



TECHNOLOGY TREND ANALYSIS

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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 Trend
 - ▶ Language
 - ▶ Database
 - ▶ Platform
 - ▶ Web frame
- ▶ Demographics Survey
- ▶ Country and Gender Difference

INTRODUCTION



- Analyze technology trend in software and web development among developers around the world
- Purpose of this Analysis
 - Identify the top programming languages, database, platform and web frame skills in demand
 - Identify skill requirements for future
 - Identify human resource gap in the industry
- Audience for this Presentation
 - Programmers
 - IT industry leaders
 - Computer science students

METHODOLOGY



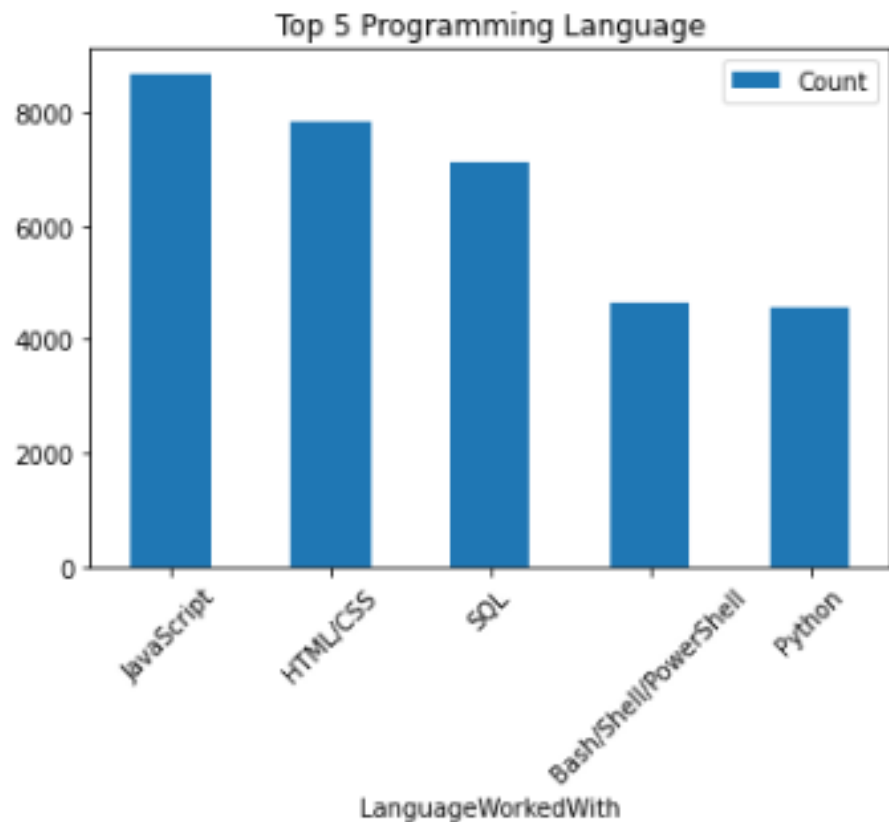
- ▶ Data Collection (Sources)
 - ▶ Stack overflow developer 2019 survey
 - ▶ Jobs On Naukri.com
 - ▶ Programming languages annual salary
- ▶ Data Wrangling
- ▶ Data Exploration
- ▶ Data Cleaning
- ▶ Data Visualization
 - ▶ Python matplotlib and pandas
 - ▶ IBM Cognos
- ▶ Presentation

RESULTS: Top 10

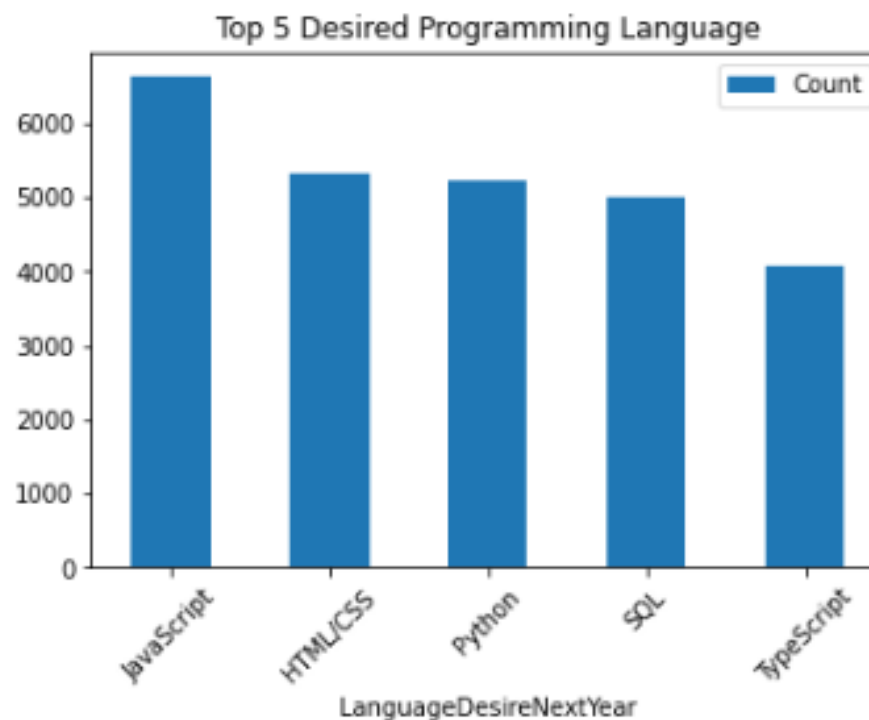
Respondent		Respondent		Respondent		Respondent		Respondent	
LanguageWorkedWith		LanguageDesireNextYear		DatabaseWorkedWith		DatabaseDesireNextYear		PlatformWorkedWith	
JavaScript	8687	JavaScript	6630	MySQL	5469	PostgreSQL	4328	Linux	5811
HTML/CSS	7830	HTML/CSS	5328	Microsoft SQL Server	4110	MongoDB	3649	Windows	5563
SQL	7106	Python	5239	PostgreSQL	4097	Redis	3331	Docker	4378
Bash/Shell/PowerShell	4642	SQL	5012	SQLite	3248	MySQL	3281	AWS	3588
Python	4542	TypeScript	4088	MongoDB	3016	Elasticsearch	2856	Slack	2786
Java	4506	C#	3591	Redis	2508	Microsoft SQL Server	2706	MacOS	2718
C#	4288	Bash/Shell/PowerShell	3097	Elasticsearch	1954	SQLite	2437	Android	2693
TypeScript	3232	Java	2953	Oracle	1744	Firebase	1650	Microsoft Azure	1711
PHP	2913	Go	2759	MariaDB	1709	MariaDB	1385	Raspberry Pi	1614
C++	1946	Kotlin	1890	Firebase	1314	DynamoDB	1044	WordPress	1490

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

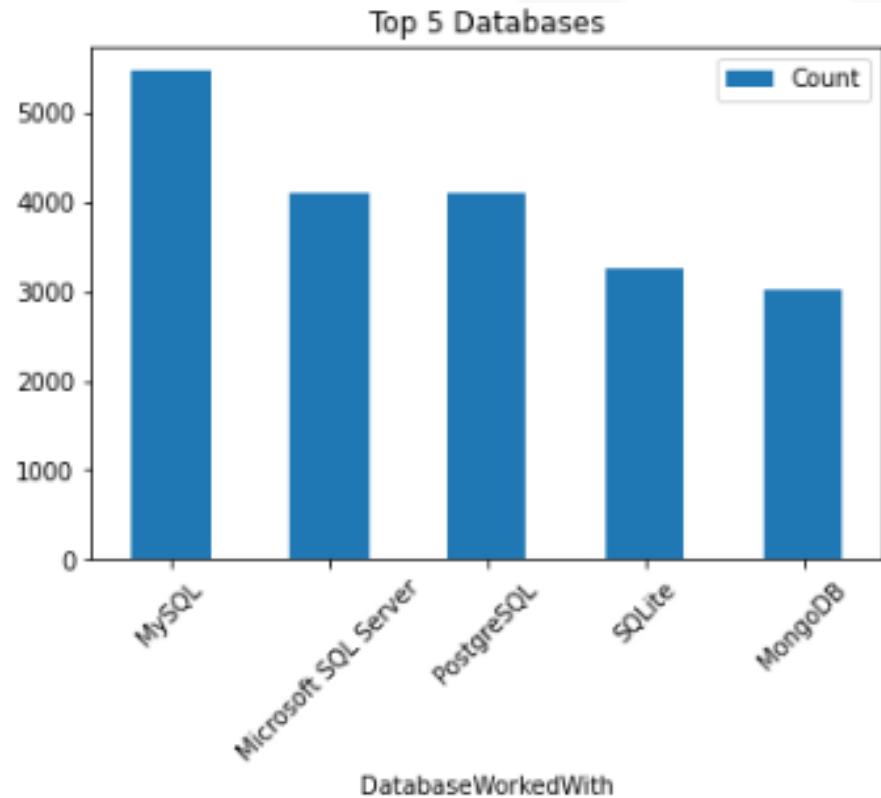
- ▶ JavaScript is top trending language in the world
- ▶ Python and TypeScript are becoming more and more popular
- ▶ HTML/CSS and SQL still has great portion in language usage trend

Implications

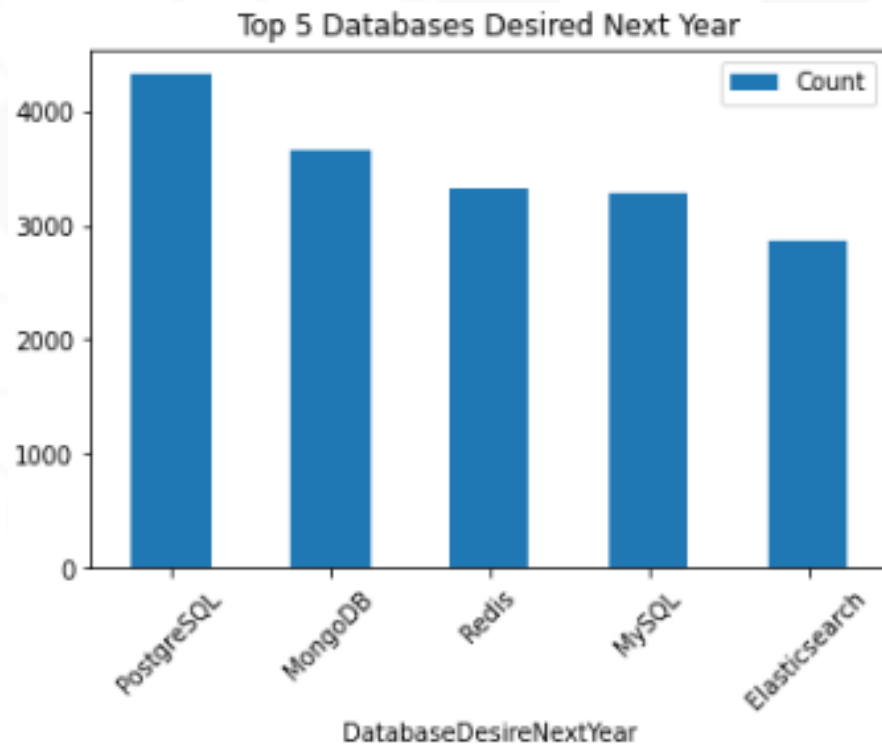
- ▶ Web developments and Web developers are still in high demands
- ▶ JavaScript and TypeScript are crucial to learn for developers
- ▶ Python is the new trending language, especially popular in AI fields

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- ▶ MySQL is the most popular database
- ▶ There are still a lot of companies using Microsoft SQL Server
- ▶ MongoDB and Redis are the most favorable NoSQL database

Implications

- ▶ Open-source databases like MySQL are still preferable
- ▶ Software development and Big Data technology still requires SQL
- ▶ NoSQL databases will make an impact for relational databases

DASHBOARD

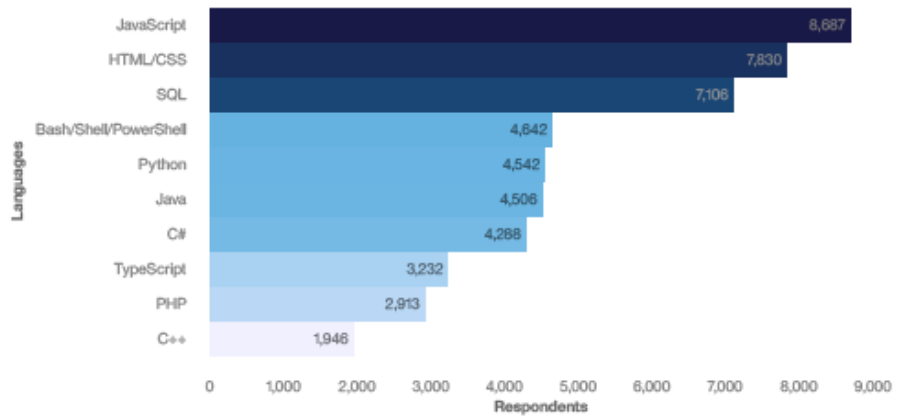


The permanent link of the read-only view of the Cognos dashboard:

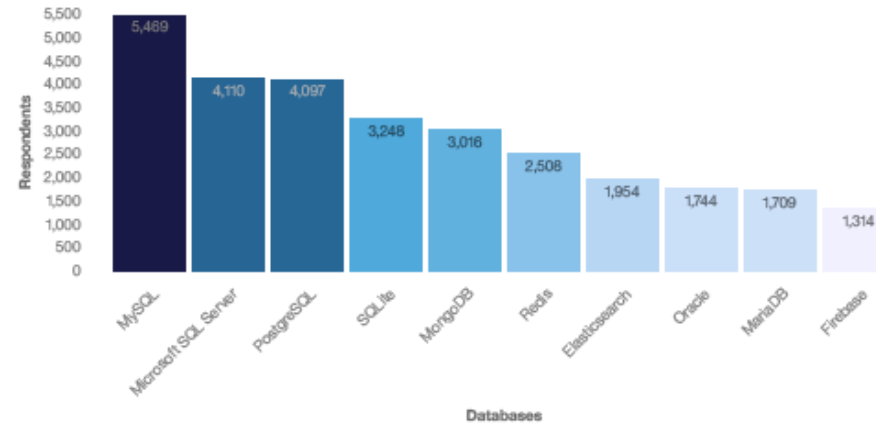
<https://datapatform.cloud.ibm.com/dashboards/82df504c-2371-4292-b8e0-343090d505a4/view/0e35a31a79900bc26ab4eee407cc7d572f65225bb1bbd60782807b495c317497a83c42c3c82c420fdd470032f2bd465e9b>

CURRENT TECHNOLOGY USAGE

Top 10 Language Worked With



Top 10 Database Worked With



Platform Worked With

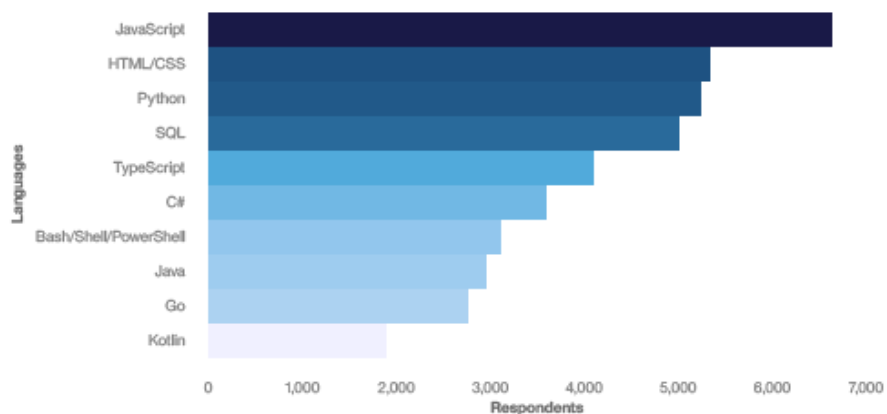


Top 10 WebFrame Worked With

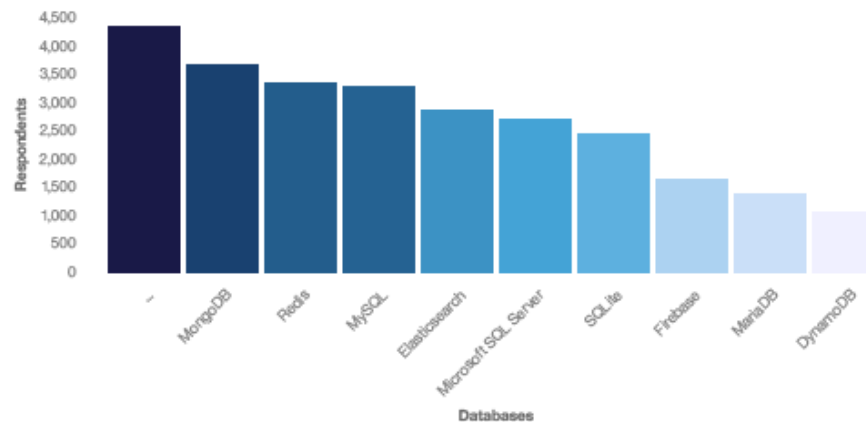


FUTURE TECHNOLOGY TREND

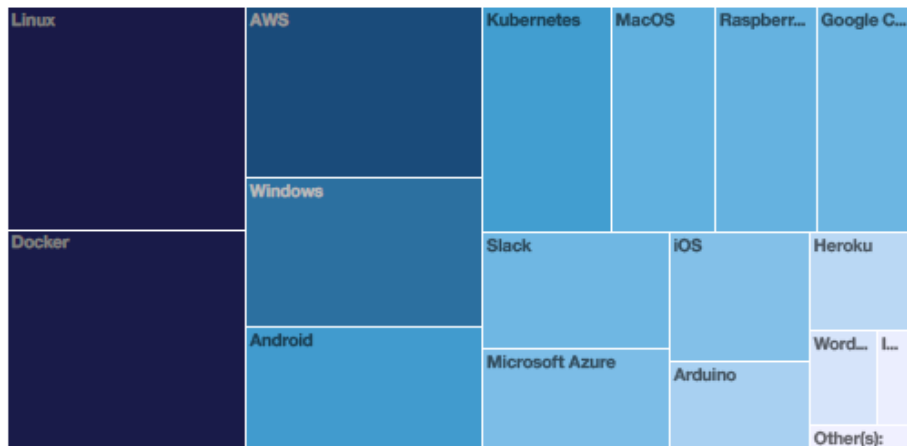
Top 10 Language Desire Next Year



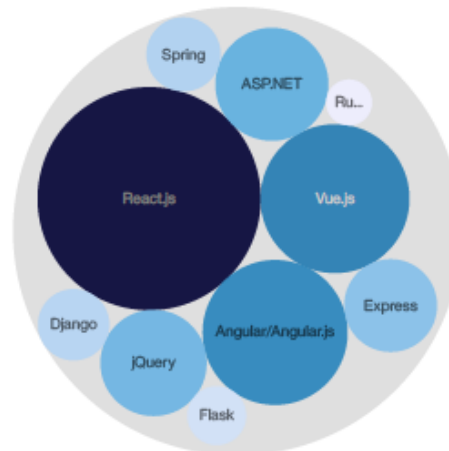
Top 10 Database Desire Next Year



Platform Desire Next Year



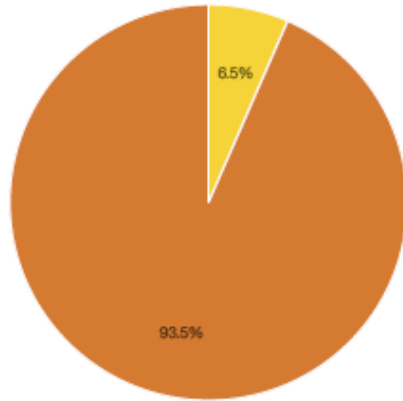
Top 10 WebFrame Desire Next Year



DEMOGRAPHICS

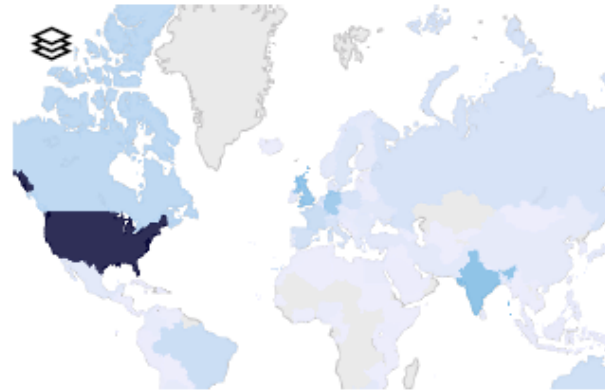
Respondent by Gender

Gender
Woman Man

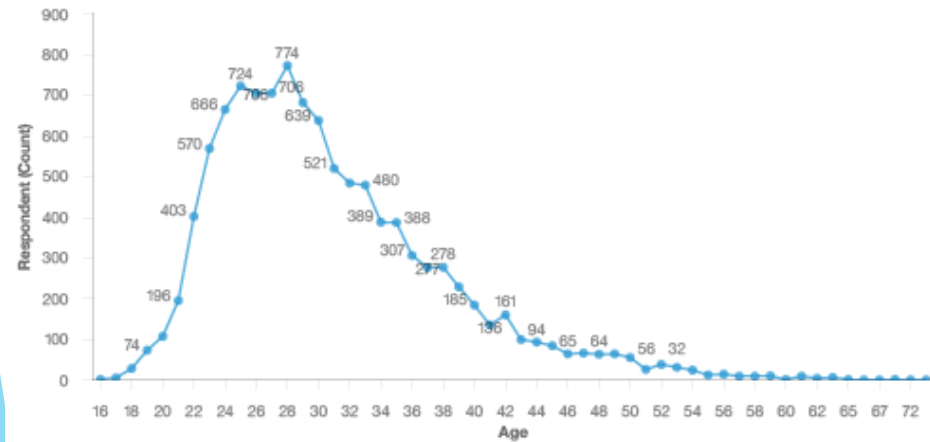


Respondent Count for Countries

Respondent (Cou...
1 3,058

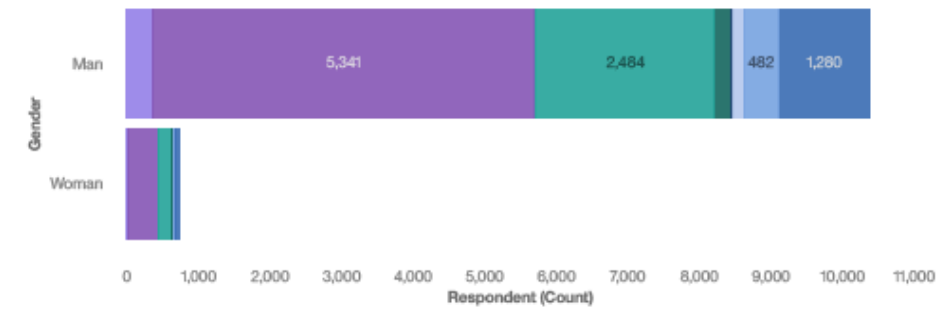


Respondent Count by Age



Respondent Count by Gender, classified by Formal Education Level

EdLevel
Associate degree Bachelor's degree (BA, BS, B.E... I never completed any formal e...
Master's degree (MA, MS, M.En... Other doctoral degree (Ph.D, E... Primary/elementary school
Professional degree (JD, MD, et... Secondary school (e.g. Americ... Some college/university study ...



DISCUSSION



- ▶ Technology Usage Trend Now and Future
- ▶ Gender, Age and Education Discrimination in IT Industry

OVERALL FINDINGS & IMPLICATIONS

Findings

- ▶ Technology trends changes every year
- ▶ USA is the top technology country
- ▶ There are extreme gender and age discrimination
- ▶ Docker and AWS are the most popular platform

Implications

- ▶ Programmers should always follow the latest technology trends
- ▶ More countries should have the equal chance to be exposed to new technology
- ▶ Gender and Age should not be one of the concerns

CONCLUSION



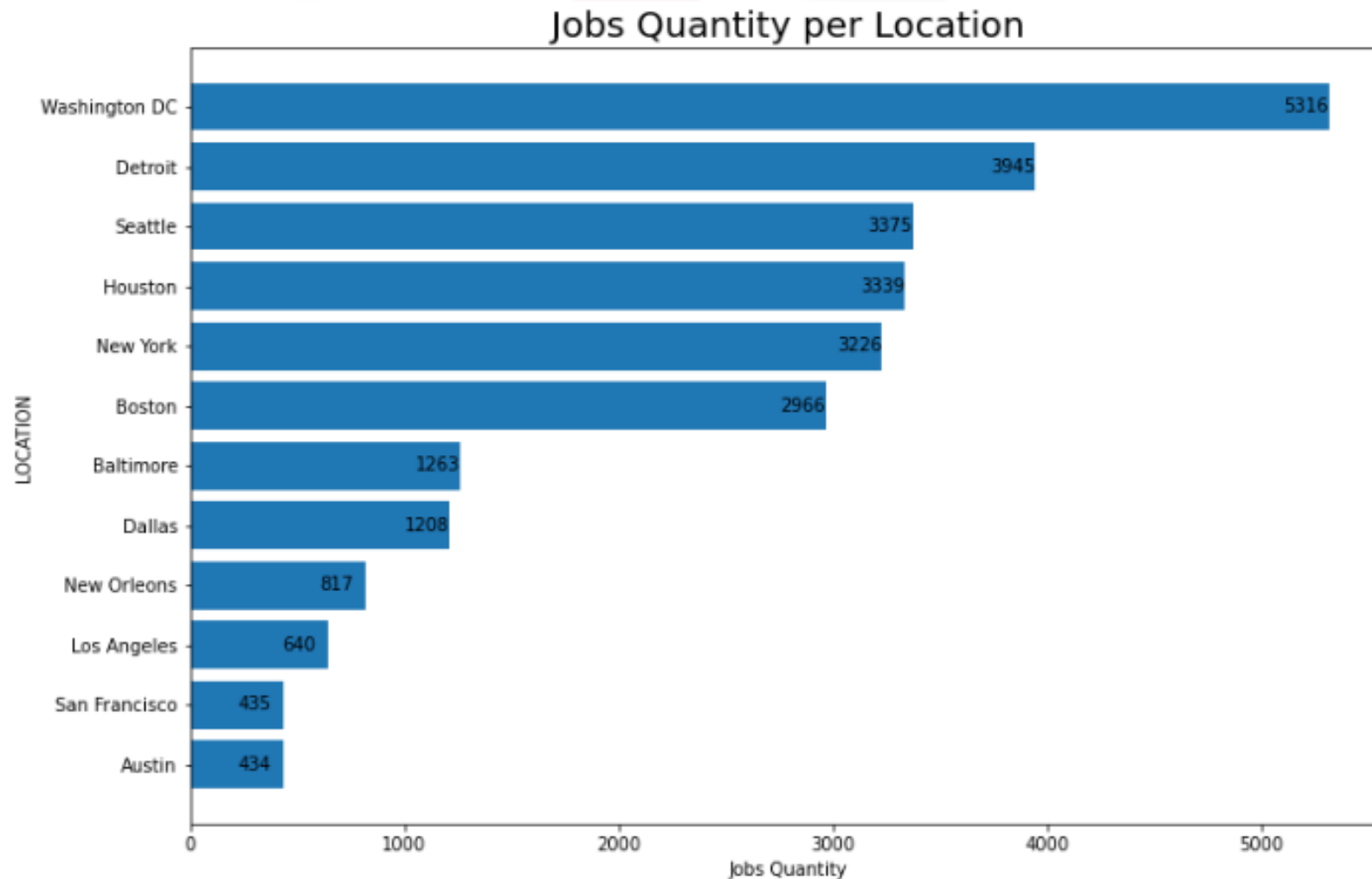
- ▶ Technology Trends
- ▶ Programming Languages, Database, Platform and Web frame Trends
- ▶ Demographics Trends
- ▶ Gender and Education
- ▶ Programming Languages Trends and Salary Trends

APPENDIX

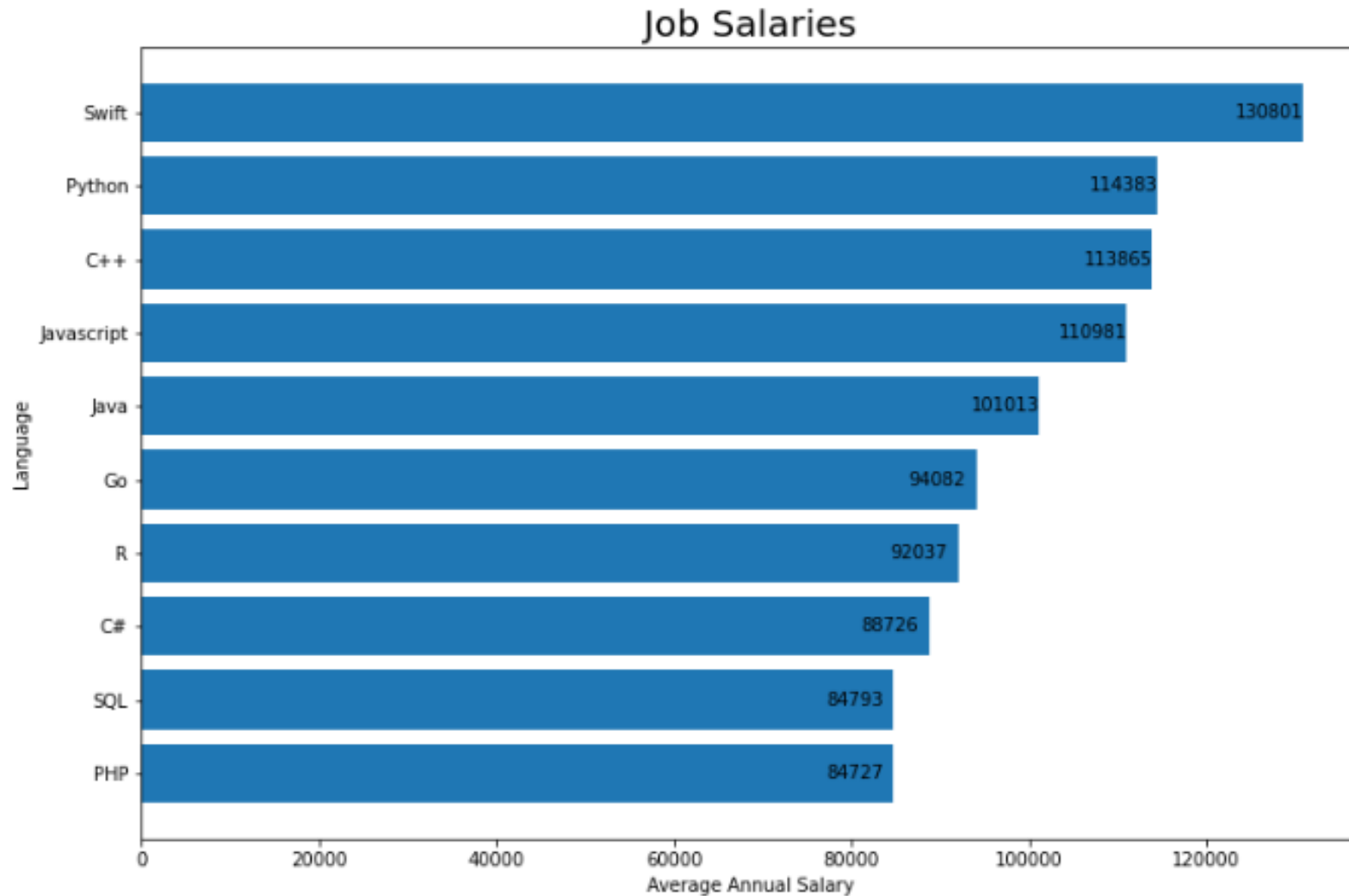


- ▶ IBM Cognos Dashboard Embedded (CDE) is an AI-fueled business intelligence service that supports the entire data analytics cycle, from discovery to operationalization. It provides users with data discovery capabilities to visually explore and interact with their data to identify the key insights for improving data driven decisions. Users can perform data discovery and then quickly assemble that information into interactive, visually appealing dashboards; all without the need of formal training.

JOB POSTINGS



POPULAR LANGUAGES





Thank You