



Technology Trend Analysis

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OUTLINE



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- Introduction
- Methodology
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 - Visualization – Charts
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- Discussion
 - Findings & Implications
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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, databases, platforms, and web frame skills in demand
 - Identify skills 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)
 - Stock overflow developer 2019 survey
 - GitHub job postings
 - Programming languages annual salary
- Data Wrangling
- Data Exploration
- Data Cleaning
- Data Visualization
 - Python Matplotlib
 - IBM Cognos
- Presentation

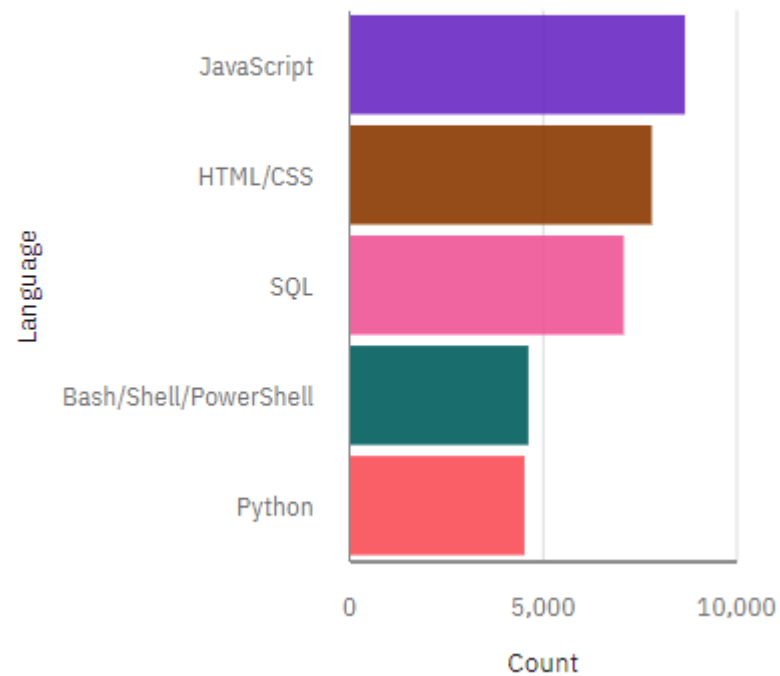
RESULTS

- The data was collected from stack overflow blog under ODbL: Open Database License. It was modified and used for analysis purpose.
- It consists of two data sets:
 - Survey data technology normalized consisted of approximately 75K respondents querying them about the present and future data technologies interest. Then using visualization tools such as bar, column, pie, and other graphs used to analyze the top technologies trends.
 - Survey data demographic which involved around 11K respondents answering about various demographic questions like age, country, education level, gender etc. The results were visualized in the form of various charts along with maps.
- In the next few slides, the important findings from the data sets for present and future technologies trends will be discussed.

PROGRAMMING LANGUAGE TRENDS

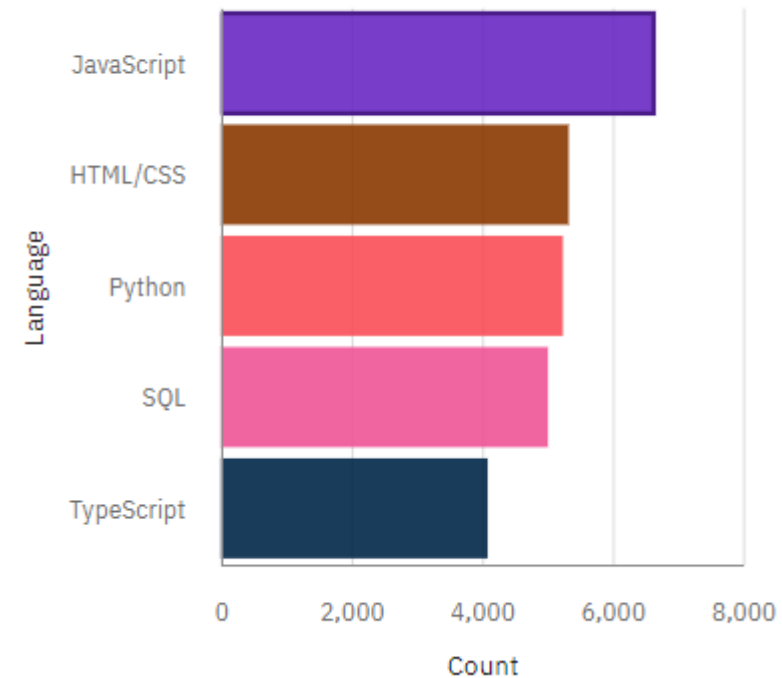
Current Year

Top 5 Languages



Next Year

Top 5 Languages



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

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

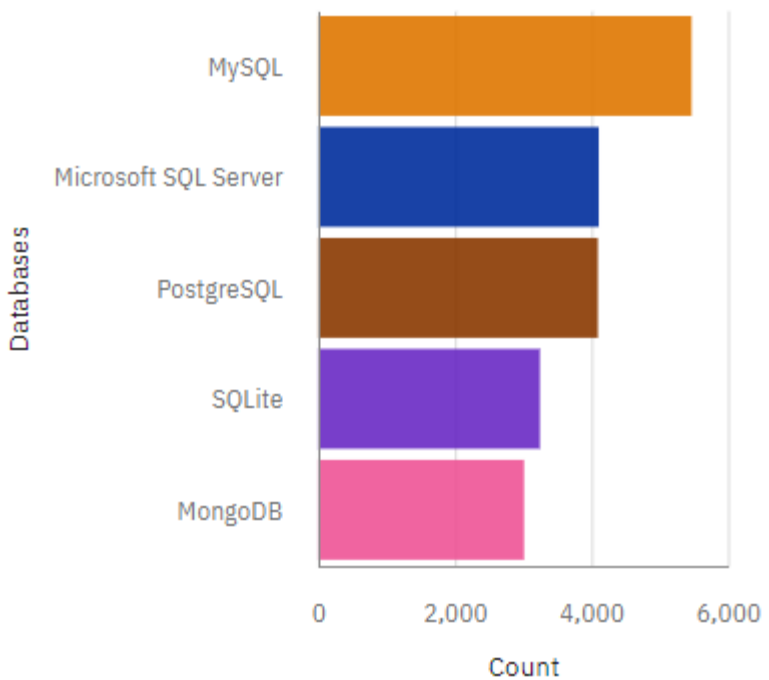
Implications

- Web developments and Web developers are still in high demand
- JavaScript and Type script are crucial to learn for developers
- Python is the new trending language

DATABASE TRENDS

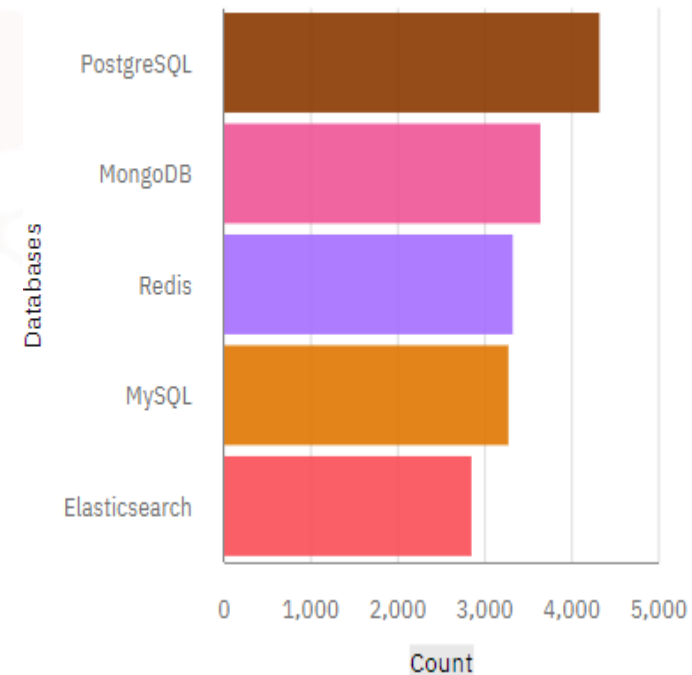
Current Year

Top 5 Databases



Next Year

Top 5 Databases



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MySQL is the most popular database
- There are still many companies using Microsoft SQL Server
- Mongo DB and Redis are the most favorable NoSQL Database

Implications

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

DASHBOARD



https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FCapstone%2BProject&action=view&mode=dashboard&subView=model00000181bb36a104_00000000

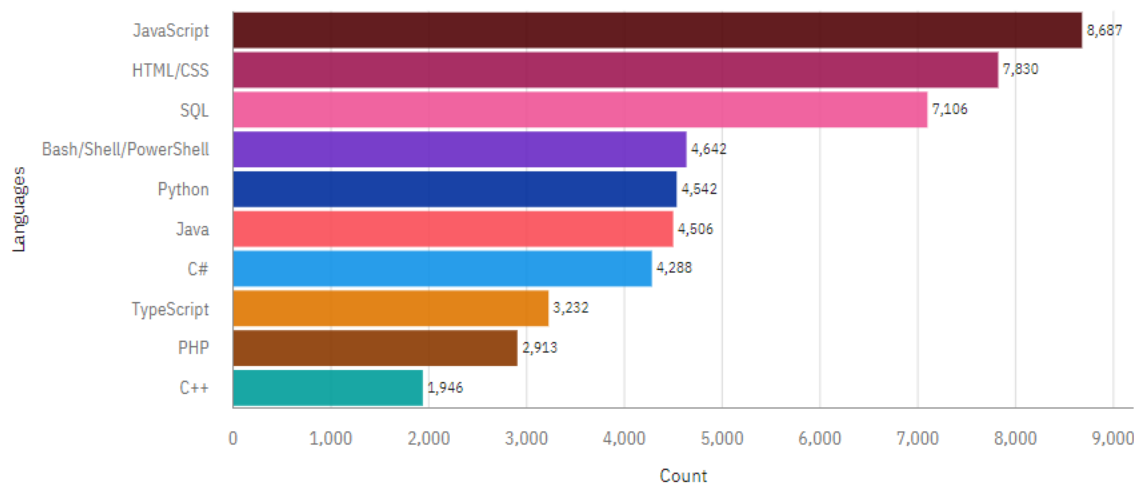
Current Technology Usage

Future Technology Trend

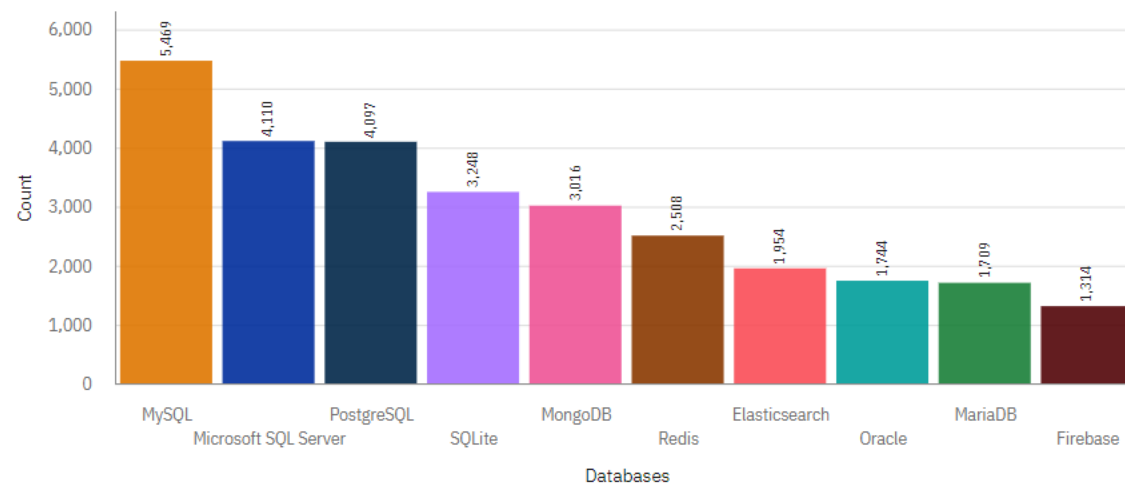
Demographics



Top 10 Languages



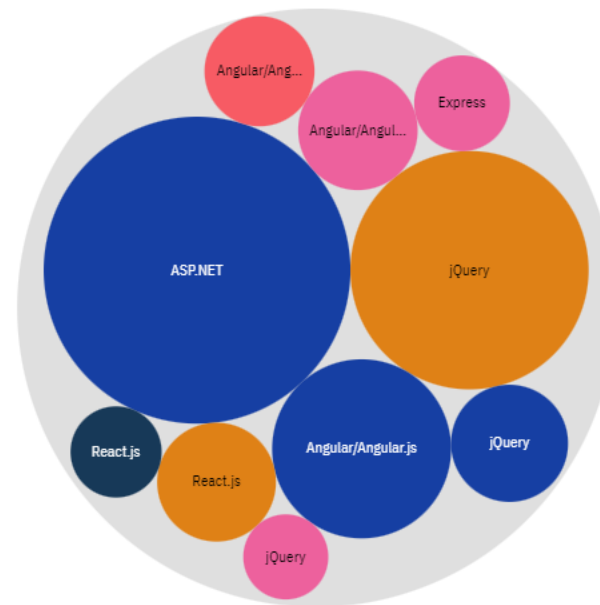
Top 10 Databases



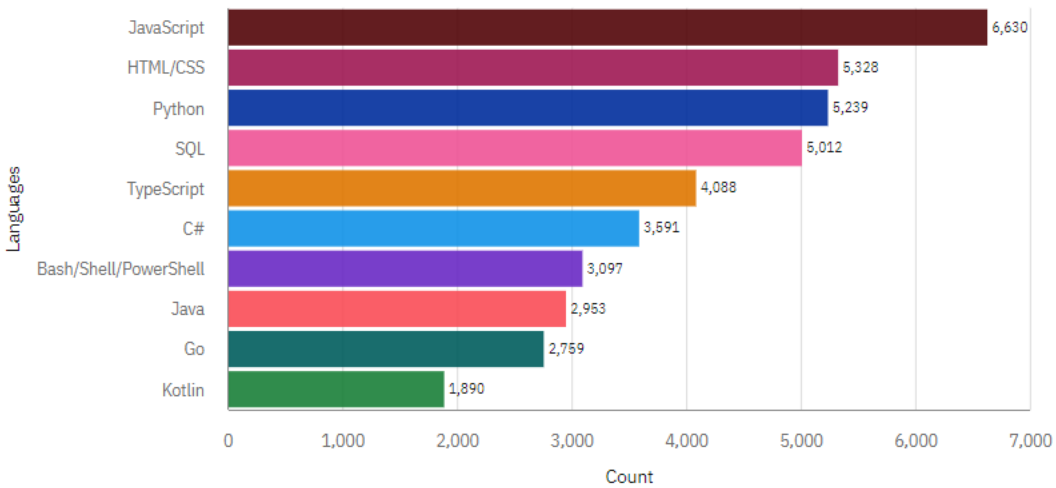
Platforms



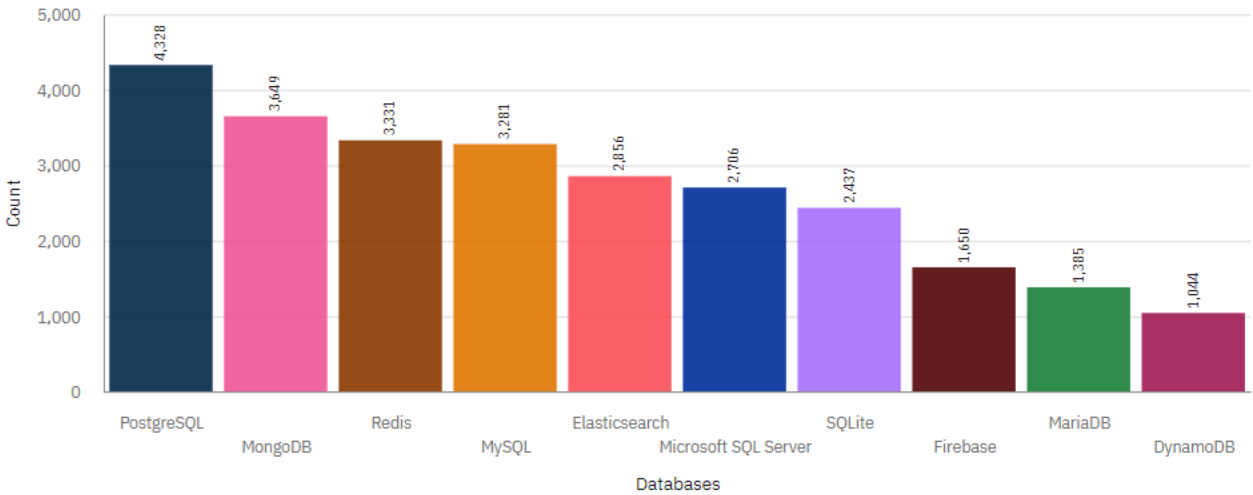
Top 10 Webframes



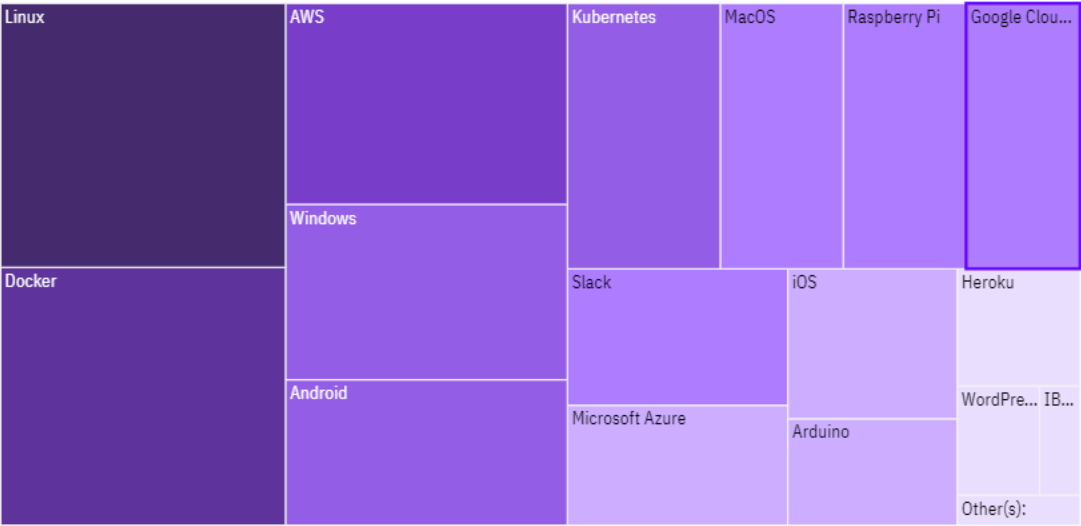
Top 10 Languages desired for the next year



Top 10 Databases desired for the next year



Desired Platforms for the next year



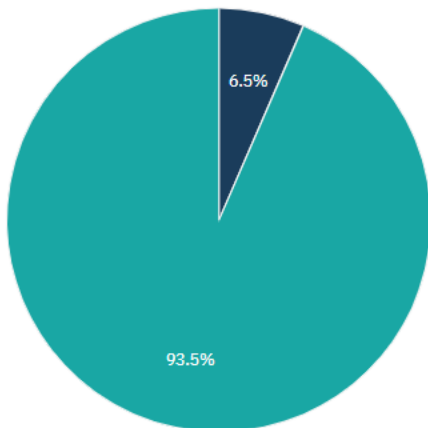
Top 10 WebFrames desired for the next year



Current Technology Usage Future Technology Trend **Demographics**

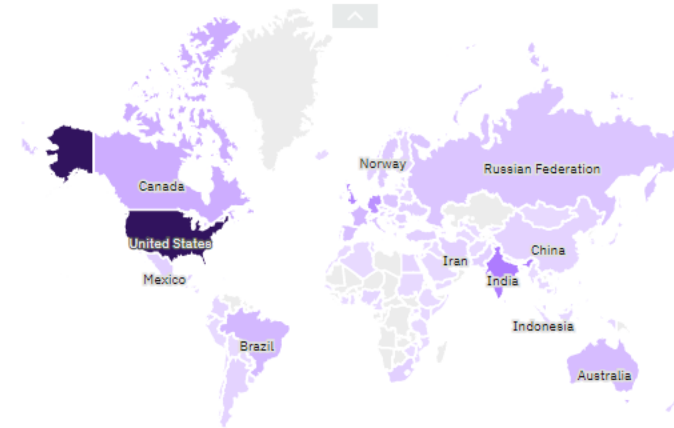
Respondent classified by gender

Gender
● Woman ● Man

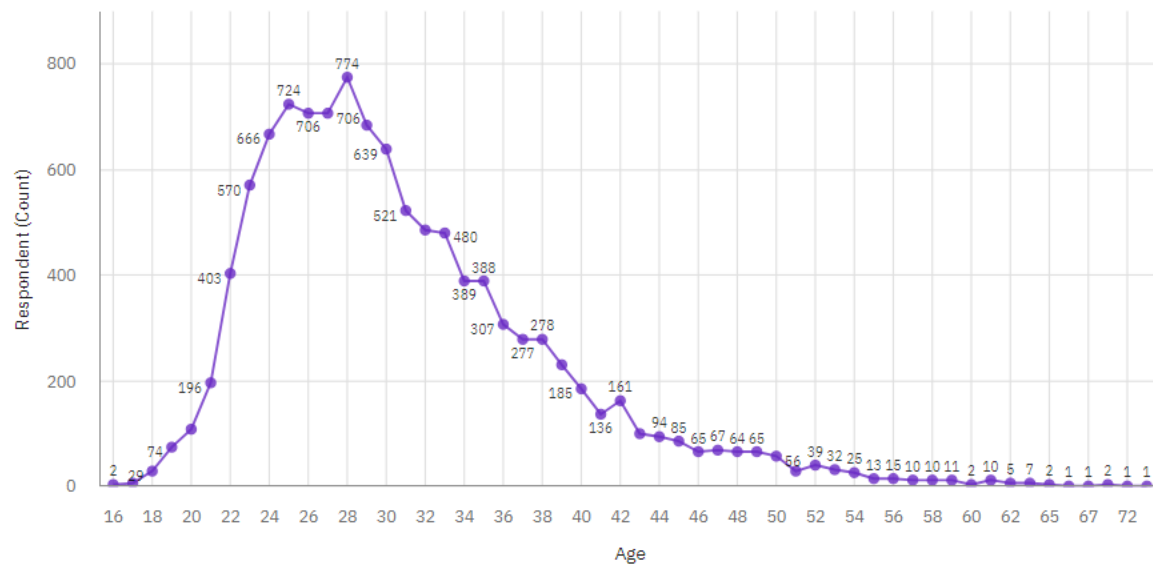


Respondent count for Countries

Respondent (Count)
1 3,088

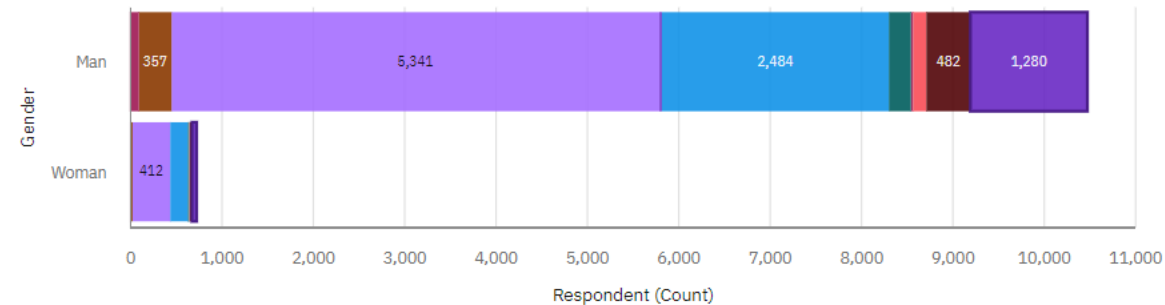


Respondent count by age



Respondent count by gender and classified by education level

EdLevel
● (no value) ● Associate degree ● Bachelor's degree (BA, BS, B.Eng., ...)
● I never completed any formal edu... ● Master's degree (MA, MS, M.Eng., ...)
● Primary/elementary school ● Professional degree (JD, MD, etc.) ● Other doctoral degree (Ph.D, Ed.D....)
● Some college/university study wit... ● Secondary school (e.g. American ...)



DISCUSSION



- Technology usage trend now and future
 - Will Mongos DB and PostgreSQL would be the new MySQL in future
 - Why is the popularity of MySQL declining?
- Gender, Age, and Education discrimination in the IT industry

OVERALL FINDINGS & IMPLICATIONS

Findings

- Technology trends changes every year
- USA is the top technology country
- Extreme gender and age discrimination
- Bachelor's and Master's students highly prefer doing specialization in data technology

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 or benefits of employment

CONCLUSION



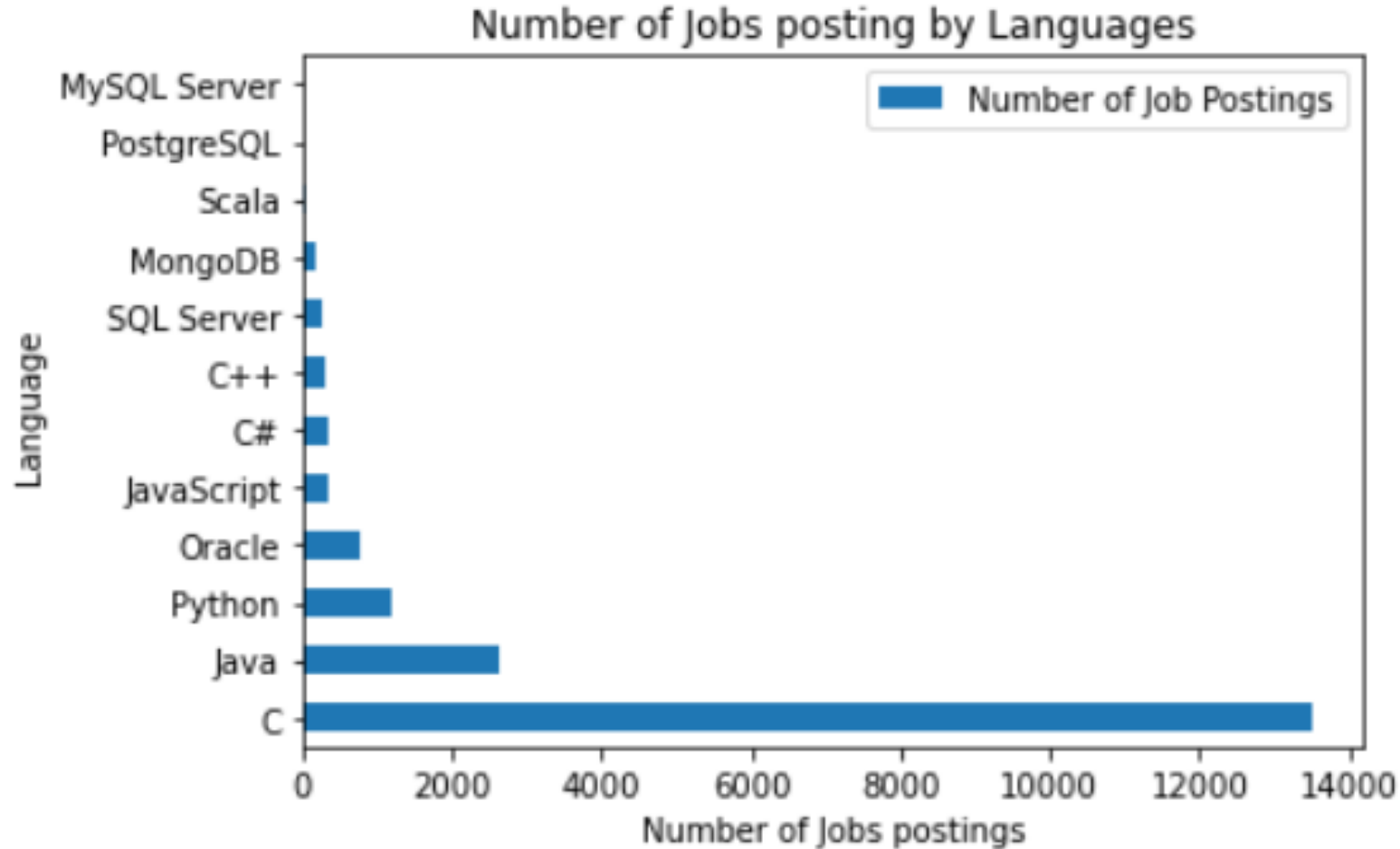
- Technology Trends
- Programming Languages, Databases, Platforms, and Web frames Trends
- Demographics Trends
- Gender and Education
- Programming Languages and Salary Trends

APPENDIX



- Resources
 - Database taken from: Stock overflow blog under Odbl: Open Database License
 - IBM Cognos dashboard were used to create Dashboards

GITHUB JOB POSTINGS



POPULAR LANGUAGES

