  - Web Frame
- Future Technology Usage Trend
  - Language
  - Database
  - Platform
  - Web Frame
- Demographics Survey
- Country/Gender Differences

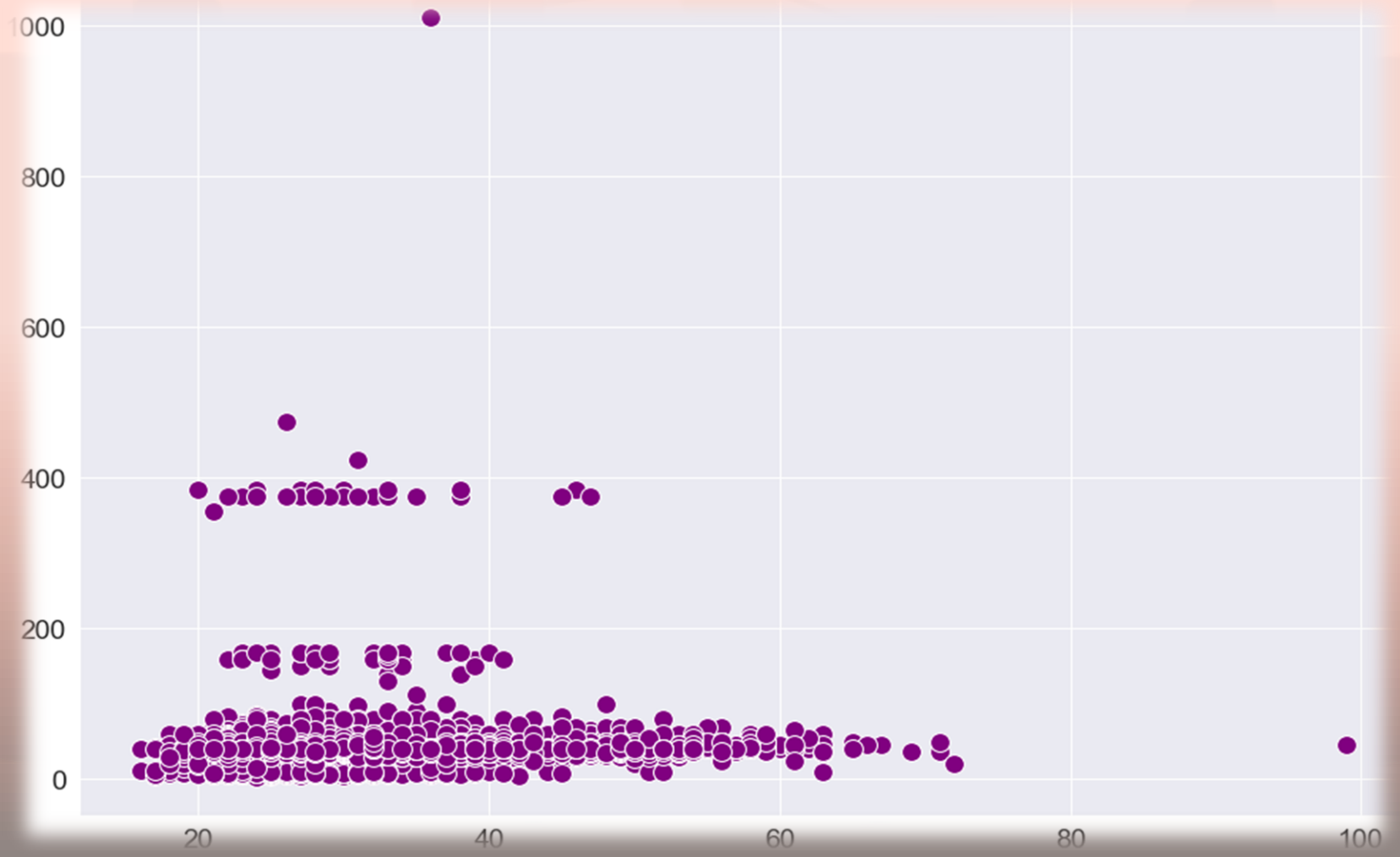
INTRODUCTION

- Technology Trend Analysis (software/web development)
- Analysis Objectives:
  - Identification of the top popular IDEs, programming languages, and database skills in demand
  - Identification of future trends and skill requirements
  - Identification of human resource industry demand
- Target Audience:
  - Programmers
  - IT Specialists
  - Computer Science professionals/students

METHODOLOGY

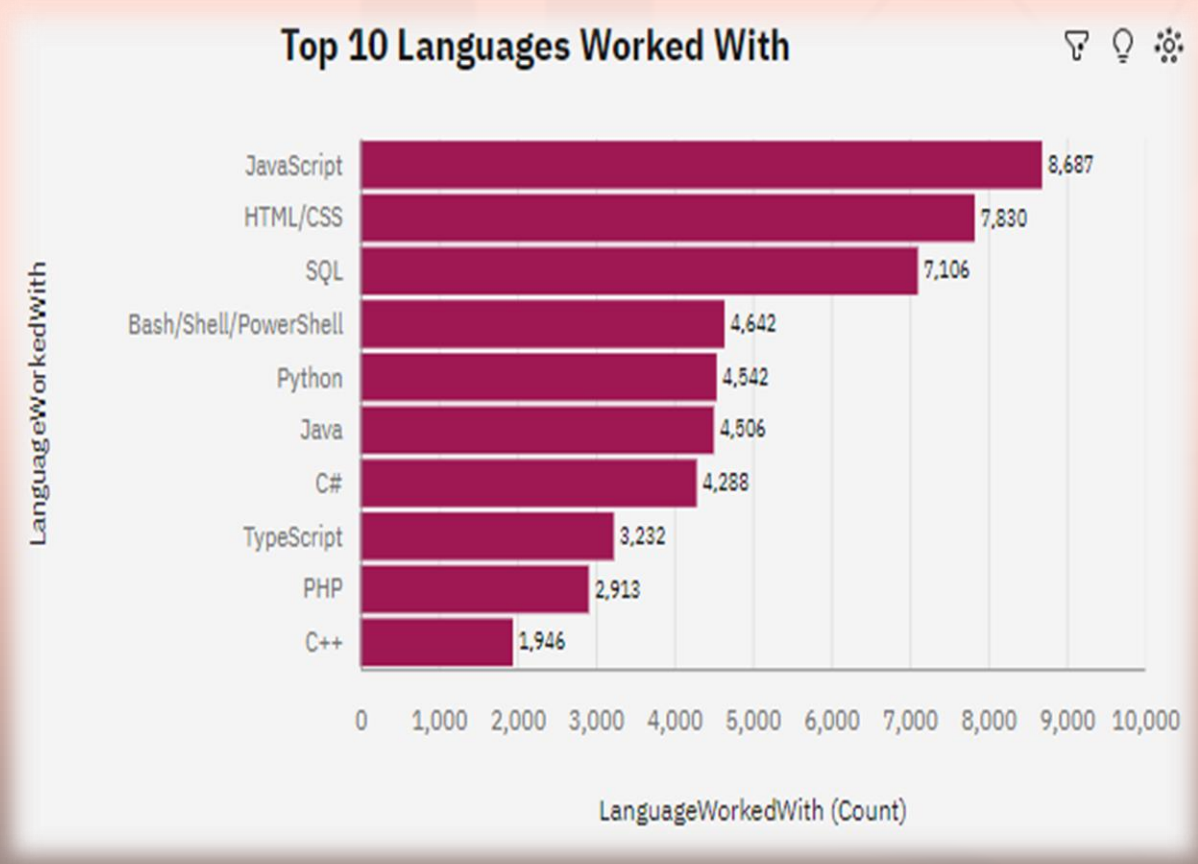
- Data Collection
  - Stack Overflow Developer Survey (2019)
  - GitHub Job Postings
  - Web Scraping/APIs
- Data Wrangling
- Exploratory Data Analysis
  - Data Distributions
  - Outliers
  - Correlations
- Data Visualizations
  - Highlighting distribution, relationships, comparisons
  - Dashboards

RESULTS

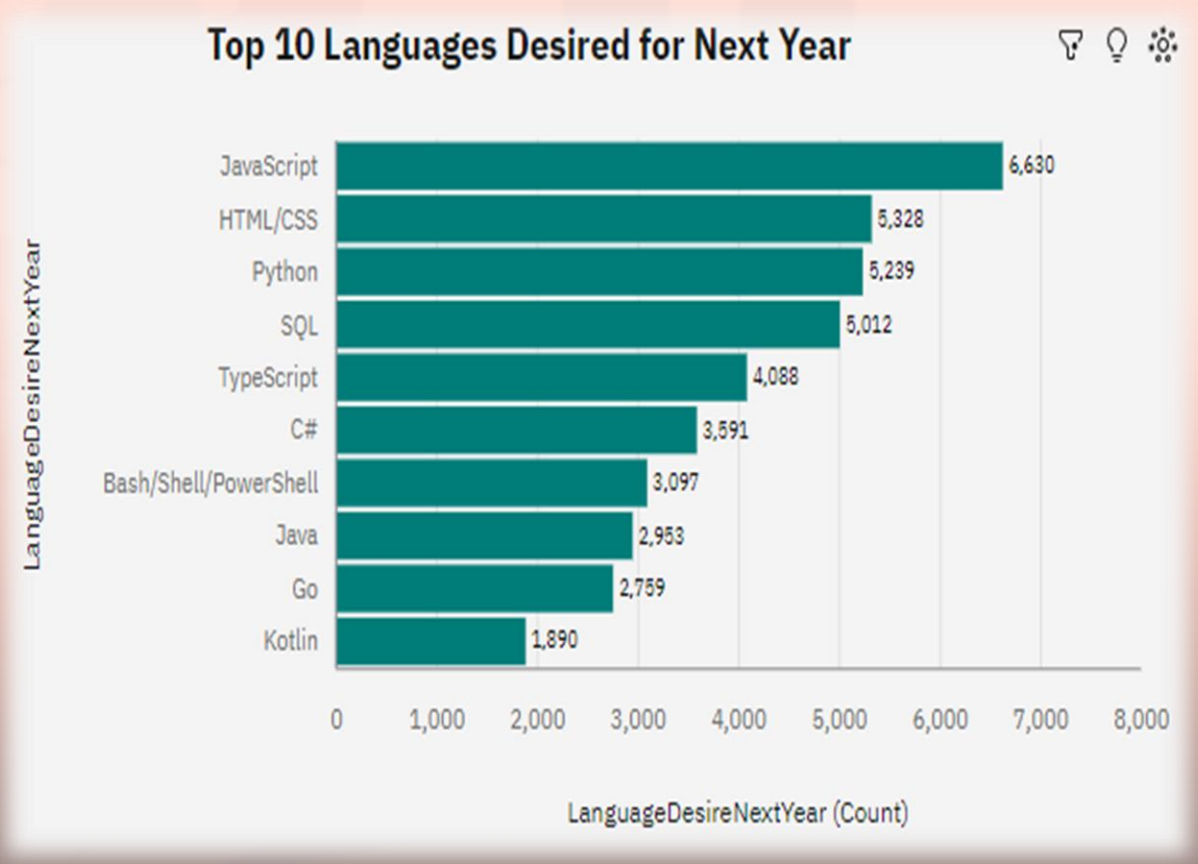


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



IBM Developer

SKILLS NETWORK

PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings:

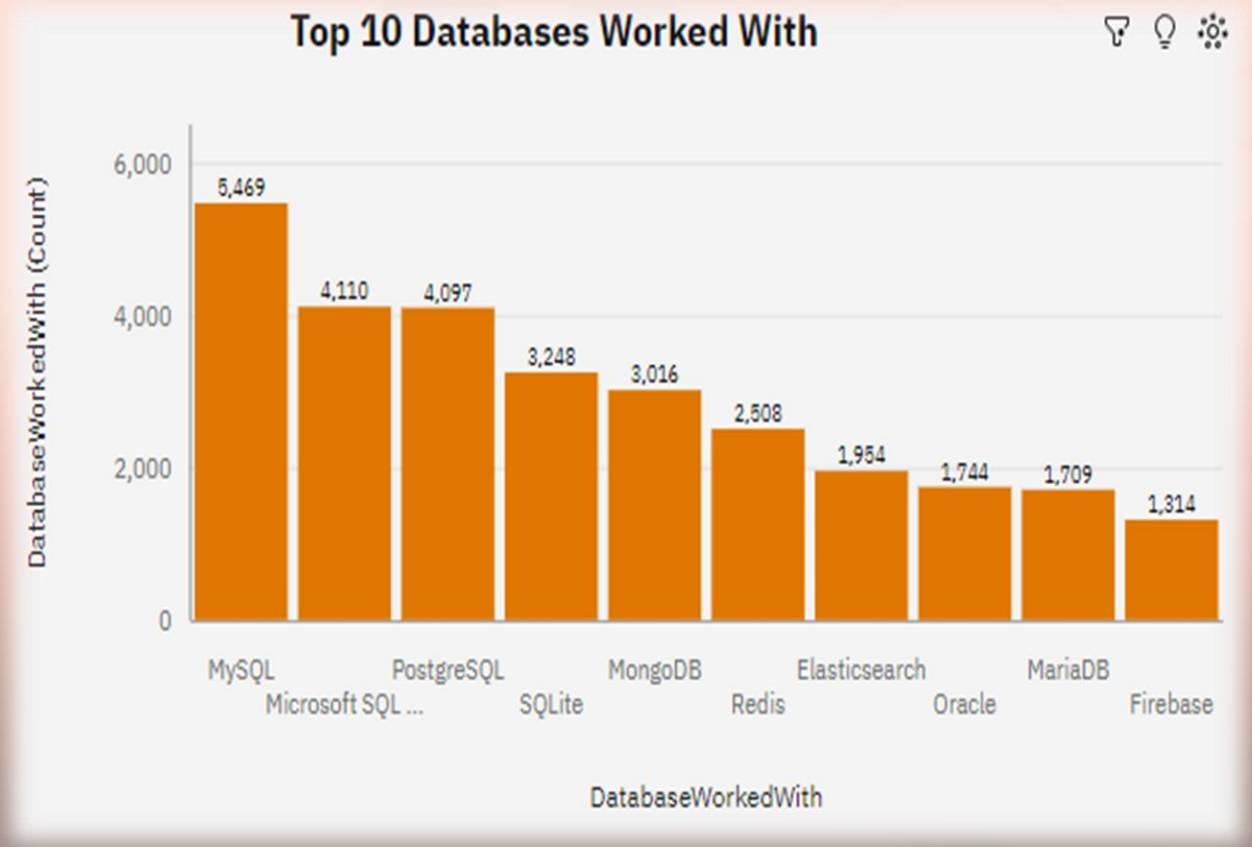
- JavaScript is top trending language worldwide
- Python and TypeScript becoming increasingly popular
- SQL remains in top 3 trend
- PHP and C++ seem to have sleightly decreasing popularity

Implications:

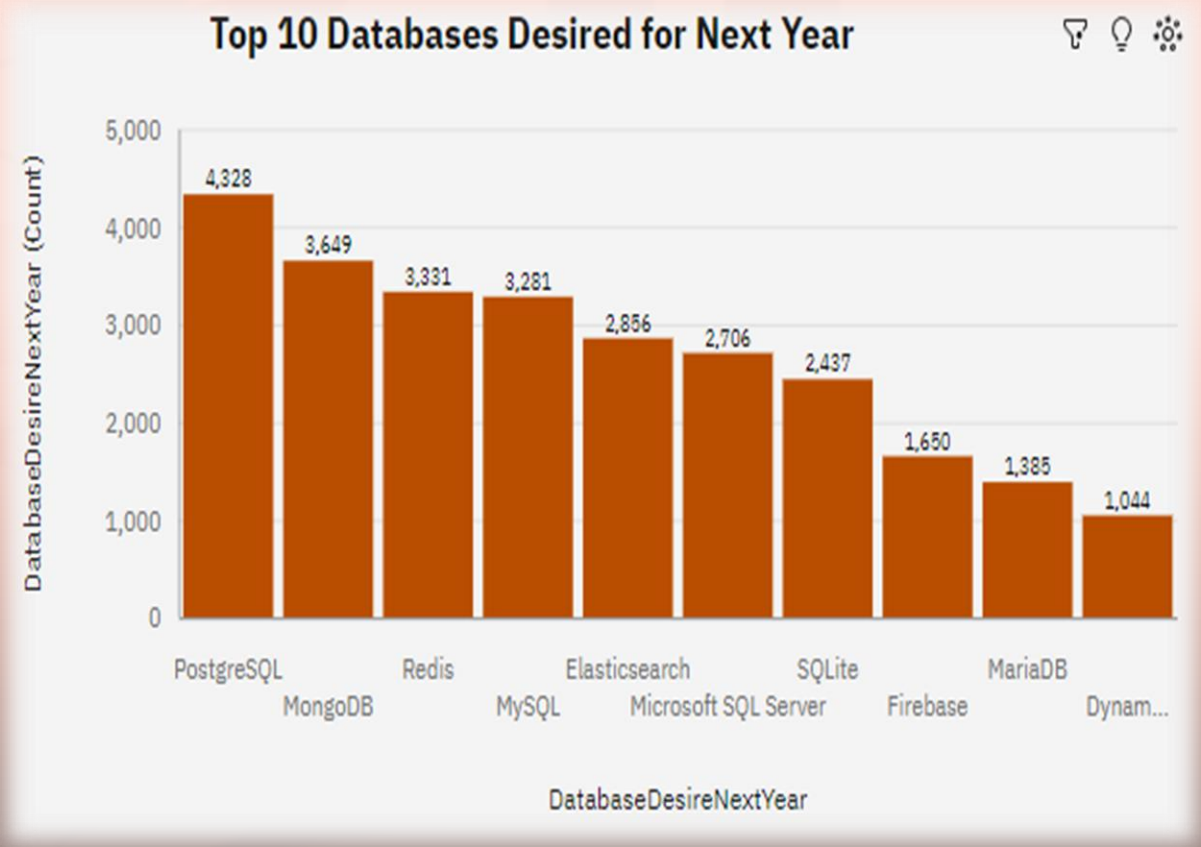
- JavaScript and TypeScript seem to be valuable assets for developers
- Python and SQL are two of the top trending languages

DATABASE TRENDS

Current Year



Next Year



IBM Developer

SKILLS NETWORK

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings:

- SQL is currently the most preferred database
- Microsoft SQL Server trending
- MongoDB is the most popular choice of NoSQL database, followed by Redis

Implications:

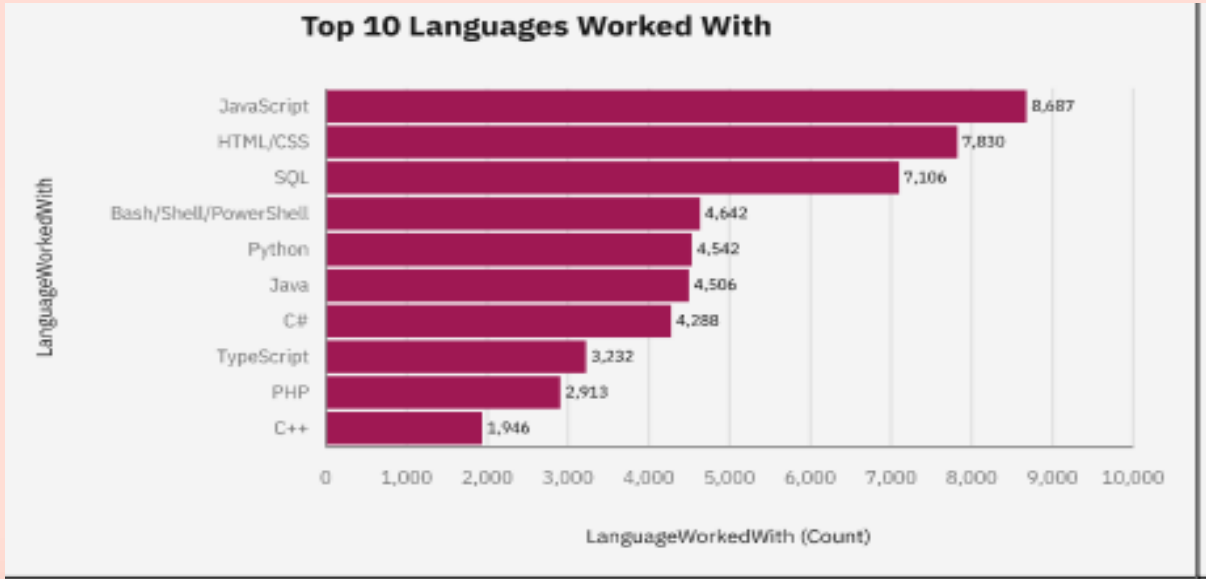
- MongoDB and PostgreSQL seem to be gaining a lot of ground
- MySQL and SQLite will likely see a decline in the foreseeable future
- Microsoft SQL Server also shows signs of decreasing popularity
- NoSQL databases seem to be establishing presence

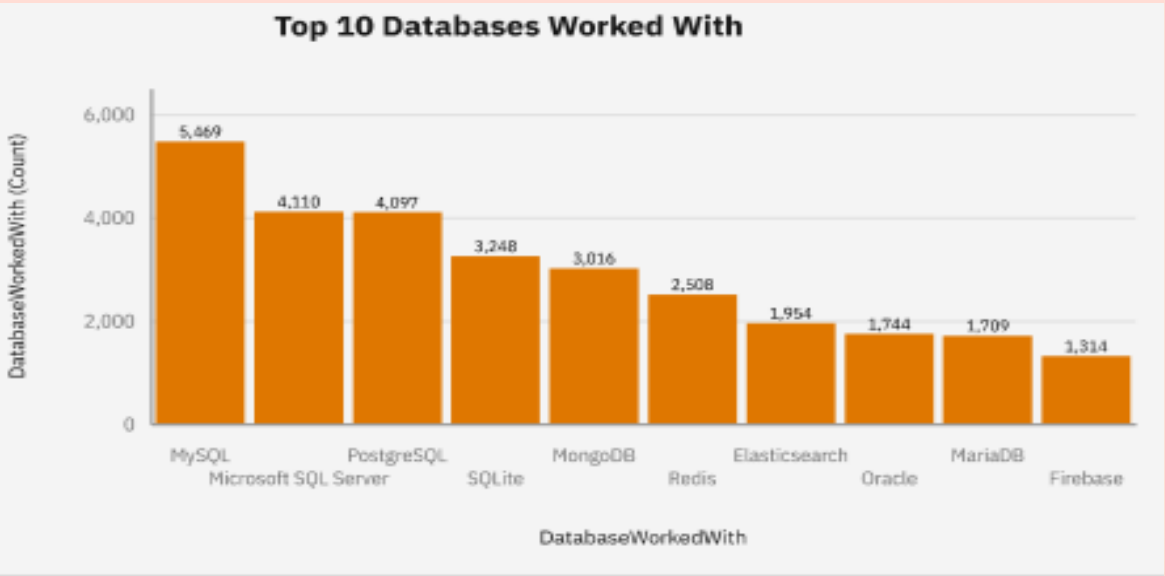
DASHBOARD

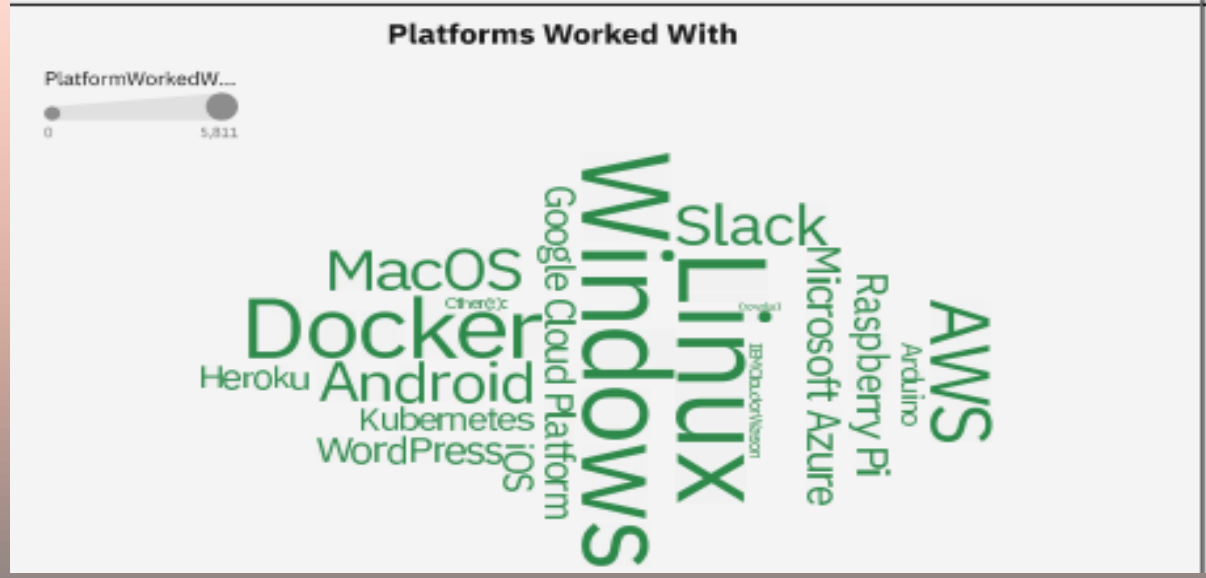
The permanent link of the read-only view of the Cognos dashboard:

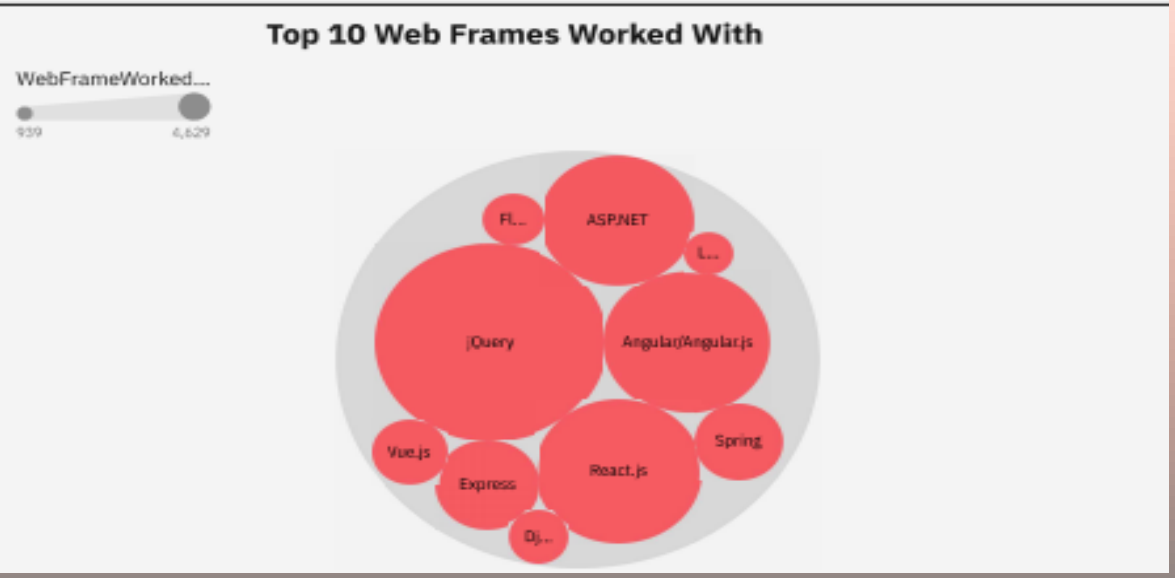
https://eu1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FIBM%2BData%2BAnalyst%2B-%2BCapstone%2BProject&action=view&mode=dashboard&subView=model000001 8a4bf5aef_00000000

CURRENT TECHNOLOGY USAGE





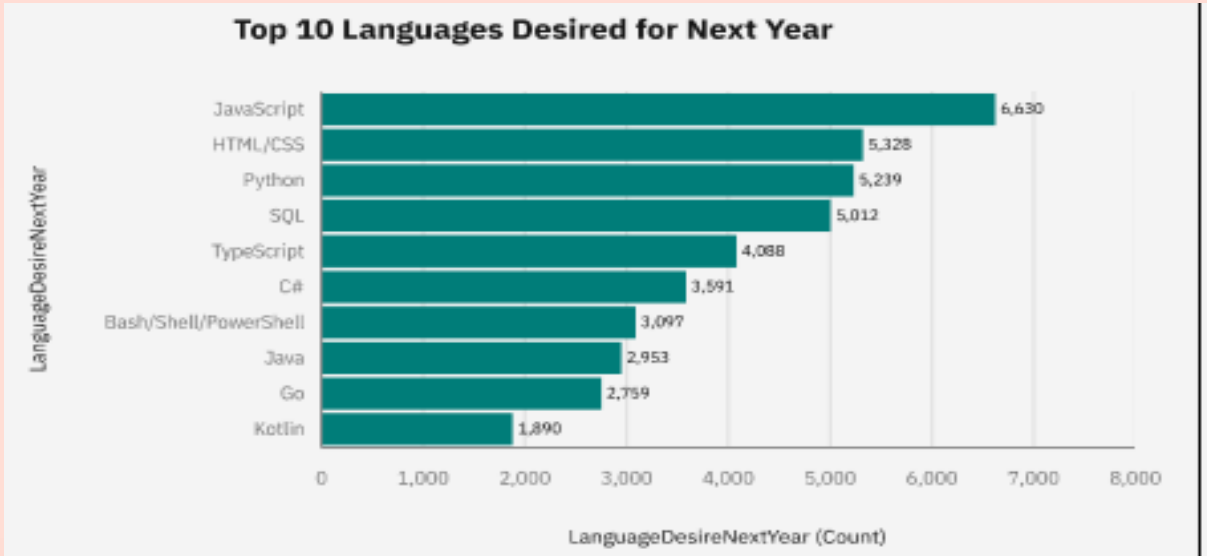


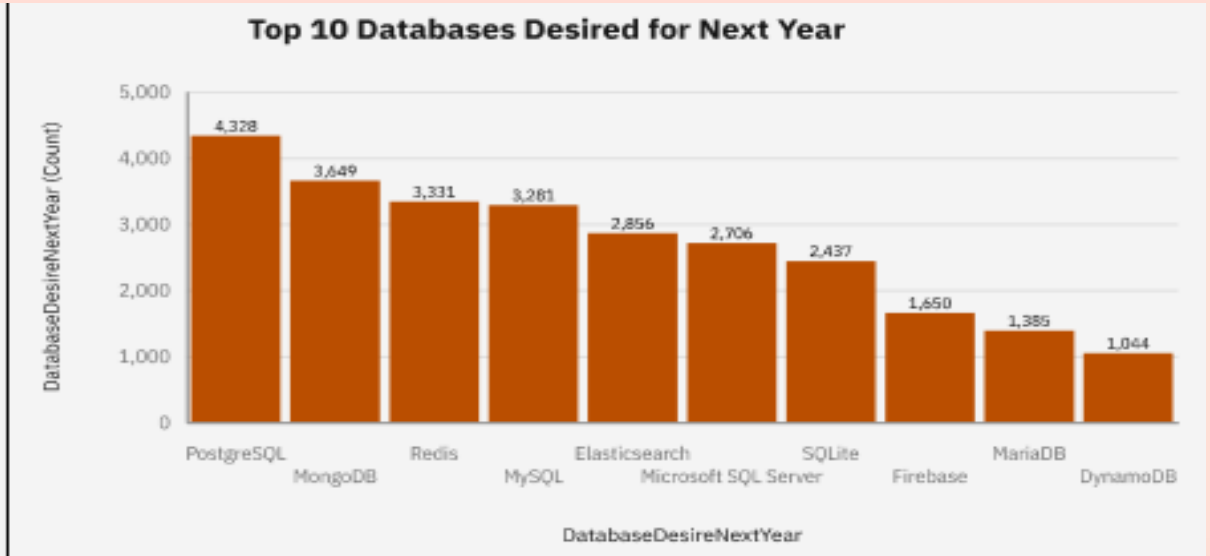


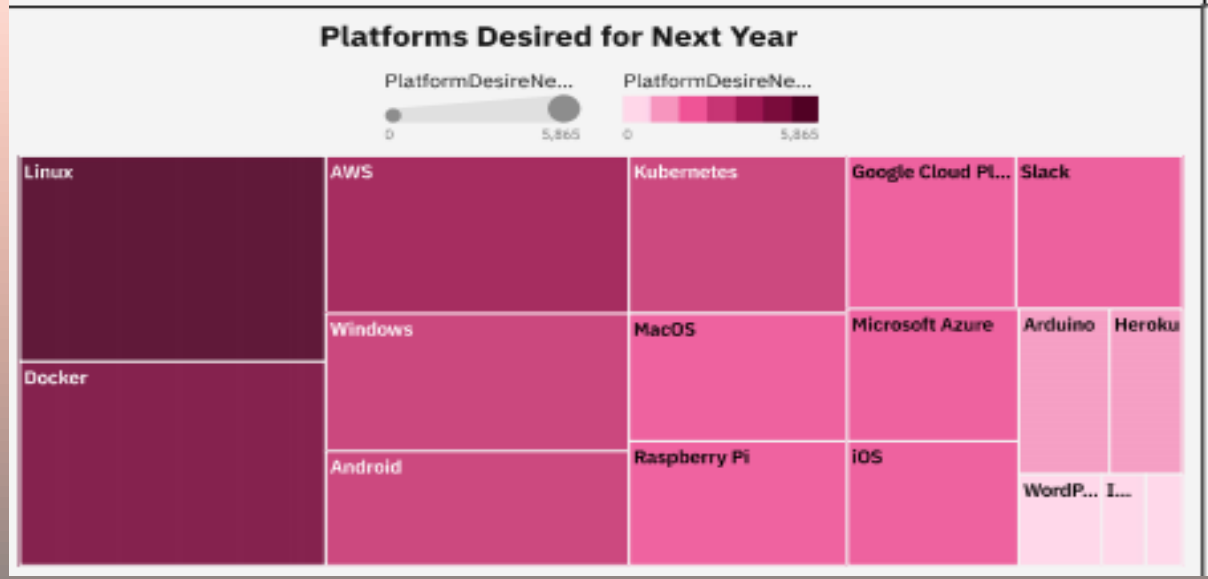
IBM Developer

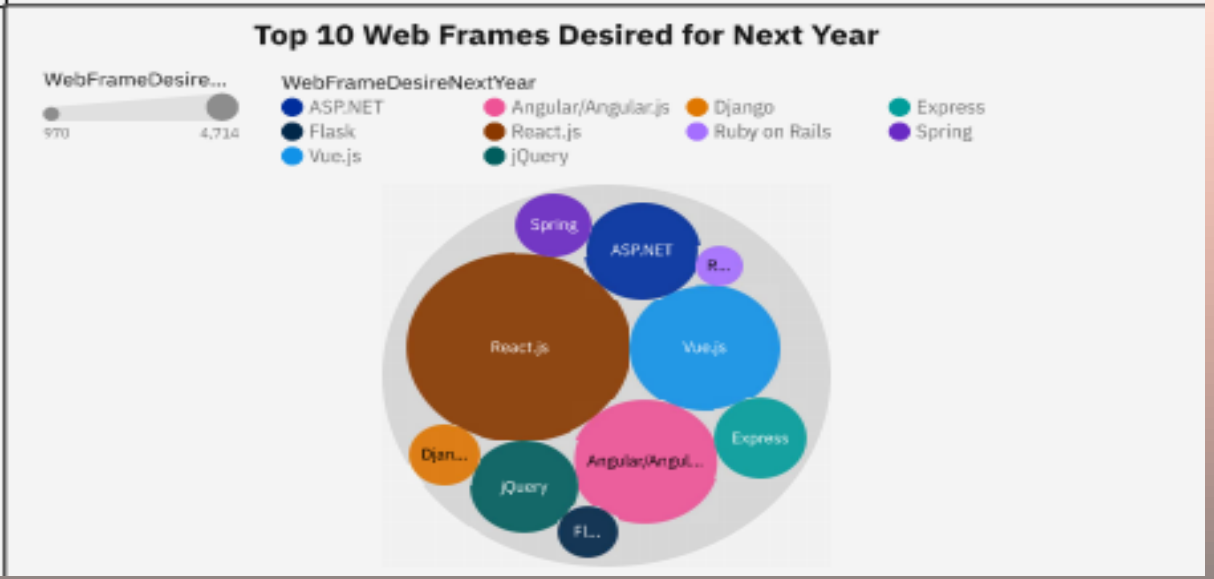
SKILLS NETWORK

FUTURE TECHNOLOGY TREND





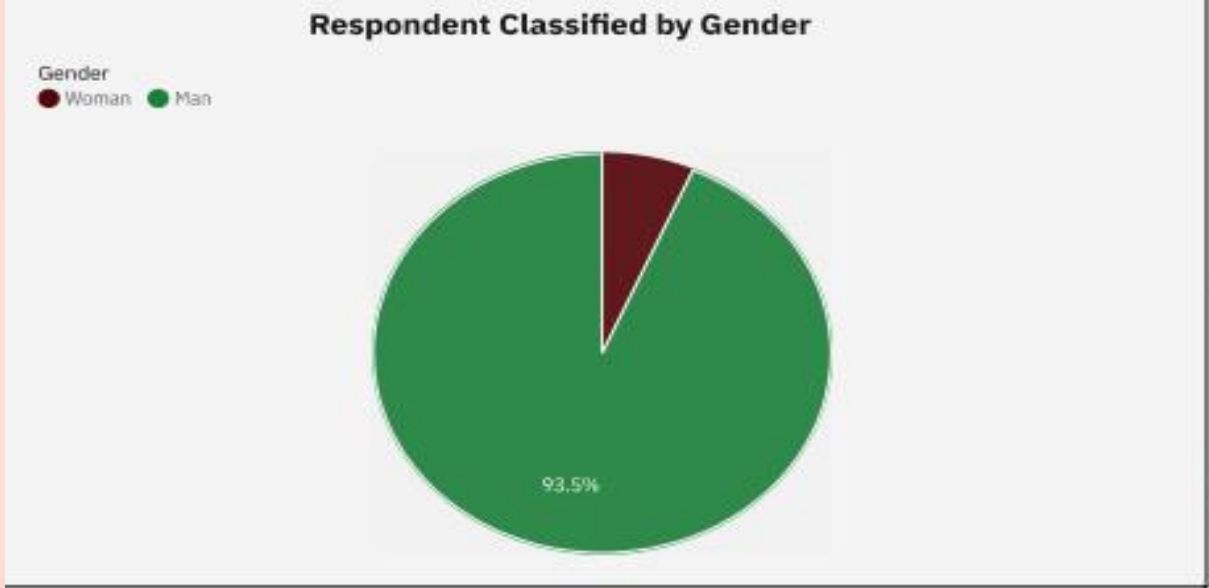


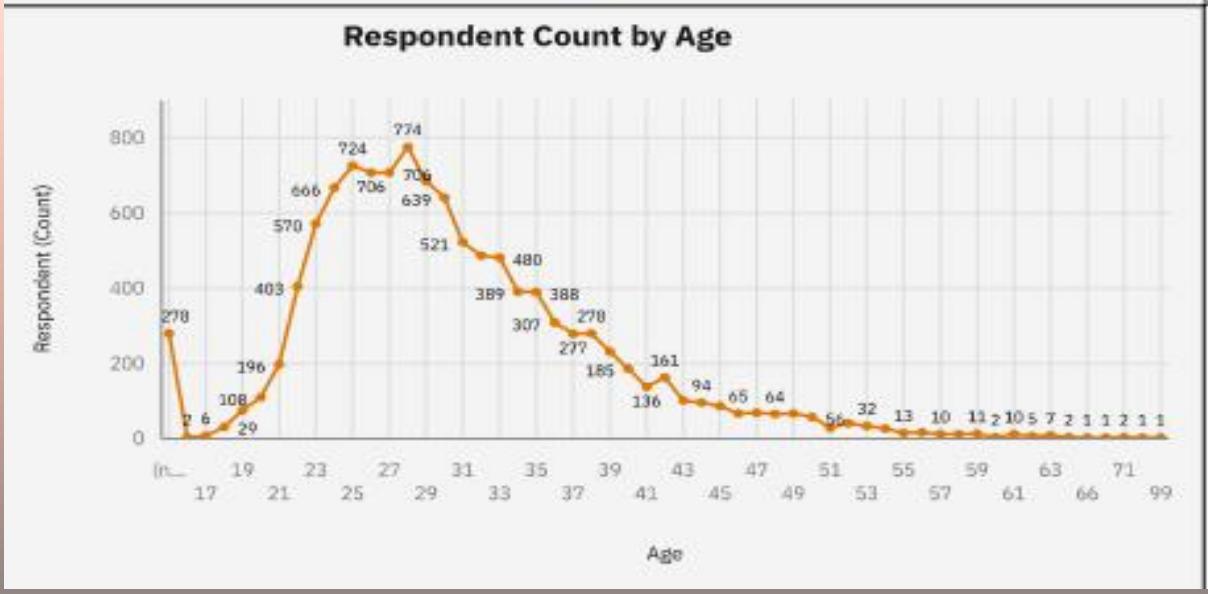


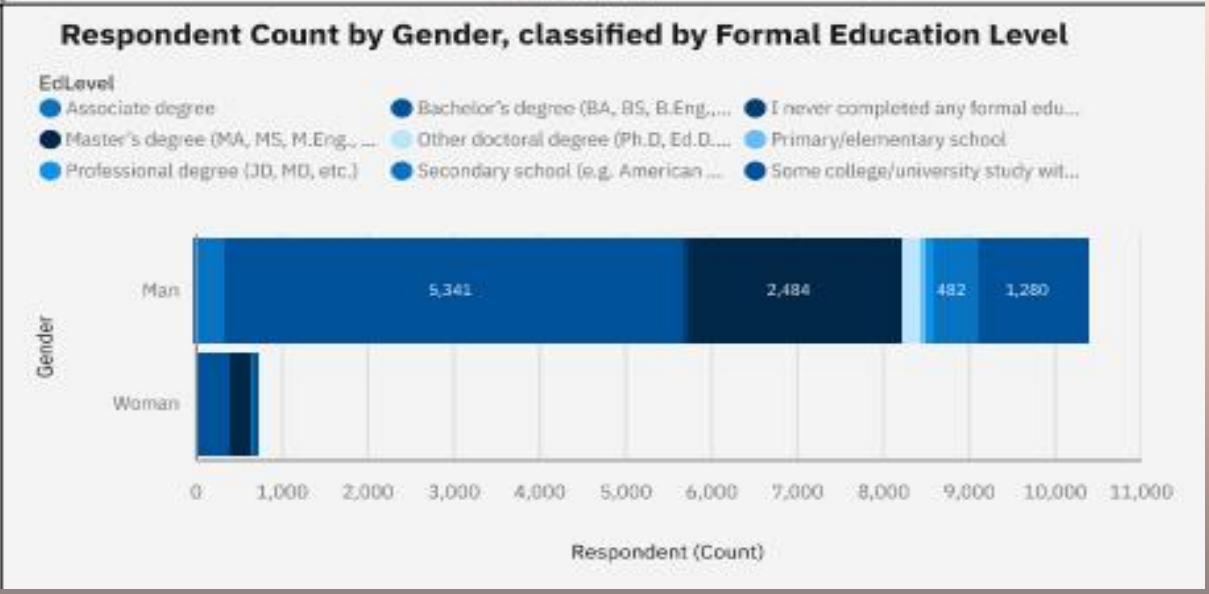
IBM Developer

SKILLS NETWORK

DEMOGRAPHICS







IBM Developer

SKILLS NETWORK

DISCUSSION

- Current and future technology usage trends
- Industry polarization in respect to certain groups (for example age and gender)

OVERALL FINDINGS & IMPLICATIONS

Findings:

- Sizeable age/gender discrimination in the industry
- Shifting Technology trends
- USA seems to be at the top regarding technologies adaptation
- Industry professionals seem less located in underdeveloped countries worldwide

Implications:

- Gender/Age discrimination should be addressed
- Computer Science professionals should mind changing trends in the fields
- Action to increase accessibility of underdeveloped countries to the industry

CONCLUSION

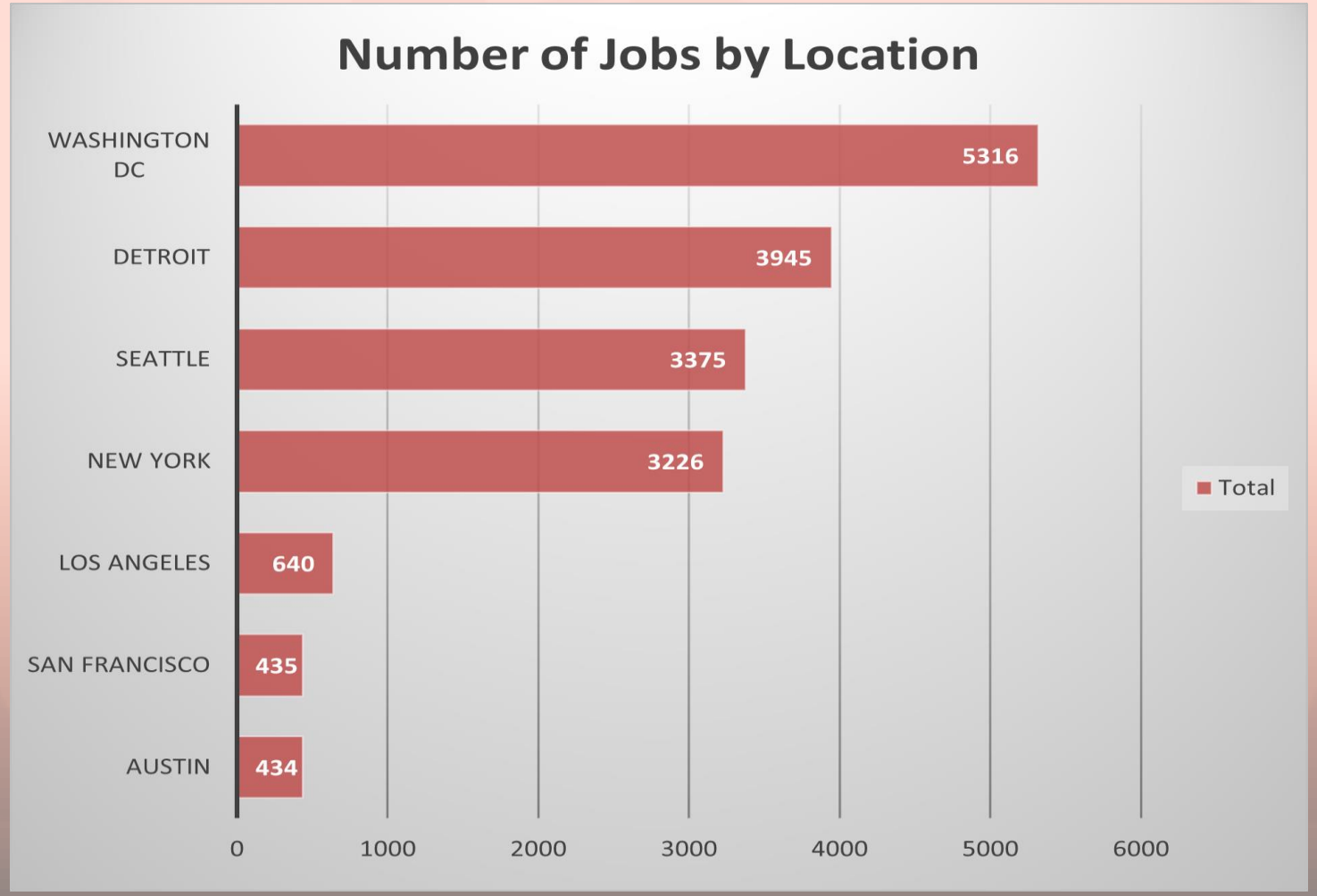
- Apparent trends in current/future technologies
- Demographic characteristics
- Age/gender/education level bias apparent in the field
- Programming Languages, Databases, Platforms and Web Frames information can be examined

APPENDIX

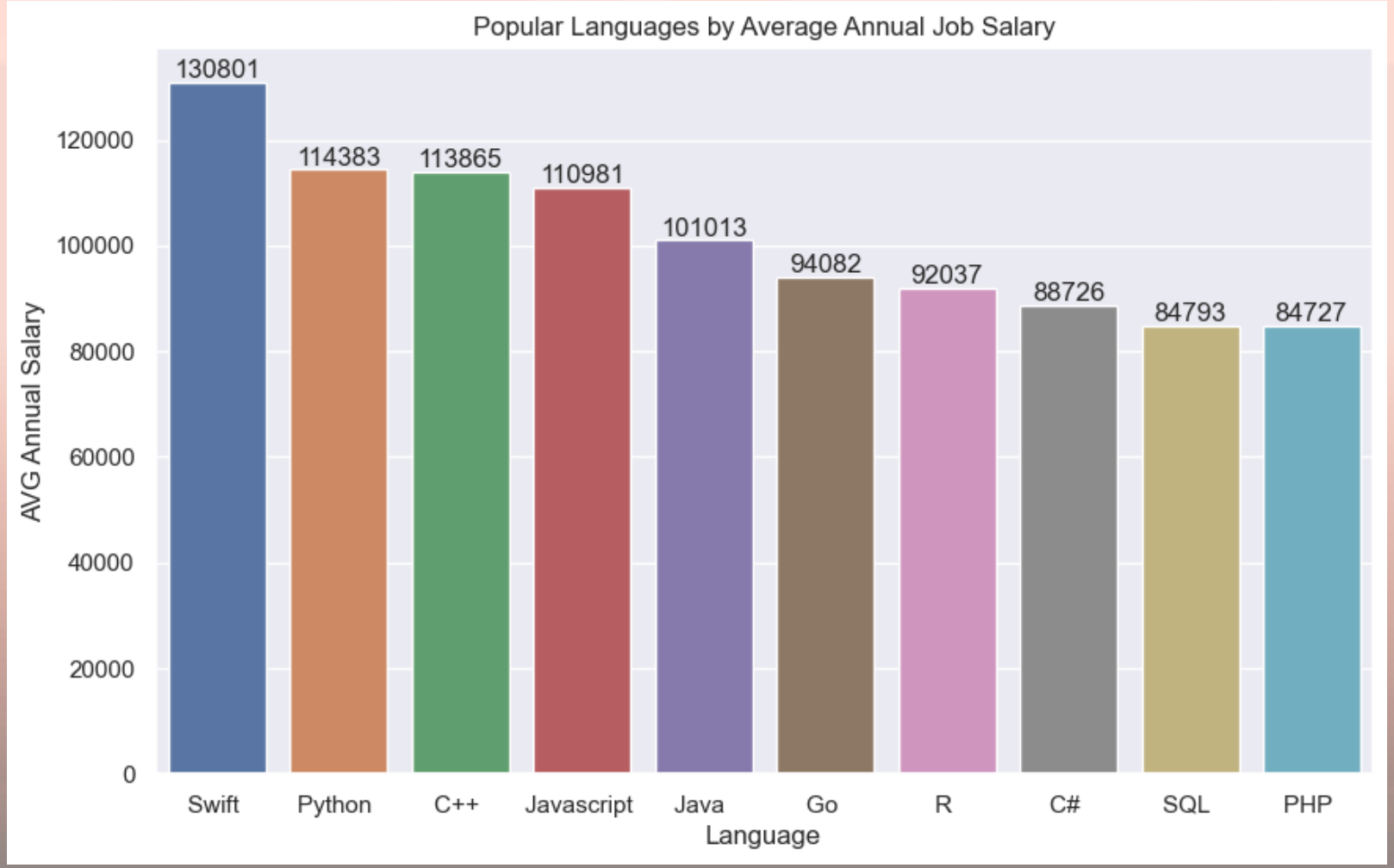
Included relevant additional charts:

- Job Postings (bar chart)
- Popular Languages (bar chart)
- Age Distribution (box plot)
- Top 5 Databases for next year (pie chart)

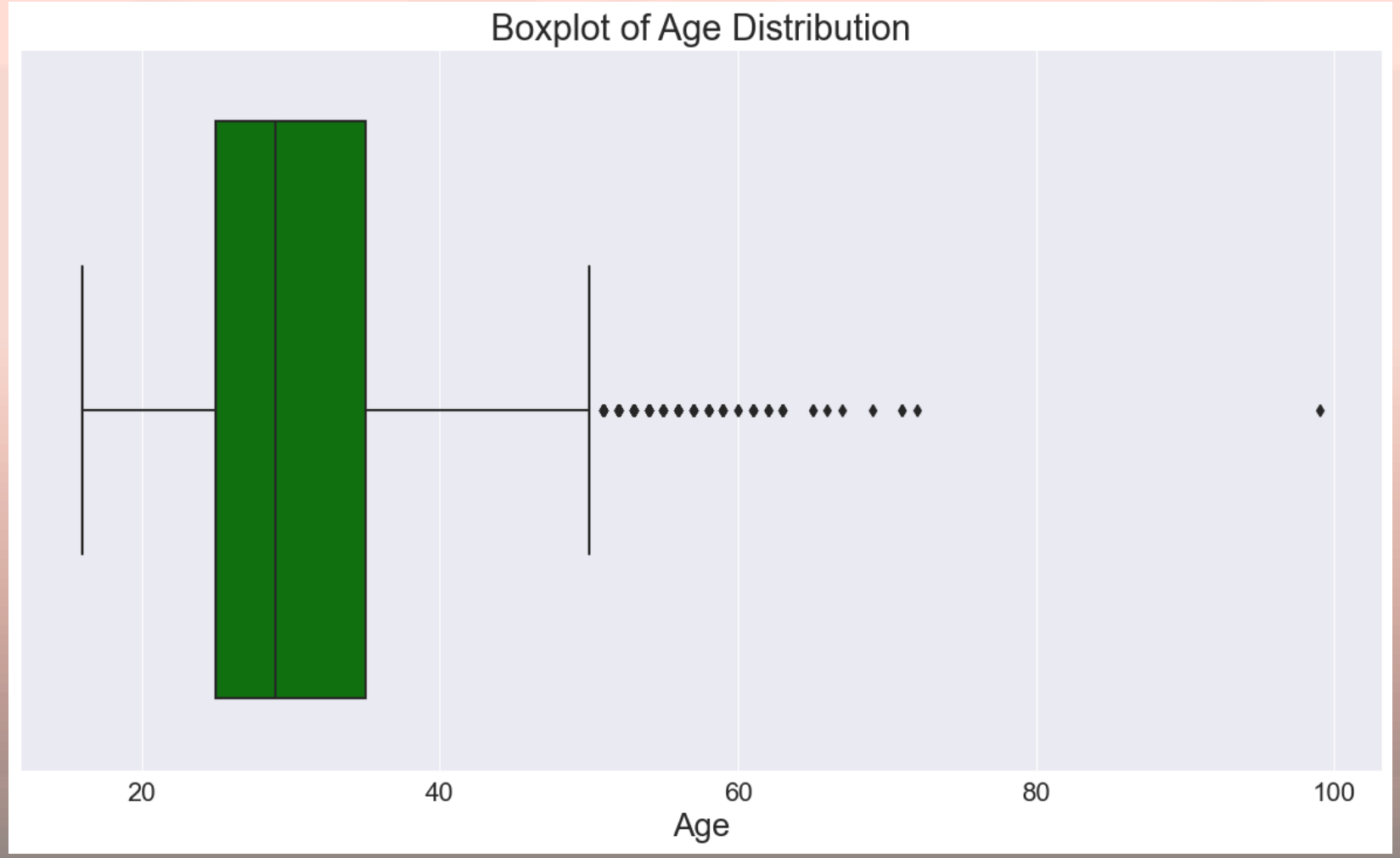
JOB POSTINGS (Bar Chart)



POPULAR LANGUAGES (Bar Chart)



AGE DISTRIBUTION (Box Plot)



TOP 5 DATABASES for next Year (Pie Chart)