



- Title: Analysis of Programming Language and Database Trends
- Presenter's Name: [Abdikadir Hussein Abdi]
- Date: [12-Apr-2024]

OUTLINE



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EXECUTIVE SUMMARY



- Our analysis aimed to understand the current and future trends in programming languages and databases based on survey data collected from software developers. We utilized various data analysis techniques to extract insights and visualize trends, providing valuable information for stakeholders in the tech industry.

INTRODUCTION



- **Introduction**

- In this report, we present an analysis of programming language and database trends derived from survey data collected from software developers worldwide. The analysis covers both current usage and future preferences, offering insights into the evolving landscape of technology.

METHODOLOGY



- **Data Collection:** We collected survey data from software developers using a standardized questionnaire.
- **Data Cleaning:** The collected data underwent cleaning to remove any inconsistencies or missing values.
- **Data Analysis:** We employed exploratory data analysis techniques to uncover patterns and trends in programming language and database usage.
- **Visualization:** Visualizations such as bar charts, pie charts, and treemaps were created to present the findings clearly and understandably.
- **Dashboard Creation:** A dashboard was developed using Cognos to provide an interactive platform for exploring the data further.

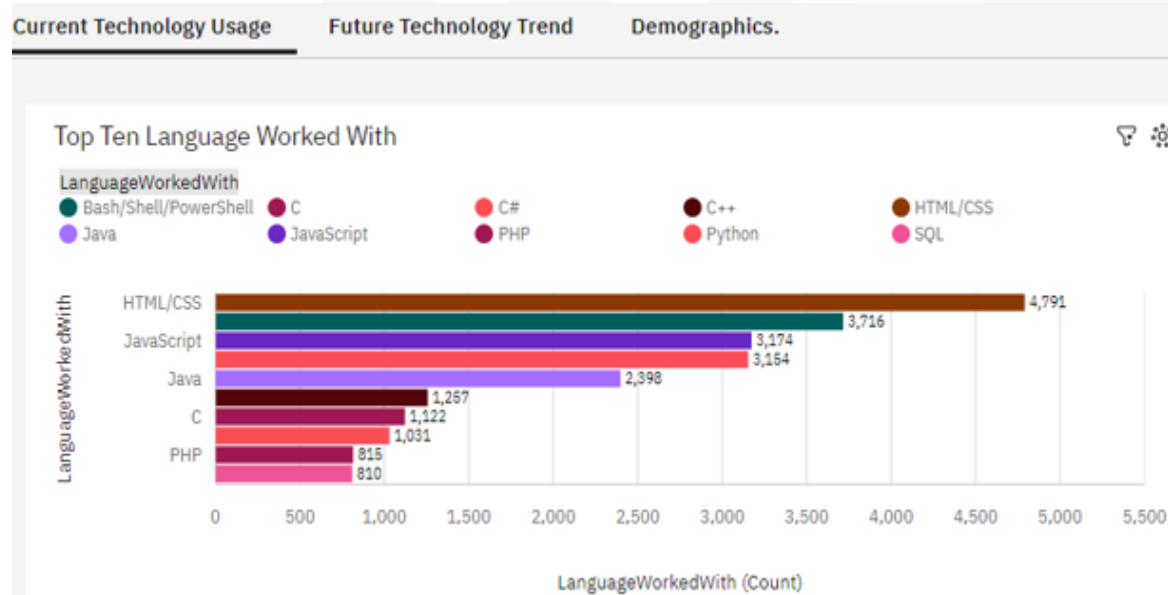
RESULTS

Programming Language Trends

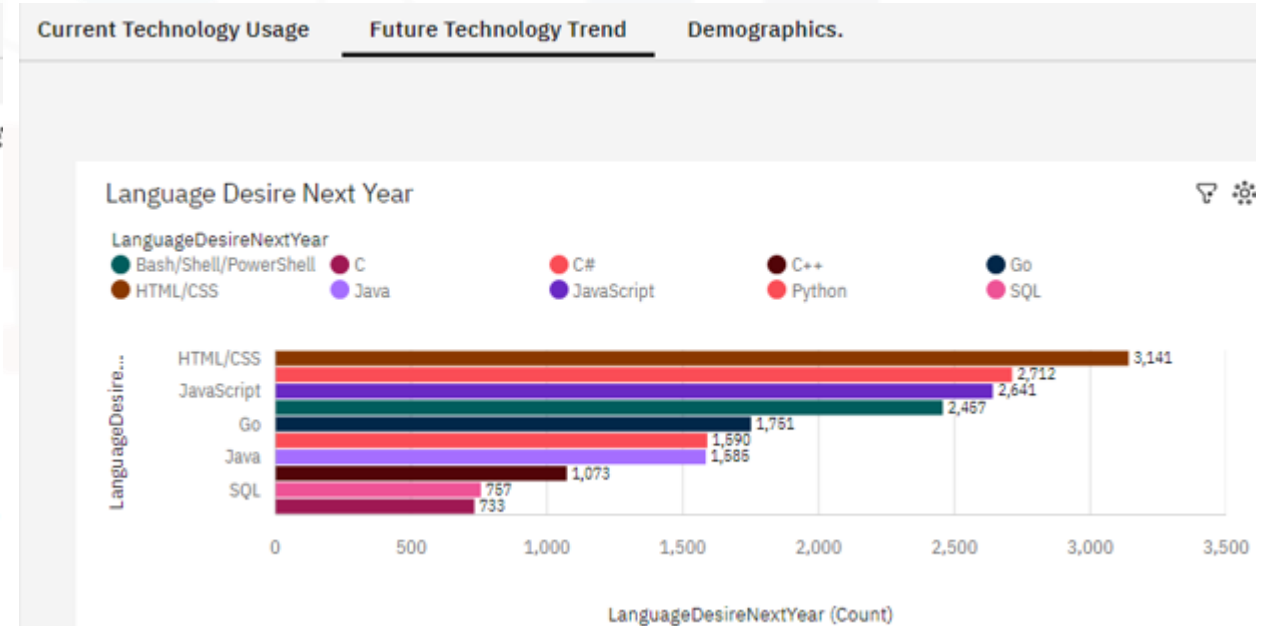
- We analyzed the top programming languages currently in use and projected preferences for the next year.
- JavaScript emerged as the most desired language for the next year, followed by HTML/CSS and Python.
- Findings indicate a continued demand for web development languages such as JavaScript and Python.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year

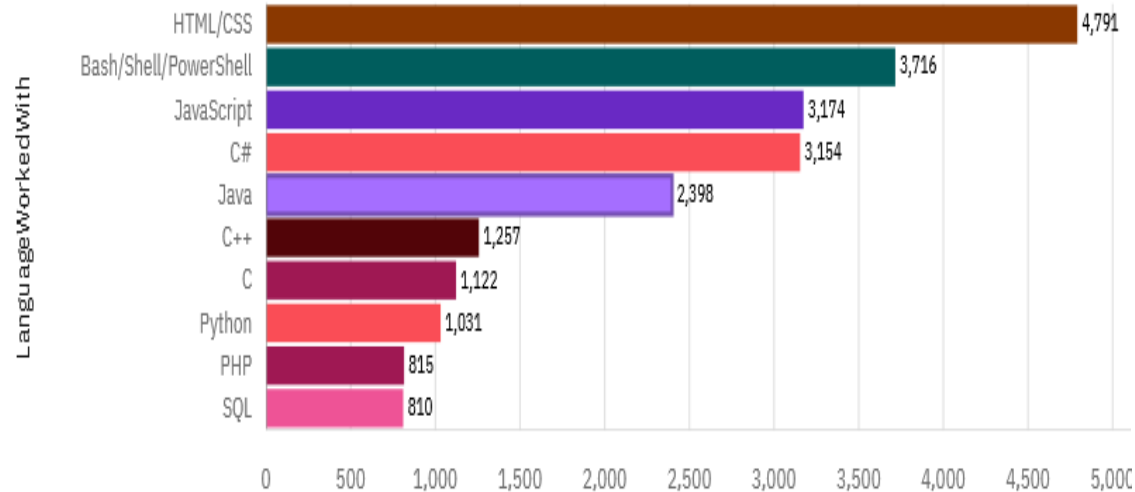


PROGRAMMING LANGUAGE TRENDS

Current Year

Top Ten Language Worked With

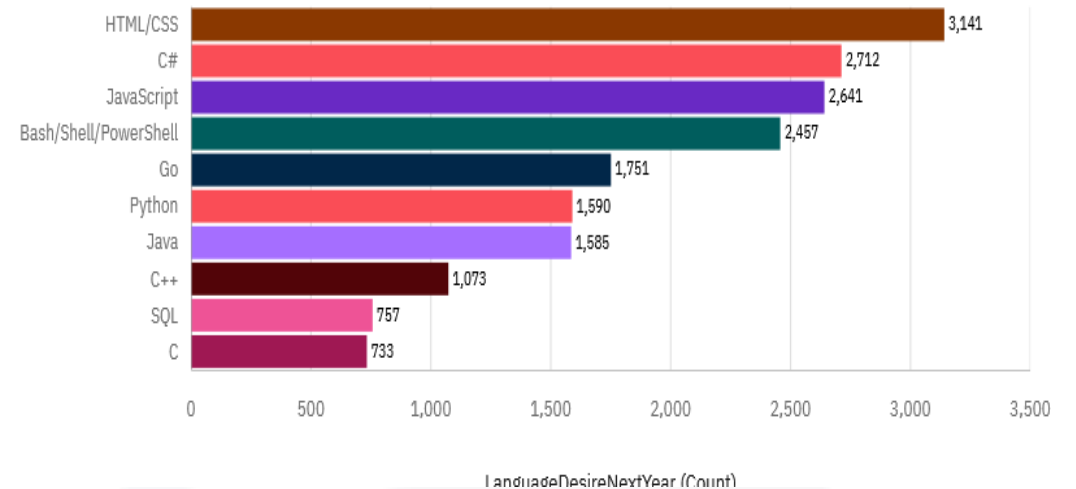
LanguageWorkedWith



Next Year

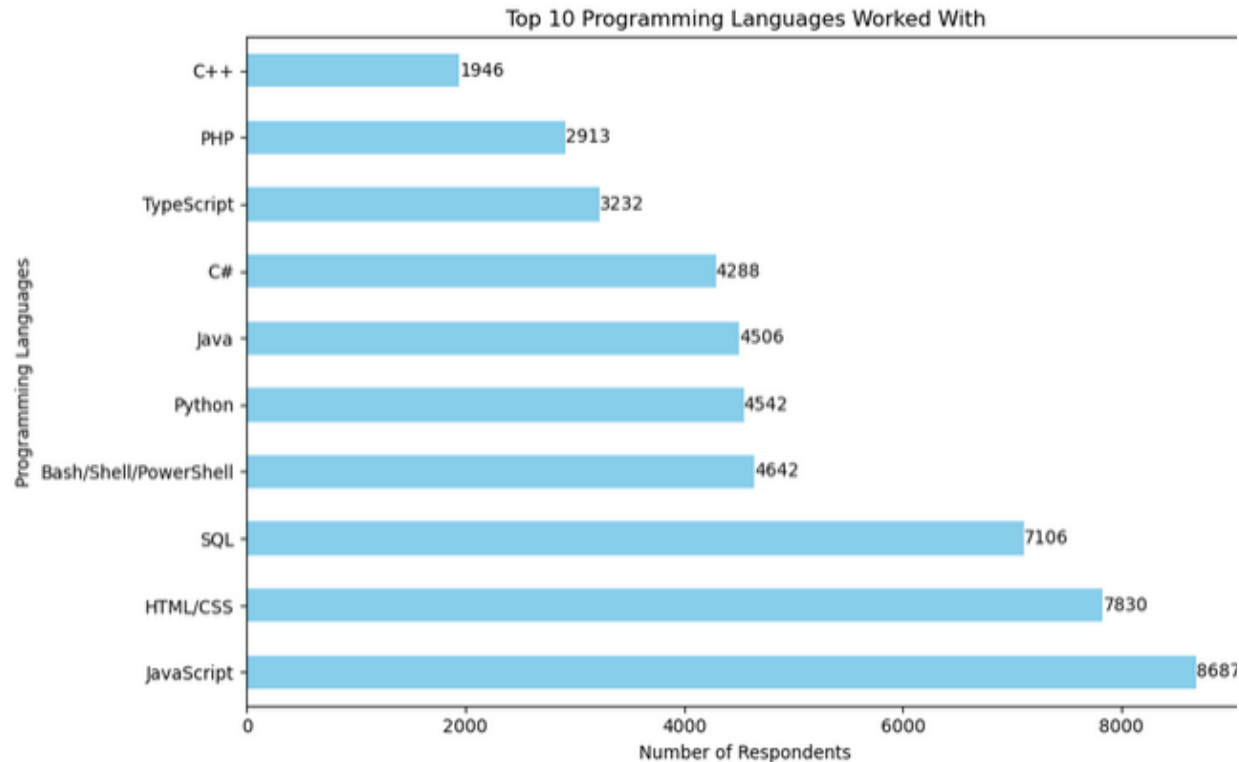
Language Desire Next Year

LanguageDesireNextYear

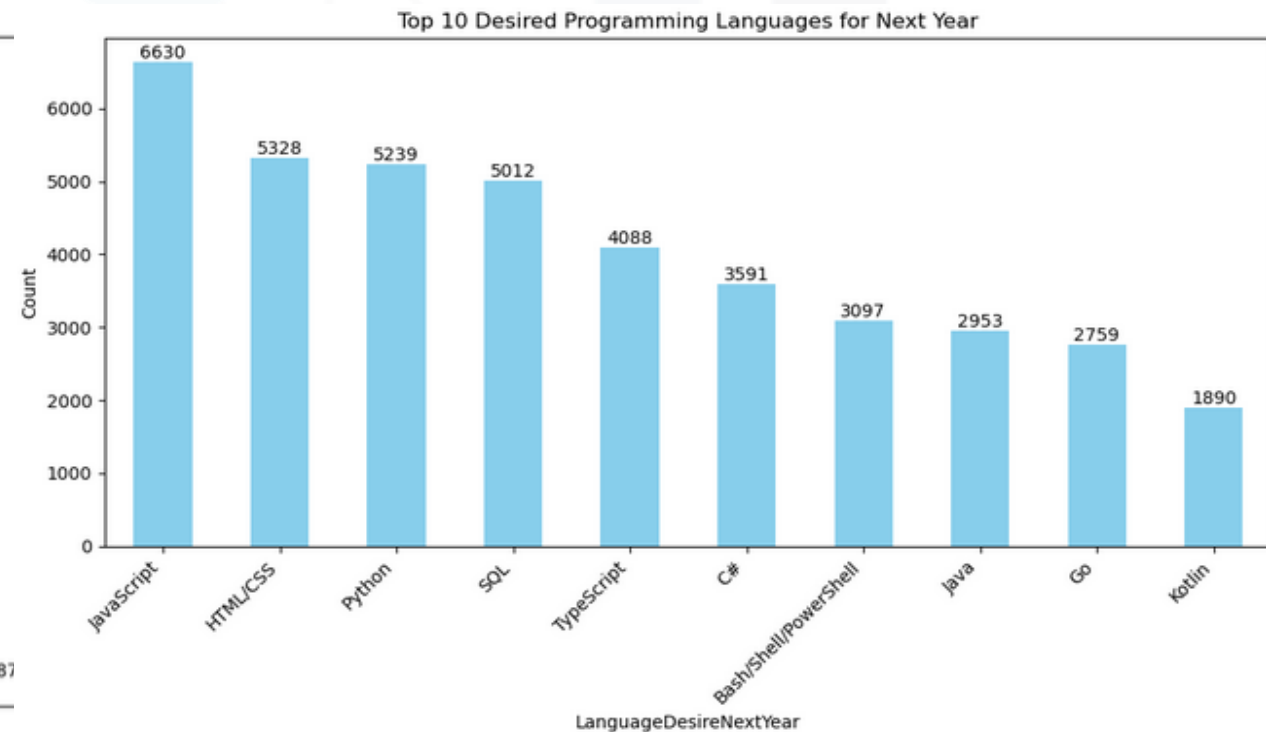


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



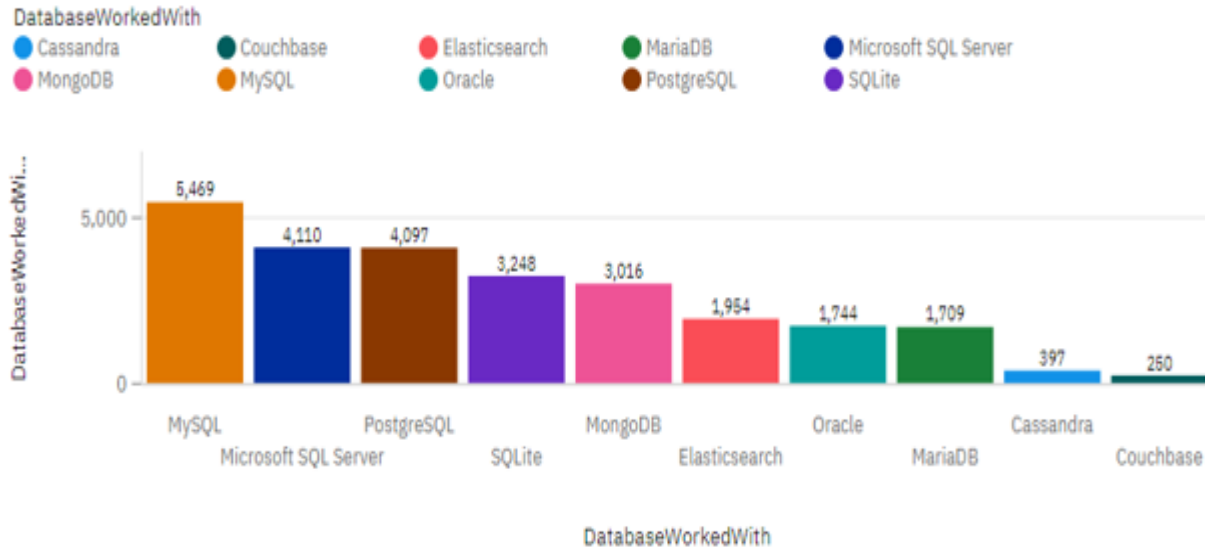
PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

- Finding 1: JavaScript and HTML/CSS dominate both current and future preferences, indicating their significance in software development.
- Finding 2: Python's popularity continues to rise, highlighting its versatility and wide-ranging applications
- **Finding 3; jQuery Dominance:** The bubble chart indicates that "jQuery" has the highest count among the top 10 web frameworks worked with. This suggests that jQuery remains a widely used and prevalent framework in web development despite the emergence of newer technologies.
- **Finding 4; Angular and React Usage:** "Angular/Angular.js" and "React.js" also show significant usage, ranking second and third, respectively, in terms of count. This highlights the popularity of modern JavaScript frameworks for building interactive and dynamic web applications
- Implication 1: Organizations should invest in resources and training for JavaScript and Python to meet industry demands effectively.
- **Skill Development:** Developers should stay updated with the latest trends and advancements in web development, particularly regarding popular frameworks like Angular, React, and jQuery. Continuous learning and skill development are essential for mastering these frameworks and staying competitive in the job market.
- **Training and Education:** Organizations and educational institutions may need to provide training programs and resources to support individuals in learning desired platforms. This could include online courses, workshops, certification programs, or hands-on training sessions.

DATABASE TRENDS

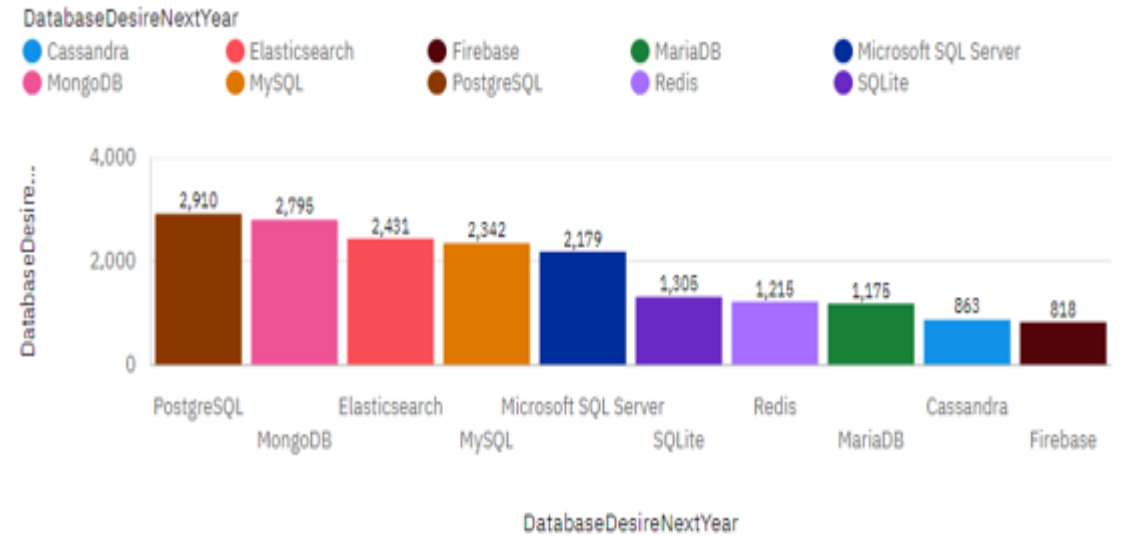
Current Year

Top Ten Database Worked With



Next Year

Respondent_Count by Database Desire Next Year



Results - Database Trends

- Our analysis revealed the top databases currently used and anticipated for the next year.
- PostgreSQL emerged as the most desired database for the next year, followed by MongoDB and Redis.
- The findings suggest a shift towards scalable and flexible database solutions.

DATABASE TRENDS - FINDINGS & IMPLICATIONS

- Finding 1: PostgreSQL leads in future database preferences, signaling its reliability and robust features.
- Finding 2: MongoDB's NoSQL approach remains popular for handling large volumes of unstructured data.
- Implication 1: Businesses should consider adopting PostgreSQL for its scalability and support for complex data structures.

Visualization - Charts

- We utilized various chart types, including bar charts, pie charts, and treemaps, to visualize the survey data effectively. These visualizations provided valuable insights into the distribution and preferences of programming languages, databases, and other technology-related factors among developers.

DASHBOARD



<https://github.com/Abdikadir65/Survey-Technology-Trend-Dashboard/blob/main/SurveyTechnologies%20Trends%20Dashboard.pdf>

DASHBOARD TAB 1

Current Technology Usage

Future Technology Trend

Demographics.

+

Respondent_Count

Top Ten Language Worked With

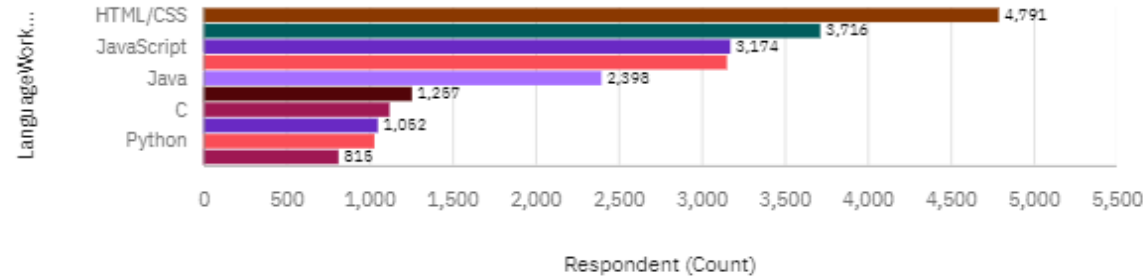
LanguageWorkedWith

(no value)
C++
PHP

Bash/Shell/PowerShell
HTML/CSS
Python

C
Java

C#
JavaScript



Top Ten Database Worked With

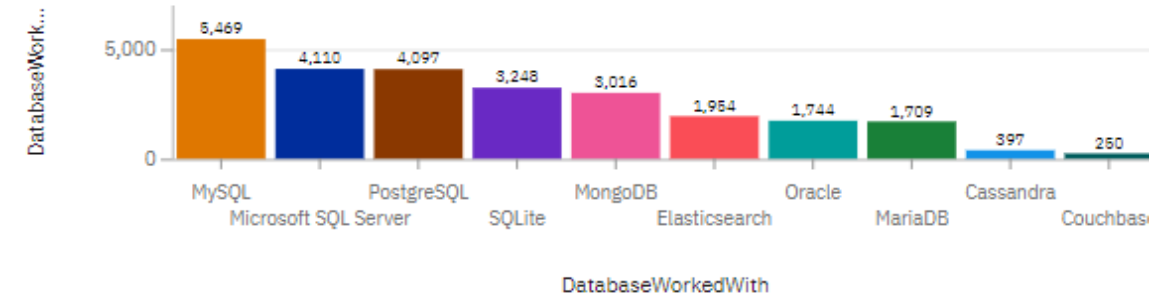
DatabaseWorkedWith

Cassandra
Microsoft SQL Server
PostgreSQL

Couchbase
MongoDB
SQLite

Elasticsearch
MySQL

MariaDB
Oracle



Current Technology Usage

Future Technology Trend

Demographics.

+

LanguageDesireNextYear (Count)

PlatformDesireNextYear

PlatformDesireNextYear

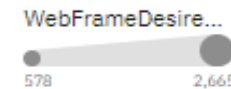
Platform Desire Nexst Year

PlatformDesireNe...

PlatformDesireNe...



Web Frame Desire Next Year



WebFrameDesireNextYear
jQuery
Laravel
Angular/Angular.js
Vue.js
Flask
ASP.NET
Spring
React.js
Django

DASHBOARD TAB 2

Current Technology Usage

Future Technology Trend

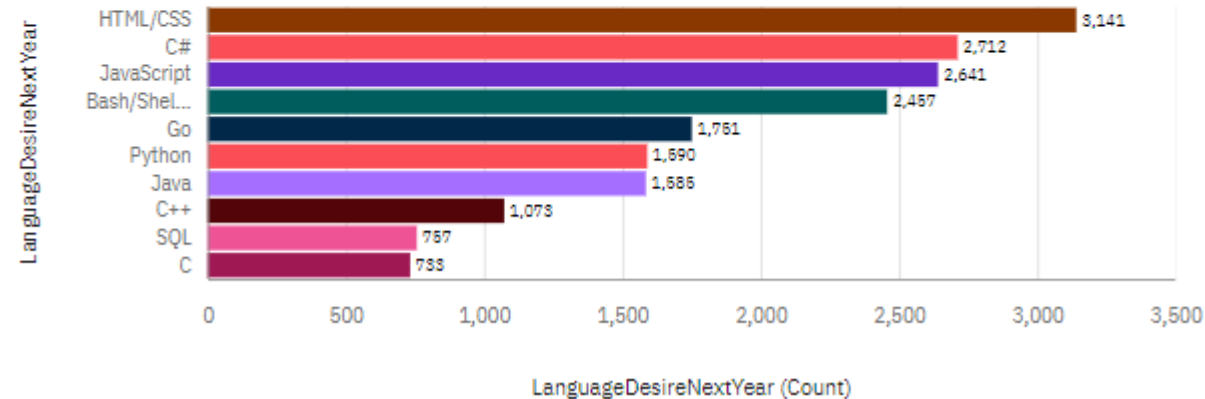
Demographics.

+

Top 10 Language Desire Next Year

LanguageDesireNextYear

● Bash/Shell/PowerShell ● C ● C# ● C++
● Go ● HTML/CSS ● Java ● JavaScript
● Python ● SQL



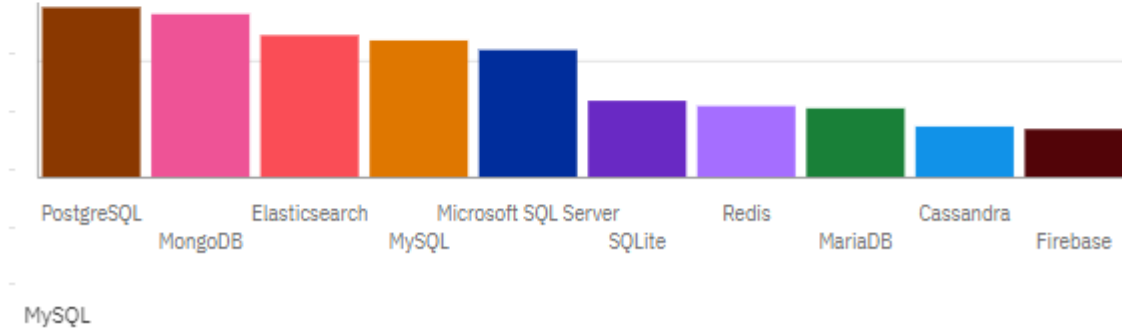
DatabaseDesireNextYear

DatabaseDesireNextYear

Top Ten Database Desire Nest Year

DatabaseDesireNextYear

● Cassandra ● Elasticsearch ● Firebase ● MariaDB
● Microsoft SQL Server ● MongoDB ● MySQL ● PostgreSQL
● Redis ● SQLite



Current Technology Usage

Future Technology Trend

Demographics.

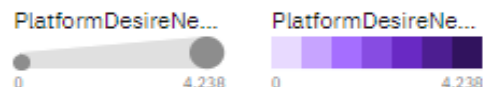
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LanguageDesireNextYear (Count)

PlatformDesireNextYear

PlatformDesireNextYear

Platform Desire Next Year



Web Frame Desire Next Year

WebFrameDesire...



WebFrameDesireNextYear

● jQuery ● Vue.js ● Spring ● React.js
● Laravel ● Flask ● Express ● Django
● Angular/Angular.js ● ASP.NET

DASHBOARD TAB 3

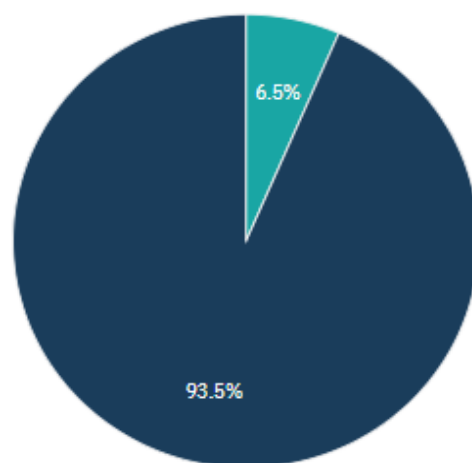
Current Technology Usage

Future Technology Trend

Demographics.

Respondents classified by Gender

Gender
● Woman ● Man



Respondent_Count

Respondent_Count

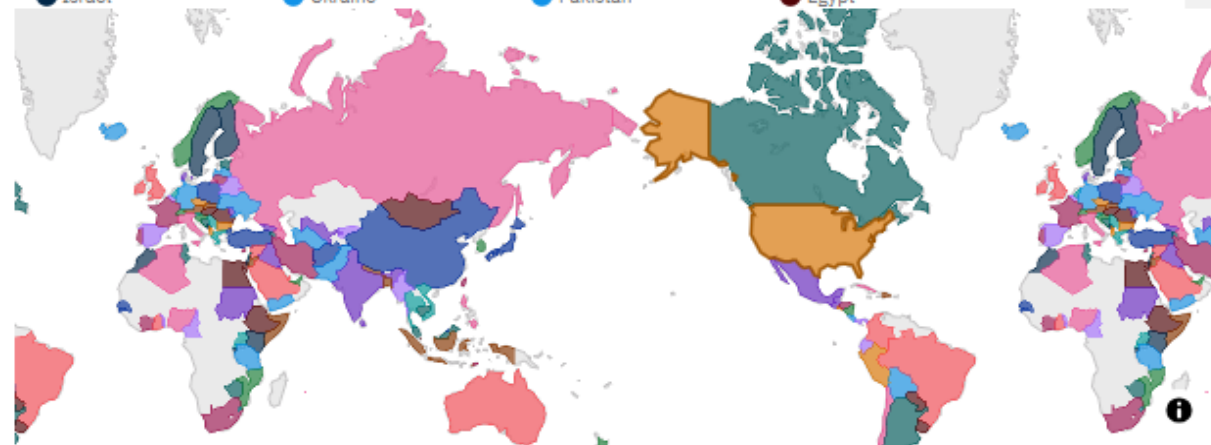
Respondent by Age colored by Age

Age
● (no value) ● 16 ● 17 ● 18 ● 19 ● 20 ● 21 ● 22

R

Respondent Count for Countries

Country
● United States ● South Africa ● Netherlands ● United Kingdom
● India ● Brazil ● Canada ● Romania
● Iran ● Latvia ● United Arab Emirates ● Sweden
● Japan ● Russian Federation ● Australia ● Poland
● Israel ● Ukraine ● Pakistan ● Egypt



Count by Gender

Count by Gender

Respondent Count by Gender, classified by Formal Education Level.

EdLevel
● (no value) ● Associate degree ● ...
● Primary/elementary school ● Professional degree (JD, MD, etc.) ● ...

DISCUSSION



- The analysis presented in this report sheds light on the evolving trends in programming languages and databases, offering valuable insights for businesses, educators, and technology professionals. The findings highlight the importance of staying updated with emerging technologies and adapting to changing industry demands.

OVERALL FINDINGS & IMPLICATIONS

Findings

- among the top 10 web frameworks worked with. This suggests that jQuery remains a widely used and prevalent framework in web development despite the emergence of newer technologies.
- **Angular and React Usage:** "Angular/Angular.js" and "React.js" also show significant usage, ranking second and third, respectively, in terms of count. This highlights the popularity of modern JavaScript frameworks for building interactive and dynamic web applications.
- **Co-Occurrence of Frameworks:** The Venn diagram reveals overlapping areas between different web frameworks, indicating that certain frameworks are commonly worked together. For example, there is an overlap between "jQuery," "Angular/Angular.js," and "React.js," suggesting that developers often use these frameworks in combination to enhance web application functionality.
- **Popular Desired Platforms:** In both visualizations, certain platforms stand out as desired choices for the next year. These include "Linux," "AWS" (Amazon Web Services), "Docker," "Android," "Kubernetes," and "MacOS."
- **Diversity of Desires:** Respondents express a wide range of desires for platforms to learn, encompassing operating systems (e.g., Linux, MacOS), cloud services (e.g., AWS, Google Cloud Platform), containerization technologies (e.g., Docker, Kubernetes), and mobile development platforms (e.g., Android, iOS).
- **Popular Desired Web Frameworks:** The bubble chart showcases the most desired web frameworks for the next year. Notable frameworks include "React.js," "Vue.js," "Angular/Angular.js," "ASP.NET," and "jQuery."
- **Variety in Desires:** Respondents express a diverse range of preferences for web frameworks they want to learn in the upcoming year. This includes both front-end frameworks (e.g., React.js, Vue.js) and back-end frameworks (e.g., ASP.NET, Django).

Implications

- **Technology Stack Selection:** Organizations and development teams should carefully consider the selection of web frameworks based on project requirements, scalability needs, and developer expertise. Understanding the strengths and weaknesses of each framework can help in making informed decisions and optimizing the technology stack.
- **Skill Development:** Developers should stay updated with the latest trends and advancements in web development, particularly regarding popular frameworks like Angular, React, and jQuery. Continuous learning and skill development are essential for mastering these frameworks and staying competitive in the job market.
- **Framework Integration:** Emphasizing compatibility and integration between different web frameworks can enhance development efficiency and facilitate collaboration among team members. Developers should explore opportunities for combining frameworks to maximize functionality and streamline development workflows.
- **Training and Education:** Organizations and educational institutions may need to provide training programs and resources to support individuals in learning desired platforms. This could include online courses, workshops, certification programs, or hands-on training sessions.
- **Recruitment and Hiring:** Employers should consider the desired platforms of prospective candidates when recruiting for technical roles. Aligning job requirements with candidates' skillsets and aspirations can improve hiring outcomes and employee satisfaction.
- **Continuous Learning Culture:** Encouraging a culture of continuous learning and skill development within the organization can help employees stay updated with emerging technologies and remain competitive in the rapidly evolving tech landscape.

CONCLUSION



- In conclusion, our analysis provides valuable insights into the current state and future trends of programming languages and databases. By understanding these trends, businesses and professionals can make informed decisions to stay competitive in the rapidly evolving tech landscape.
- This report encapsulates our journey from data collection to visualization and dashboard creation, providing a comprehensive overview of programming language and database trends in the software development industry.

In summary, the findings highlight the diverse landscape of web frameworks used in the tech community, ranging from traditional libraries like jQuery to modern frameworks like Angular and React. Understanding these usage patterns and trends can inform strategic decisions in web development projects and contribute to the evolution of best practices in the field.

These visualizations display the desired platforms that respondents want to learn for the next year, based on the provided survey data.

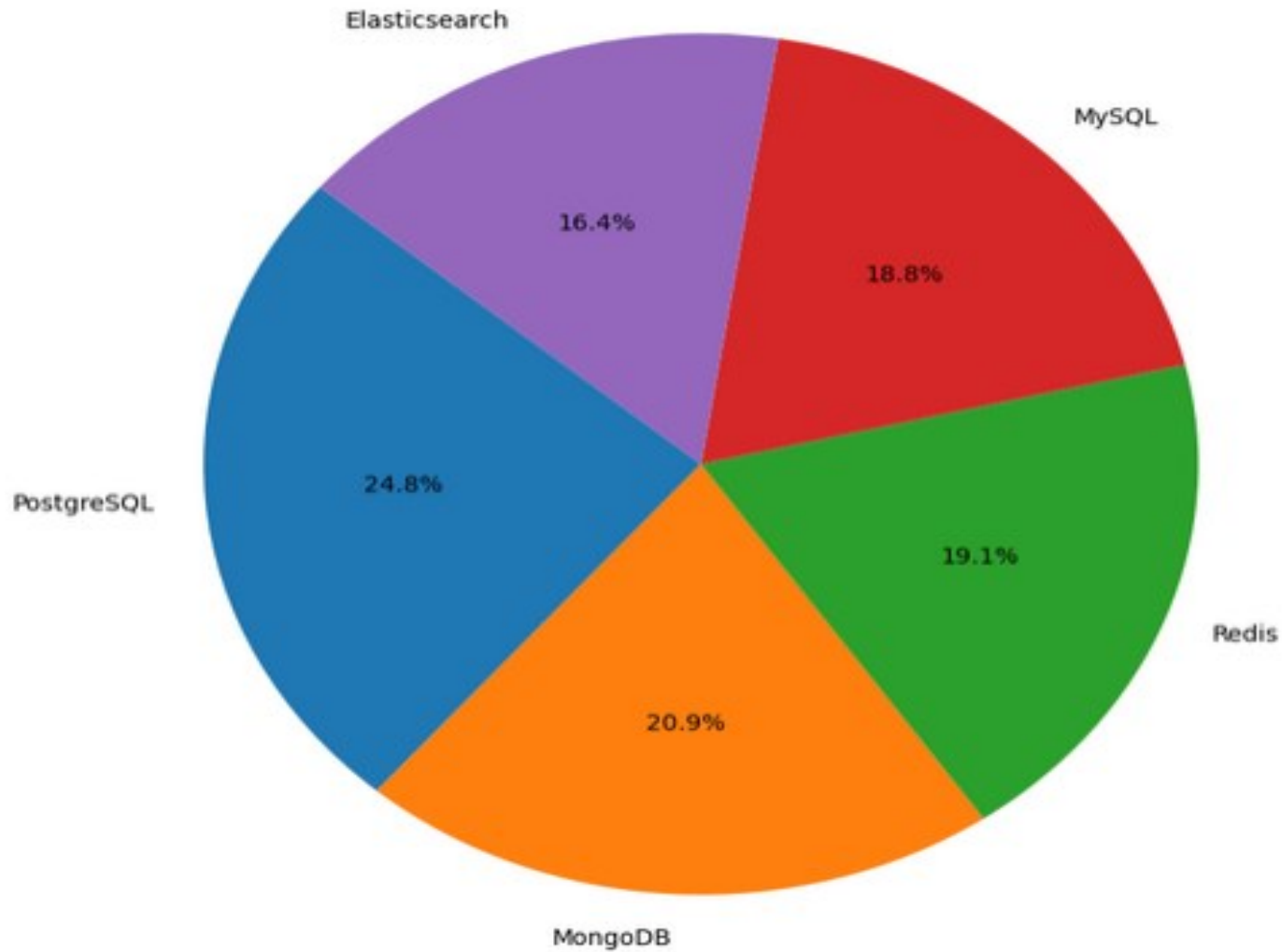
The findings highlight the diverse interests and aspirations of respondents regarding the platforms they want to learn for the next year. Understanding these desires can inform strategies for career development, training initiatives, and talent acquisition in the tech industry.

The visualization depicts the top 10 desired web frameworks for the next year, as expressed by the respondents in the survey data.

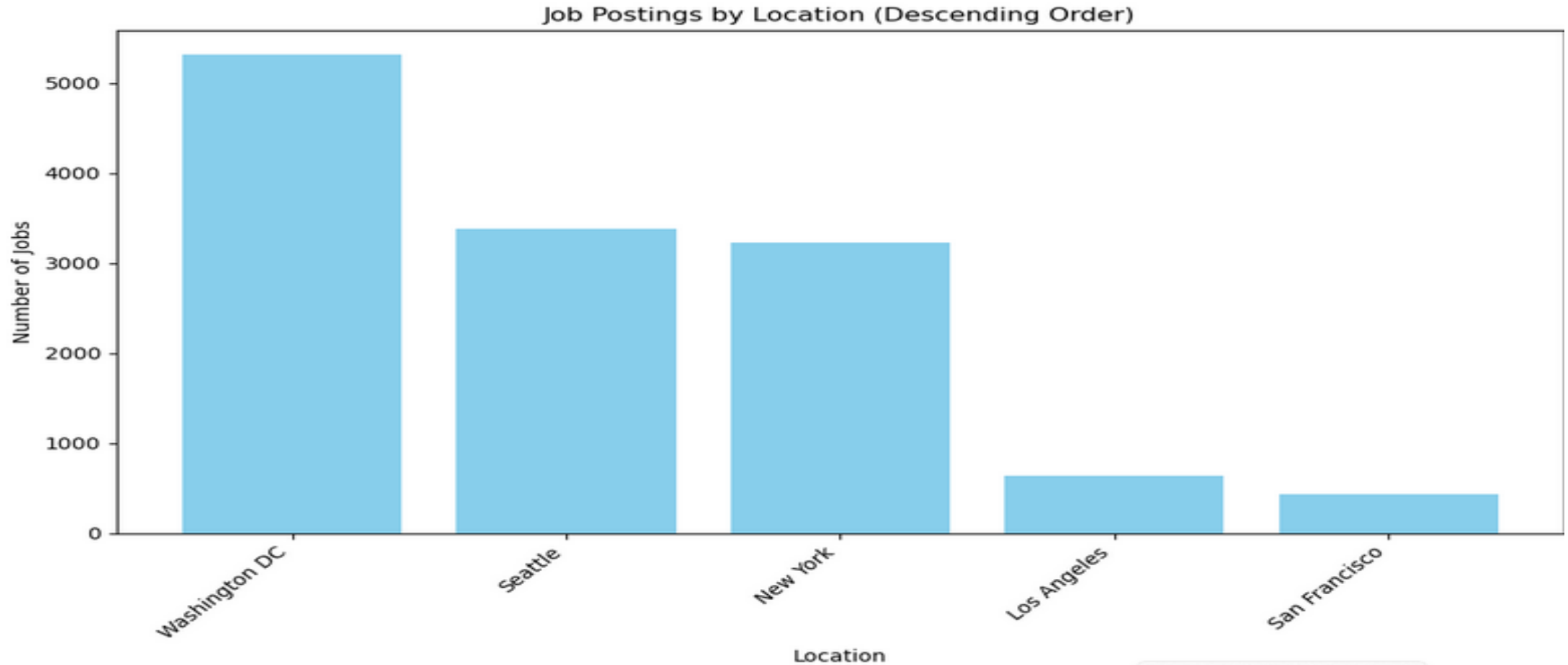
The findings from the visualization shed light on the web frameworks that developers aspire to learn and work with within the coming year. Recognizing these preferences can guide efforts in skill development, career planning, and technology adoption to meet the evolving needs of the tech community.

APPENDIX

Top 5 Databases Respondents Wish to Learn Next Year



JOB POSTINGS



POPULAR LANGUAGES

Average Annual Salary

Job Postings

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Average Annual Salary by Language colored by Language

Language

C#
Swift

C++

Go

Java

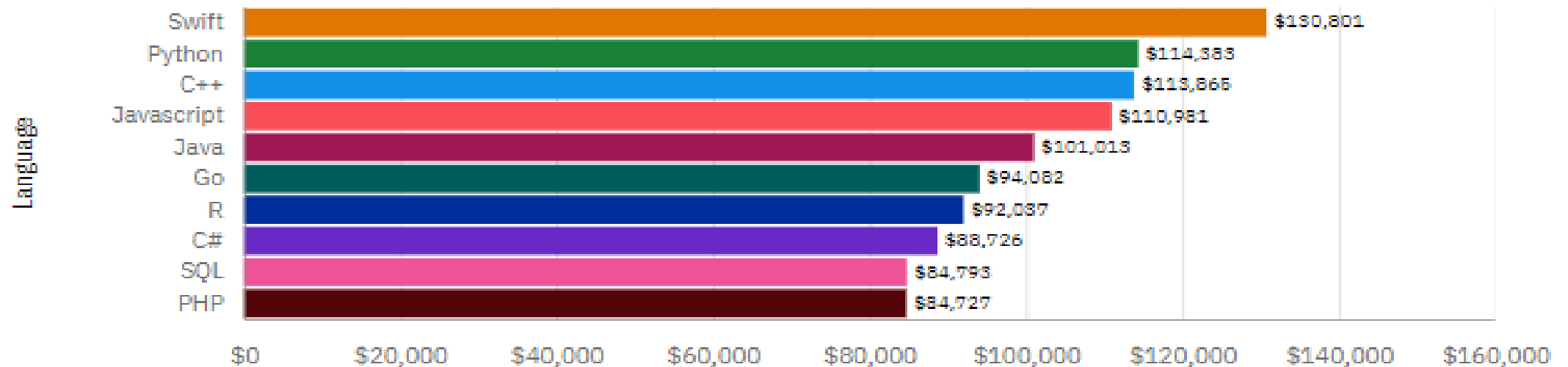
Javascript

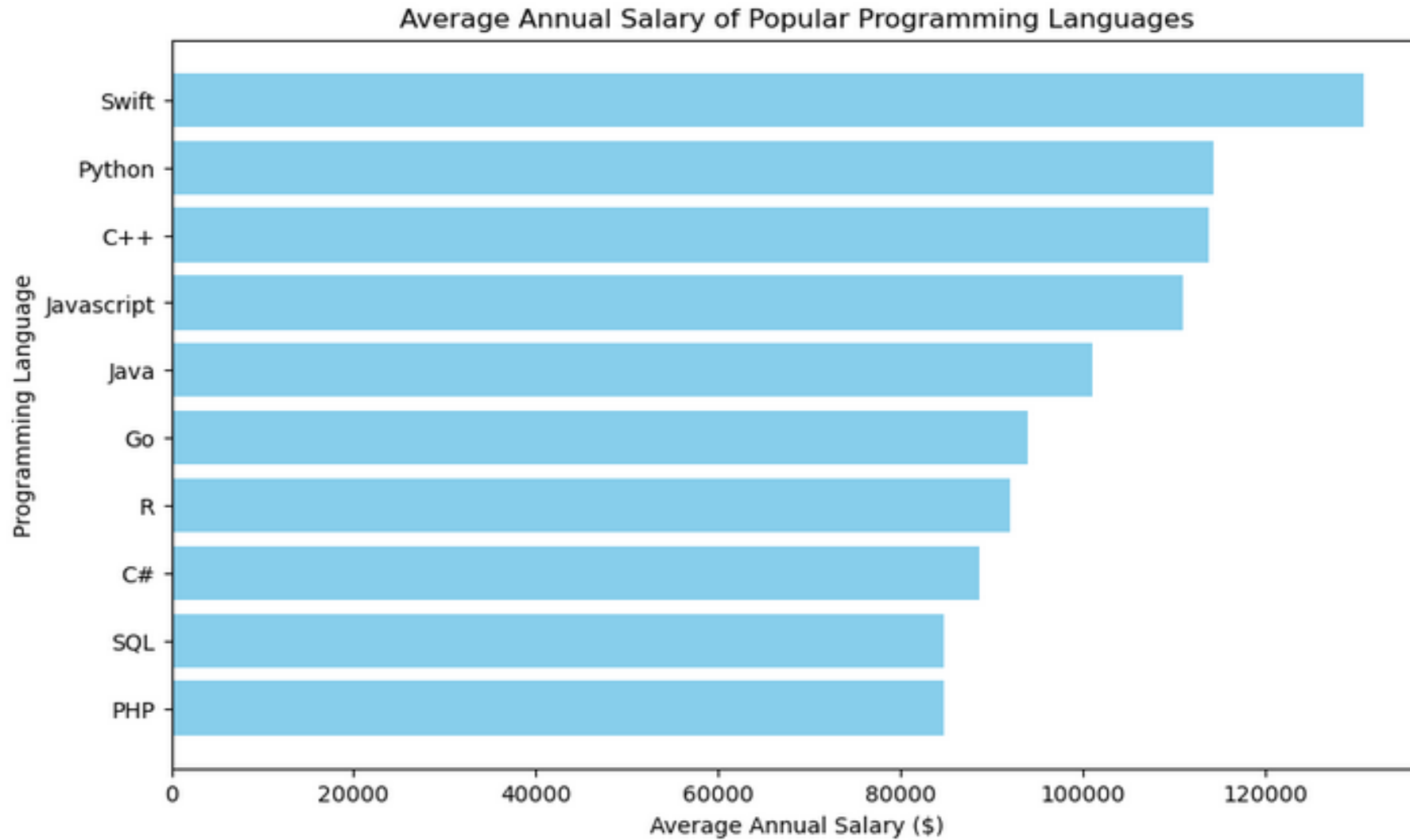
PHP

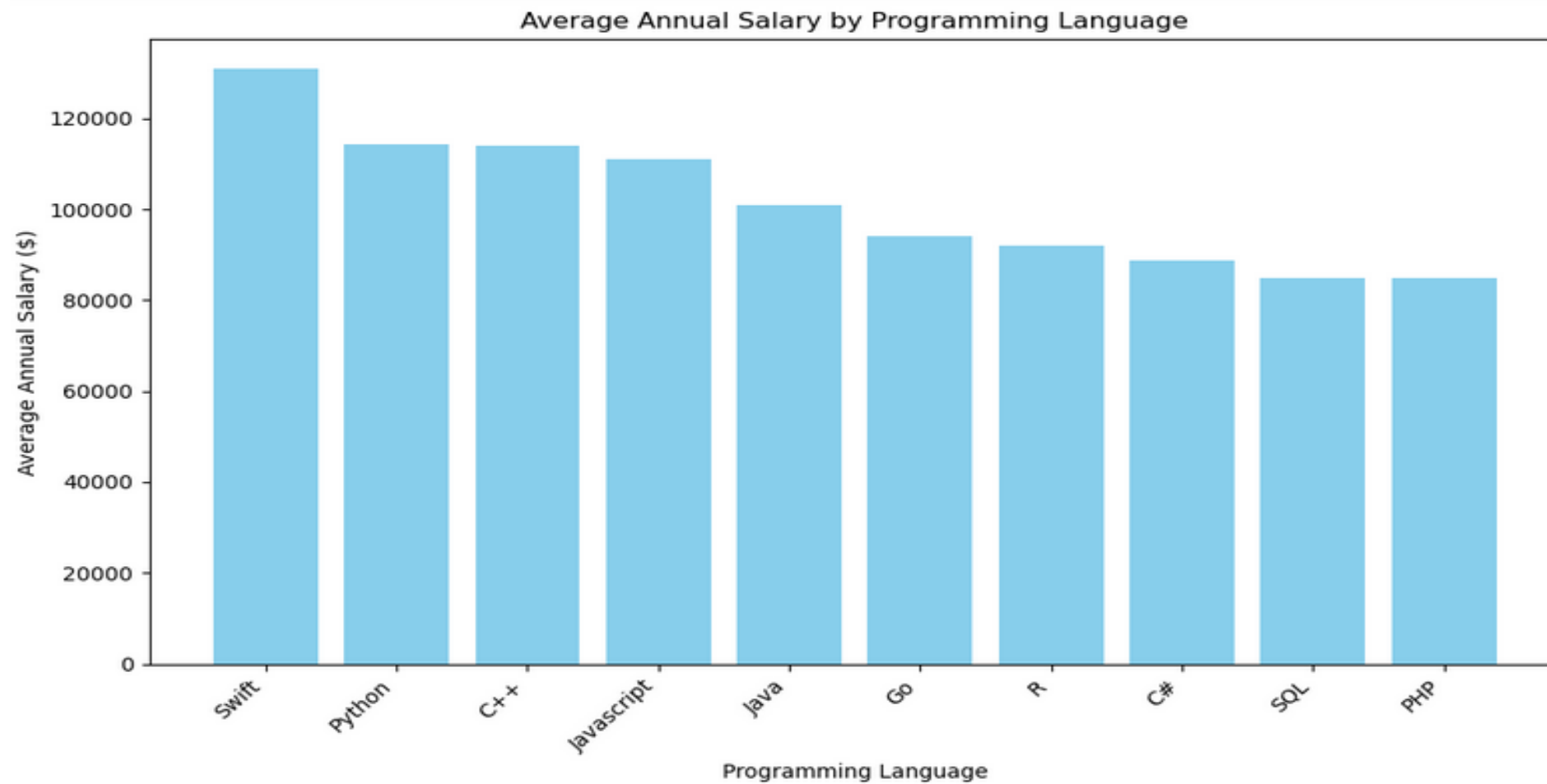
Python

R

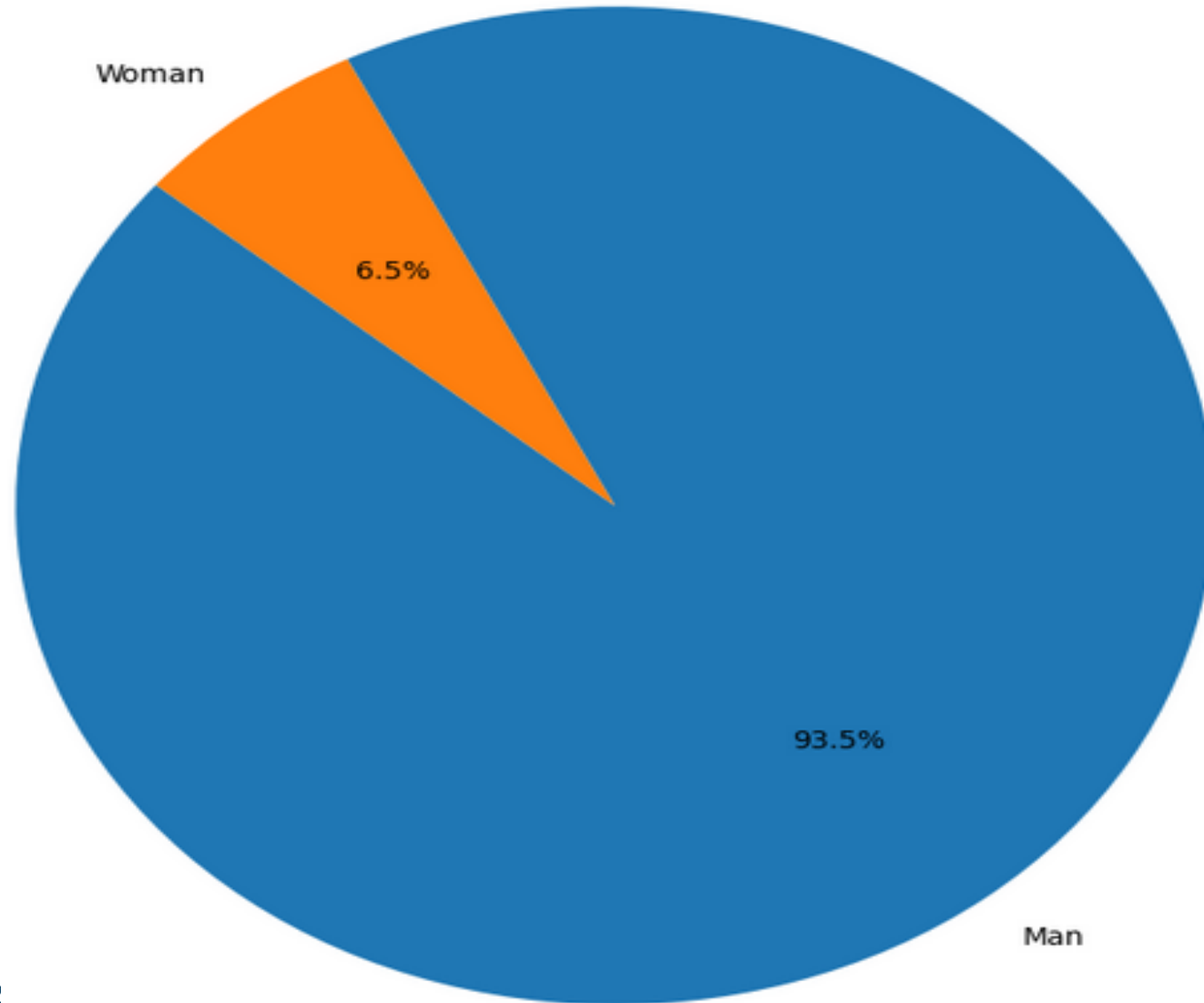
SQL



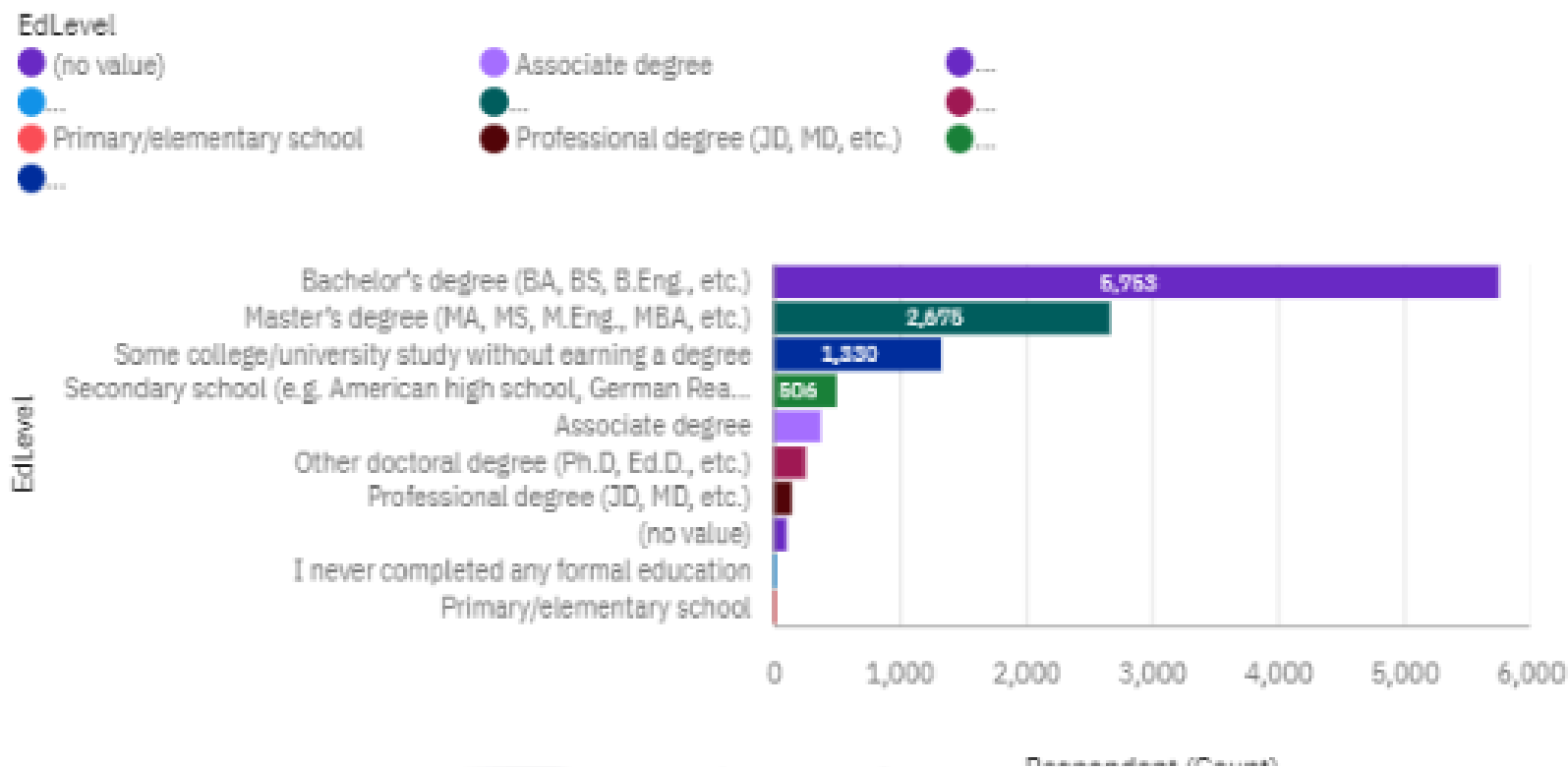




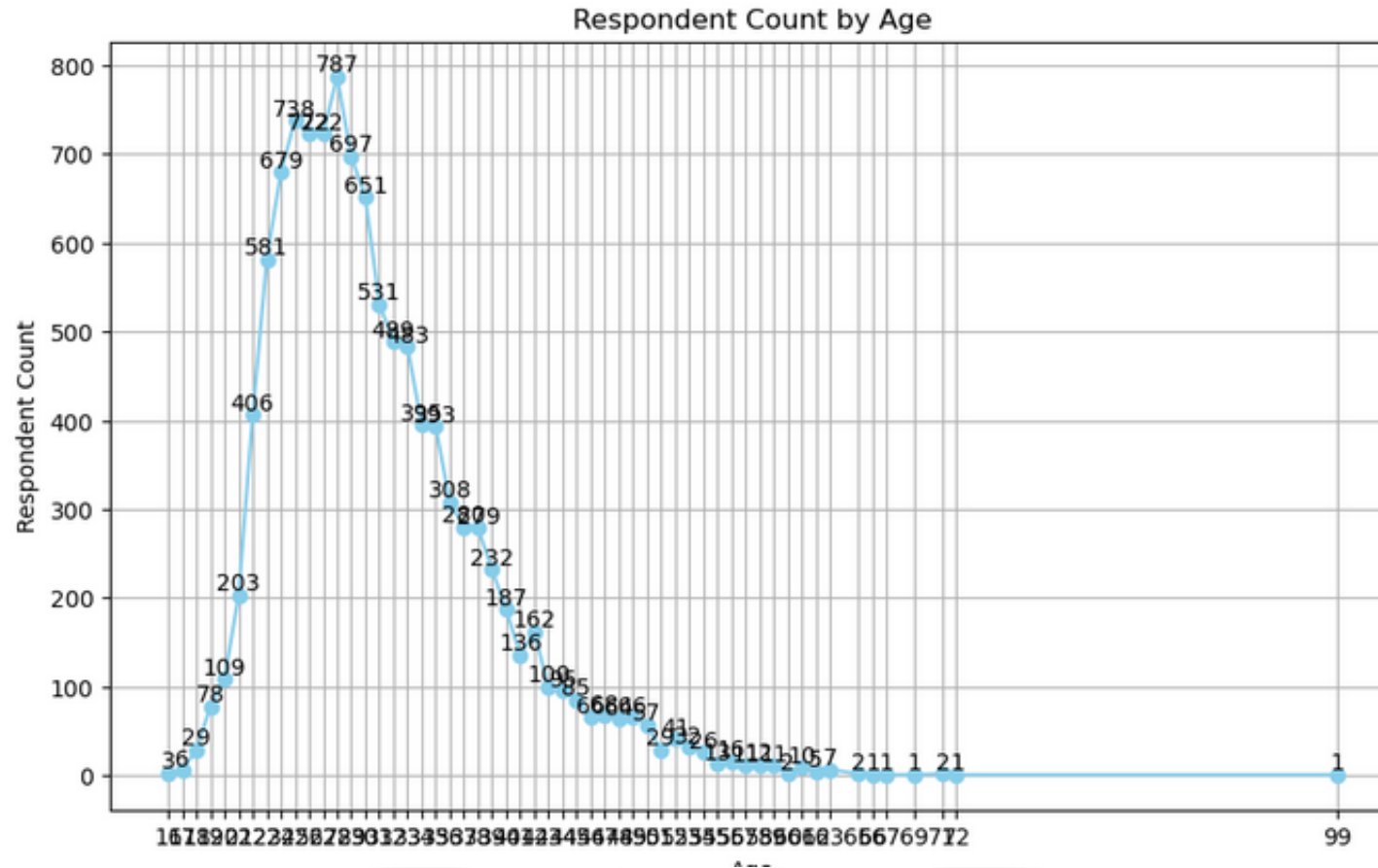
Respondents Classified by Gender



Respondent by Gender and Formal Education Level

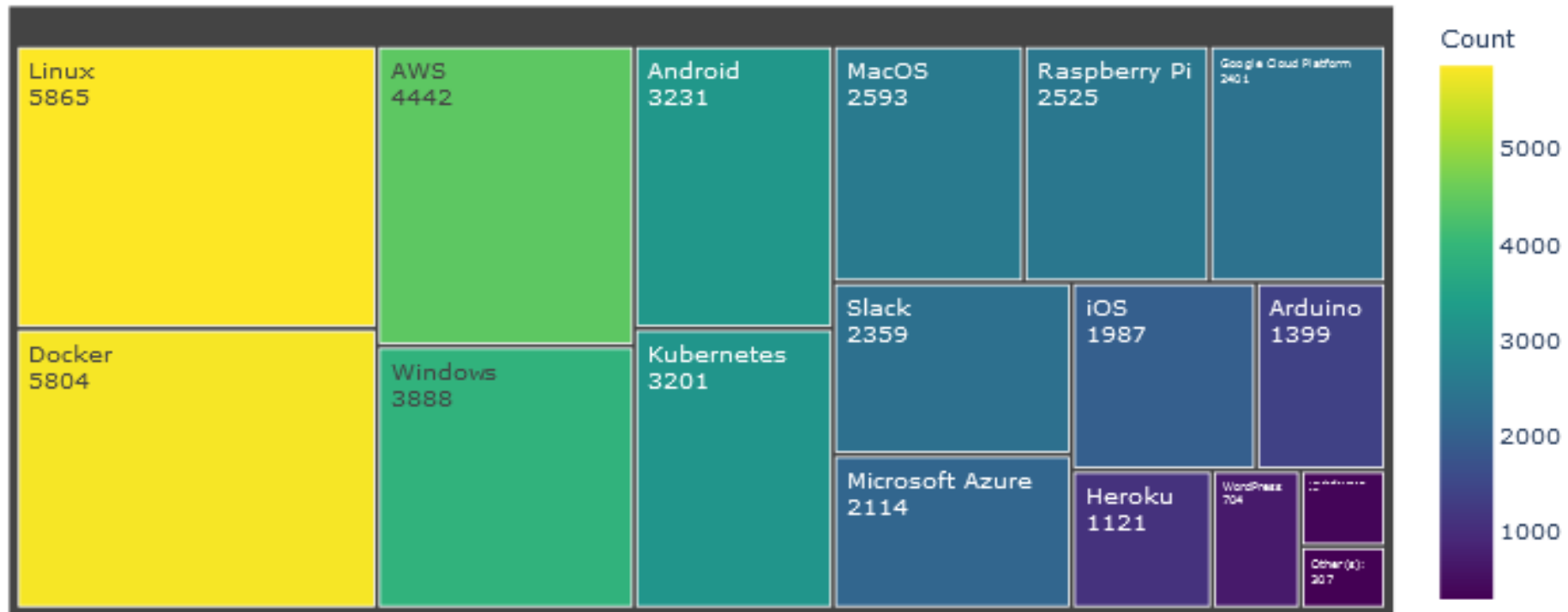


Respondent by Age

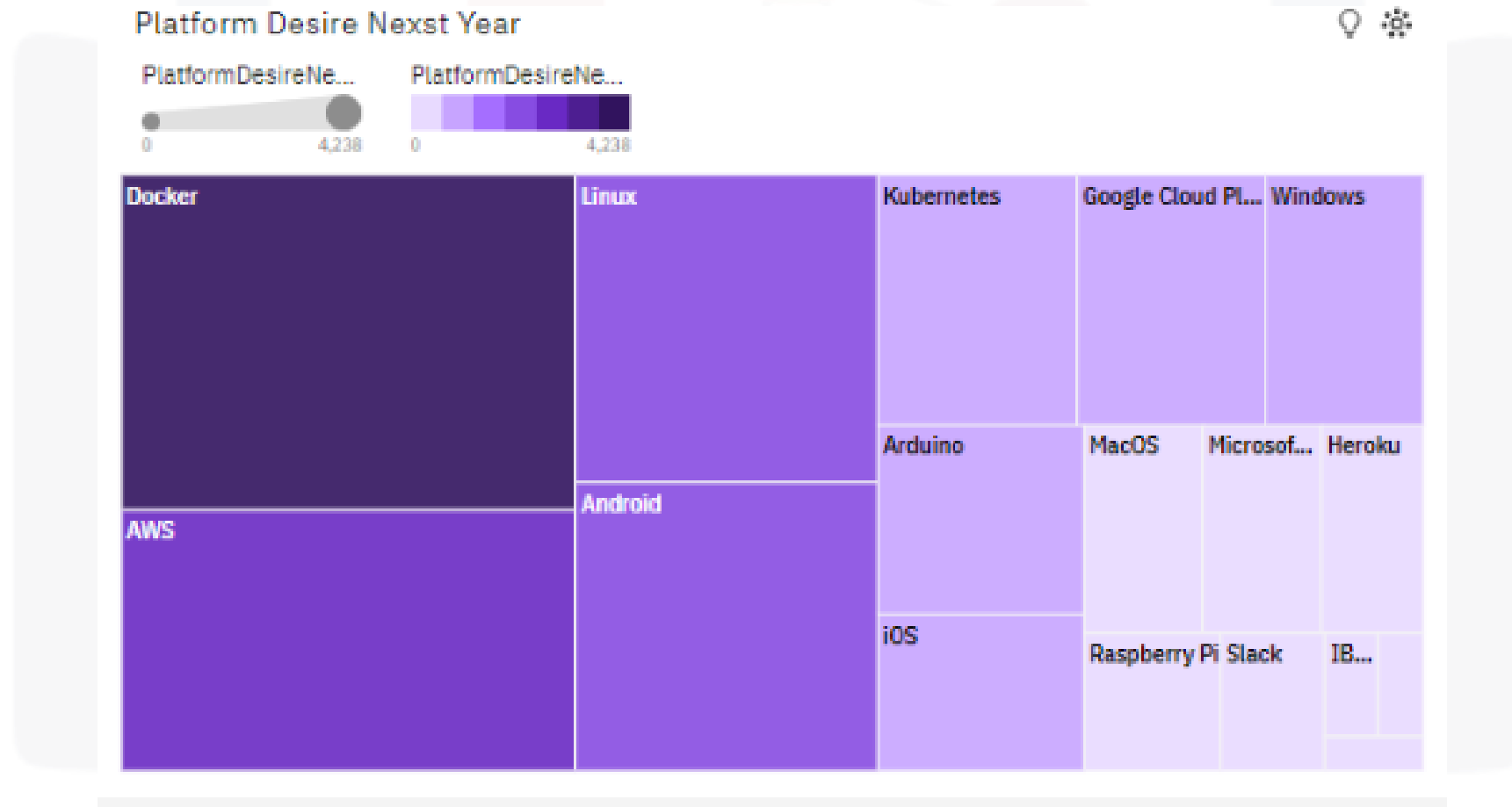


Desired PlatForms Next Year

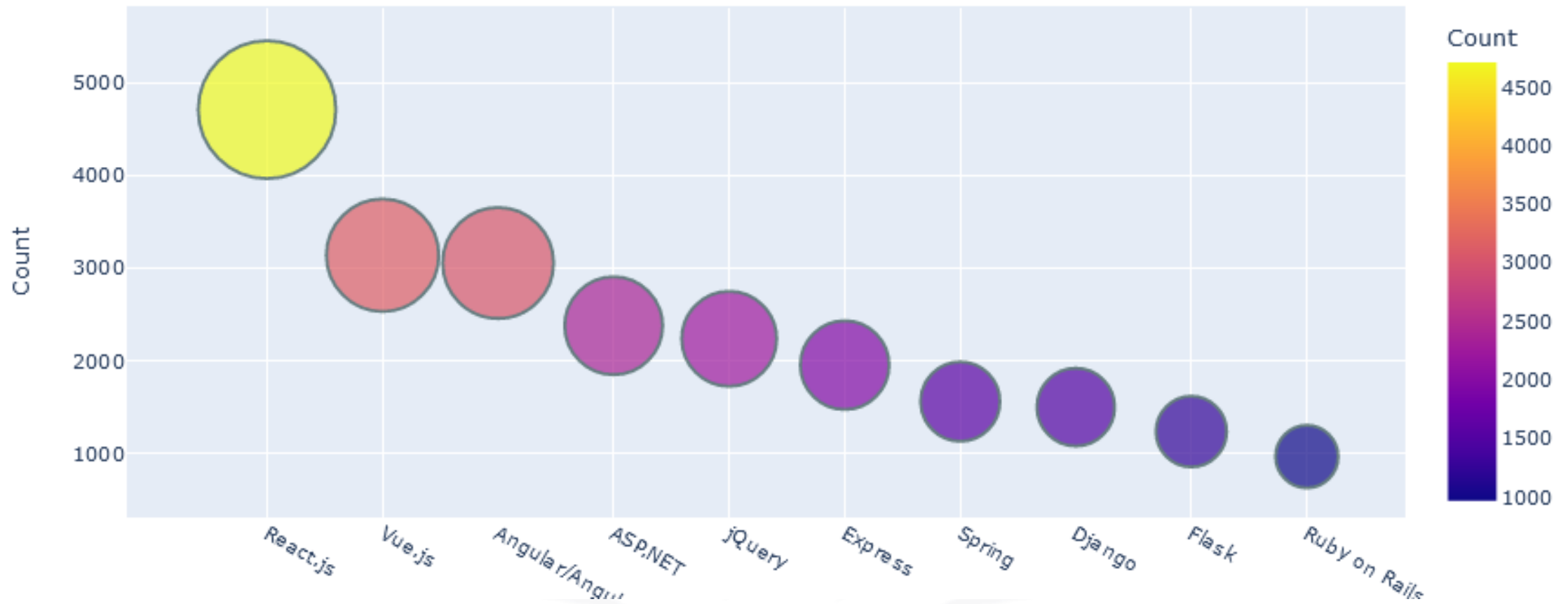
Desired Platforms for Next Year (Tree Map)



Platform Desired Next Year



Web Frame Desired in the Future



Web Frame Desired Next year

