Emerging Technologies and Trending Skills Analysis

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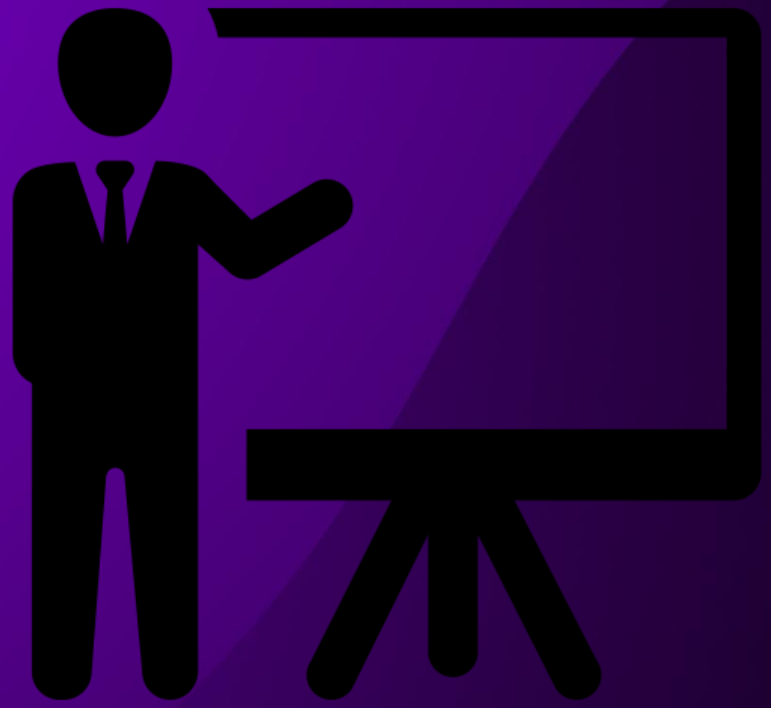


EXECUTIVE SUMMERY

- This comprehensive report explores the dynamics of the IT industry, highlighting the latest trending technologies and skills. It also examines trends related related to these advancements
- This data is gathered from IBM site and has undergone data cleaning, analysis, and visualization . The goal is to gain insights into IT industries and its demographics.
- Using analysis and visualization, we uncovered key It industry trends. Bash/Shell is the most used language, PostgreSQL the top database, AWS the leading platform, and Angular the most desired web framework. The report also highlights other crucial industry insights and demographic trends.
- Furthermore, we also explored the relationship between education level and age, providing deeper insights.

INTRODUCTION

- This presentation highlights key insights and addresses important questions, including the following:
  - Top 10 trending and future desired programming languages
  - Top 10 Databases
  - Top 10 web frame works
  - Mostly used Platforms
  - Multiple Demographic insights
- This presentation is for anyone interested in the IT industry and looking to learn about top trends and in-demand skills.

METHODOLOGY

- Data Collection

  This Survey Data is gathered from the IBM site.

- Data Wrangling

  Data wrangling method is employed to accomplish the following tasks: identifying and removing duplicate rows, columns, and nan values, normalization and mapping of data is also performed.

- Exploratory Data Analysis

  Analysing the distribution of data, finding outliers, determining correlation and cross-tabulation, calculating median, and creating new columns from existing columns.

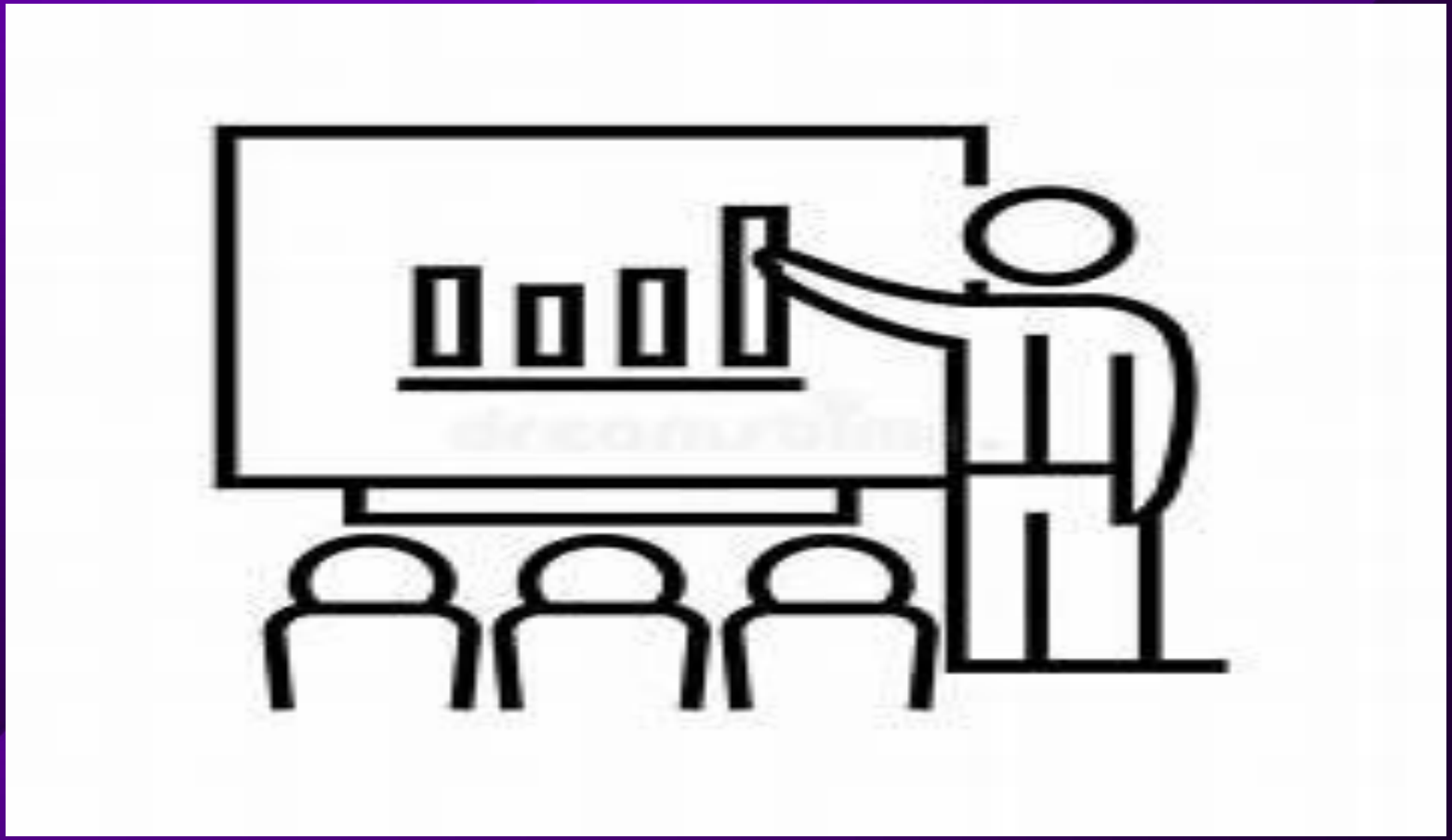
- Visualization

  After transforming the data is used to visualise the distribution, relationship, and comparisons.

- Dashboard

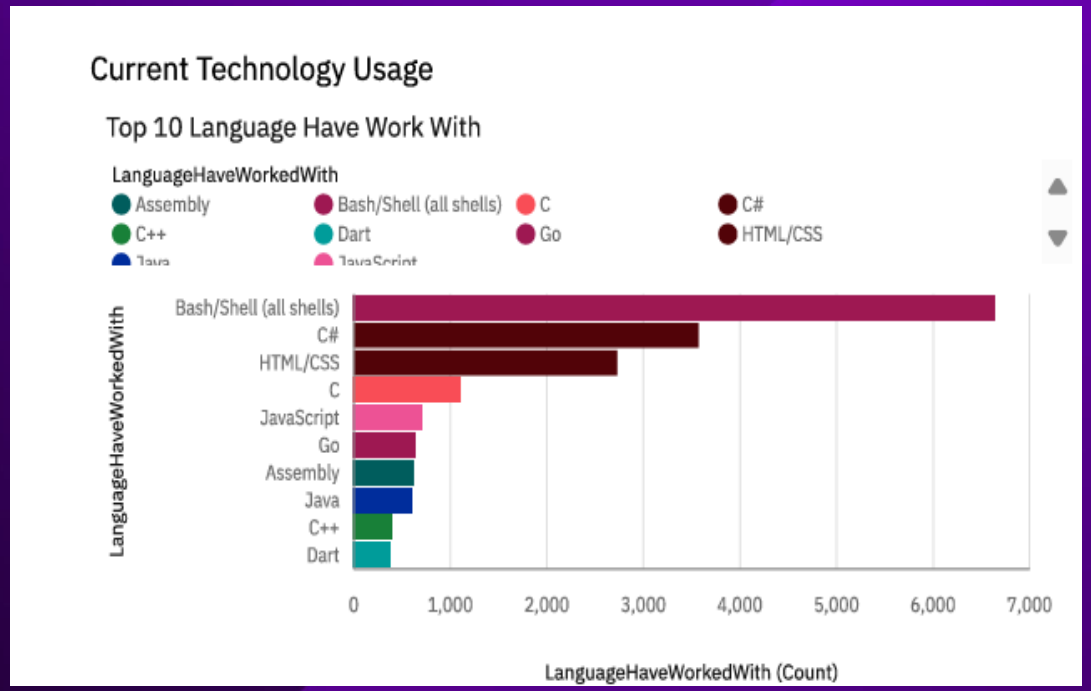
  I developed interactive dashboard to present the key insights using IBM Cognos Analytics.

RESULT

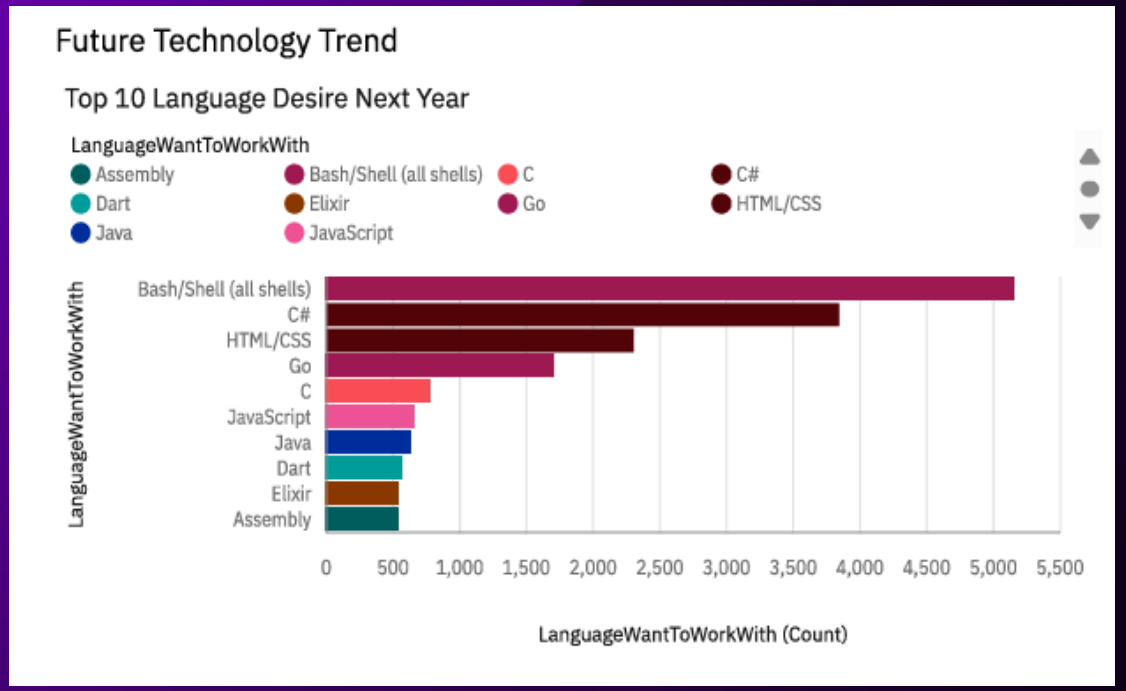


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TREND – FINDING & IMPLICATIONS

Findings

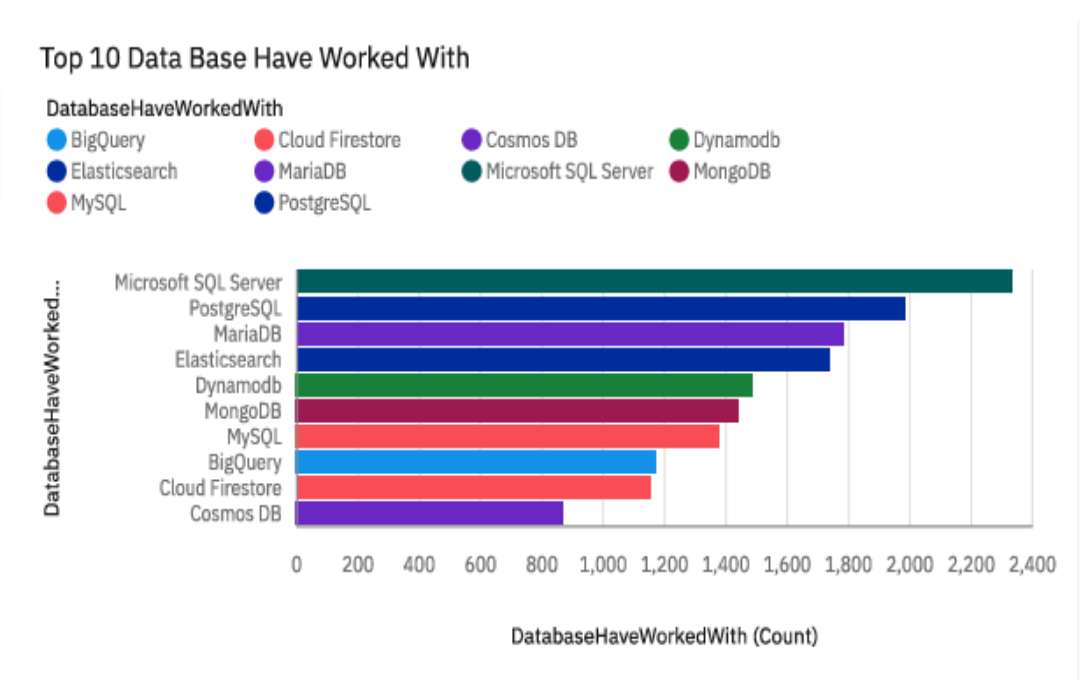
- The top languages currently in use including JavaScript, HTML/SCC, and Java with significant count. Assembly and Dart have lower usage counts.
- There is a noticeable interest in learning or working with newer languages like Elixir and Dart in future .
- Languages like JavaScript , HTML/CSS, and Java appear in both current and future interest lists, suggesting their sustained importance in the tech industry.

Implications

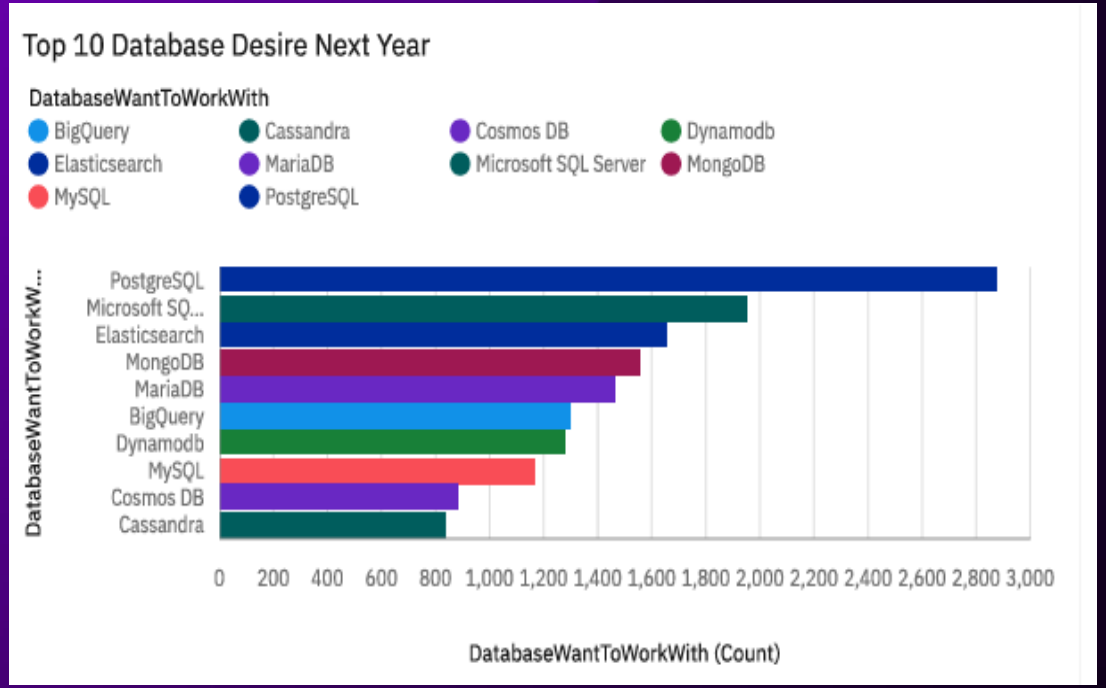
- Professionals may need to focus on learning or improving skills in languages like Elixir and Dart to stay competitive, as these emerging as desired skill for the future.
- The continued popularity of JavaScript and HTML/CSS indicates that web development remains a strong sector.

DATABASE TREND

Current Year



Next Year



DATABASE TREND – FINDING & IMPLICATION

Finding

- The most commonly used database include Microsoft SQL Server, PostgreSQL, and MySQL. The databases have high counts, indicating their widespread adoption in current projects.
- There is a growing interest in working with database like BigQuery, Elasticsearch, and MongoDB in the future. This suggest a shift towards more scalable and flexible database solutions.
- Newer database such as Cassandra and Cosmos DB appearing in the list of desired databases for the next year. Microsoft SQL Server, PostgreSQL, and MongoDB is still in desired list.

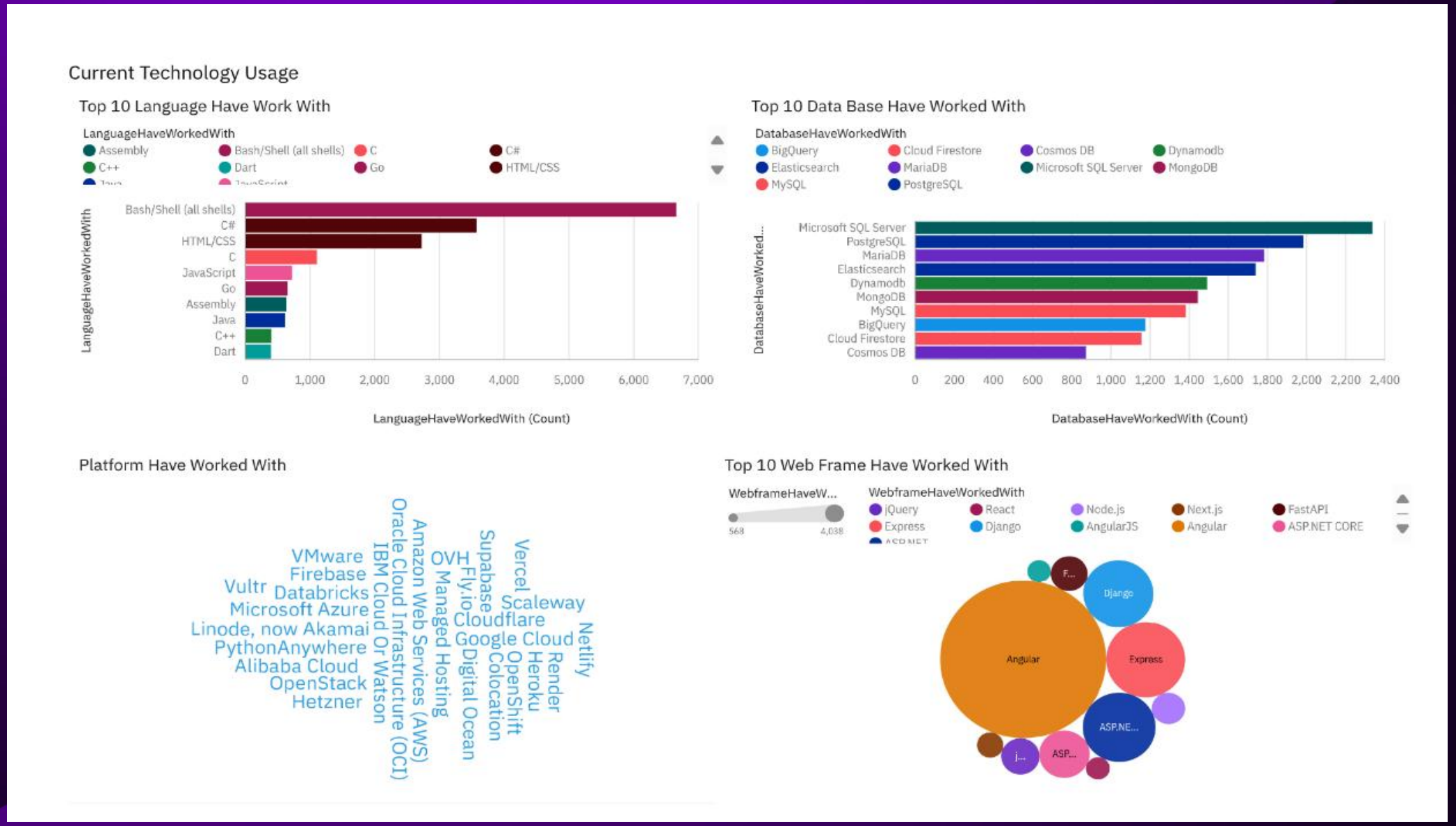
Implications

- Professional should consider gaining expertise in emerging databases like BigQuery, Elasticsearch, and Cassandra to align with future industry demands and enhance their career prospects.
- Organizations might need to evaluate their current infrastructure and consider integrating or transitioning to more scalable and flexible solutions like MongoDB and BigQuery to stay competitive and meet future data managements neends.

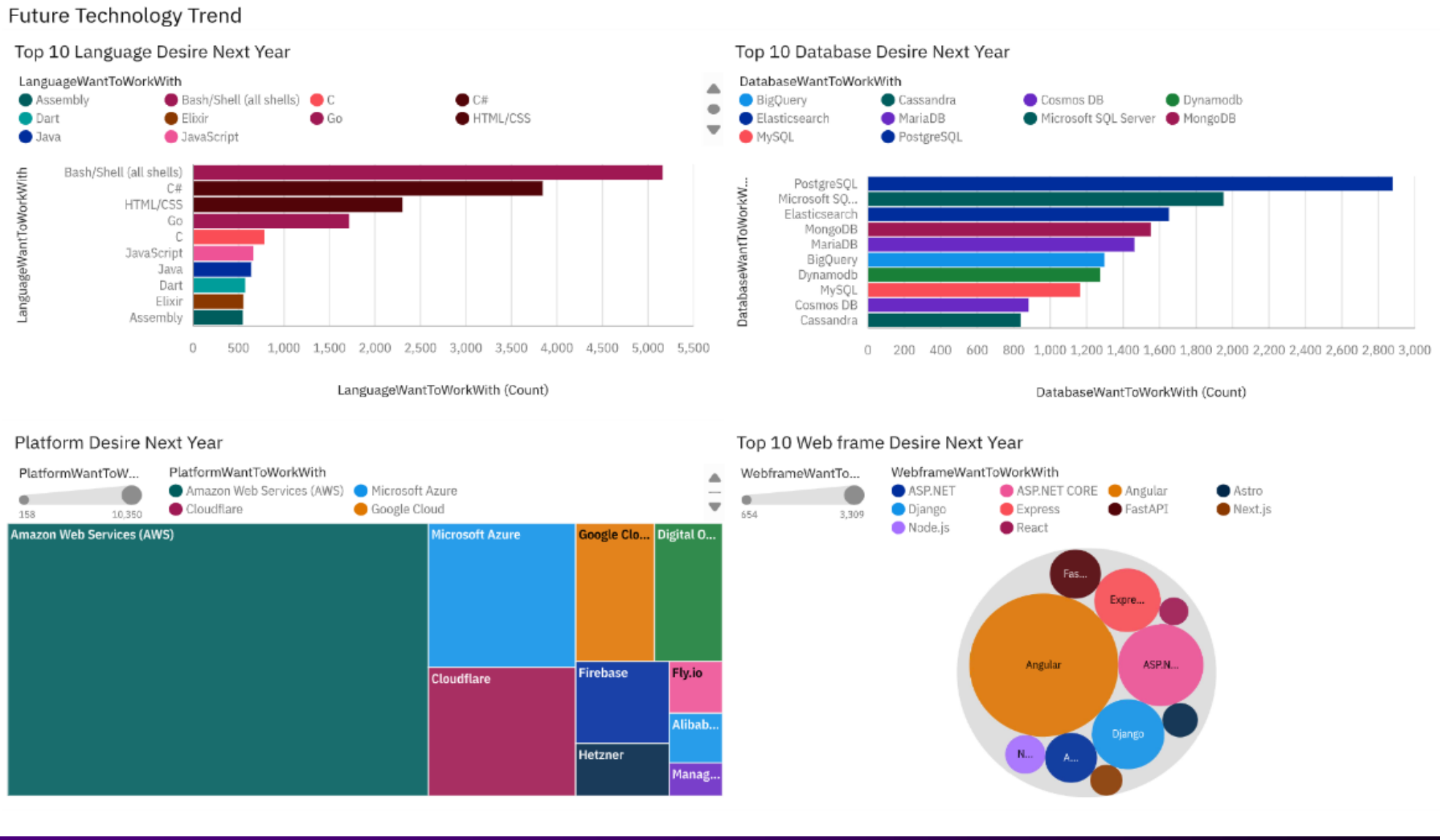
DASHBOARD

LINK:

DASHBOARD – 1


Current Technology Usage
Top 10 Language Have Work With
LanguageHaveWorkedWith
Assembly
Bash/Shell (all shells)
C
C#
C++
Dart
Go
HTML/CSS
Bash/Shell (all shells)
C#
HTML/CSS
C
JavaScript
Go
Assembly
Java
C++
Dart
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
LanguageHaveWorkedWith (Count)
Top 10 Data Base Have Worked With
DatabaseHaveWorkedWith
BigQuery
Cloud Firestore
Cosmos DB
Dynamodb
Elasticsearch
MariaDB
Microsoft SQL Server
MongoDB
MySQL
PostgreSQL
Microsoft SQL Server
PostgreSQL
MariaDB
Elasticsearch
Dynamodb
MongoDB
MySQL
BigQuery
Cloud Firestore
Cosmos DB
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
DatabaseHaveWorkedWith (Count)
Platform Have Worked With
VMware
Firebase
Vultr
Databricks
Microsoft Azure
Linode, now Akamai
PythonAnywhere
Alibaba Cloud
OpenStack
Hetzner
IBM Cloud Or Watson
Oracle Cloud Infrastructure (OCI)
Amazon Web Services (AWS)
OVH
Managed Hosting
Fly.io
Digital Ocean
Supabase
Cloudflare
Google Cloud
Colocation
Vercel
OpenShift
Scaleway
Heroku
Render
Netlify
Top 10 Web Frame Have Worked With
WebframeHaveW...
568
4,038
WebframeHaveWorkedWith
jQuery
React
Node.js
Next.js
FastAPI
Express
Django
AngularJS
Angular
ASP.NET CORE
Angular
Express
Django
ASP.NE...
ASP...

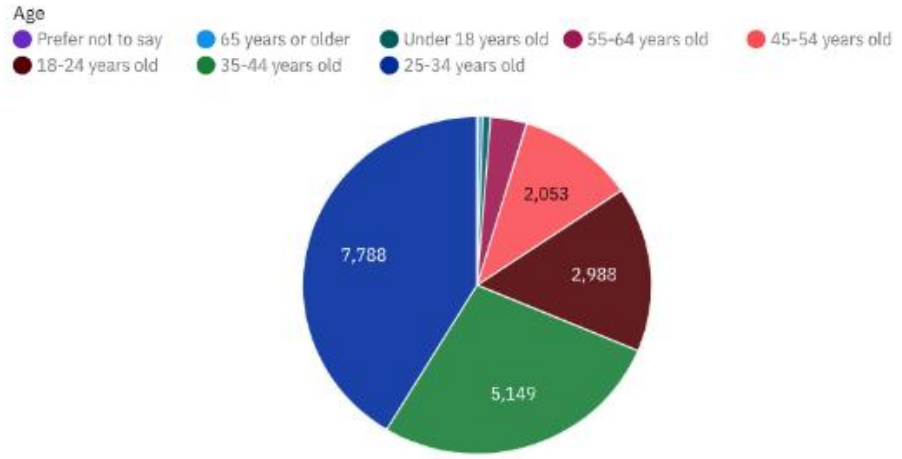
DASHBOARD – 2


Future Technology Trend
Top 10 Language Desire Next Year
LanguageWantToWorkWith
Assembly
Bash/Shell (all shells)
C
C#
Dart
Elixir
Go
HTML/CSS
Java
JavaScript
Bash/Shell (all shells)
C#
HTML/CSS
Go
C
JavaScript
Java
Dart
Elixir
Assembly
0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000 5,500
LanguageWantToWorkWith (Count)
Top 10 Database Desire Next Year
DatabaseWantToWorkWith
BigQuery
Cassandra
Cosmos DB
Dynamodb
Elasticsearch
MariaDB
Microsoft SQL Server
MongoDB
MySQL
PostgreSQL
PostgreSQL
Microsoft SQ...
Elasticsearch
MongoDB
MariaDB
BigQuery
Dynamodb
MySQL
Cosmos DB
Cassandra
0 200 400 600 800 1,000 1,200 1,400 1,600 1,800 2,000 2,200 2,400 2,600 2,800 3,000
DatabaseWantToWorkWith (Count)
Platform Desire Next Year
PlatformWantToW...
158
10,350
PlatformWantToWorkWith
Amazon Web Services (AWS)
Microsoft Azure
Cloudflare
Google Cloud
Amazon Web Services (AWS)
Microsoft Azure
Google Clo...
Digital O...
Cloudflare
Firebase
Fly.io
Alibab...
Hetzner
Manag...
Top 10 Web frame Desire Next Year
WebframeWantTo...
654
3,309
WebframeWantToWorkWith
ASP.NET
ASP.NET CORE
Angular
Astro
Django
Express
FastAPI
Next.js
Node.js
React
Fas...
Expre...
Angular
ASP.N...
Django
N...
A...

DASHBOARD – 3

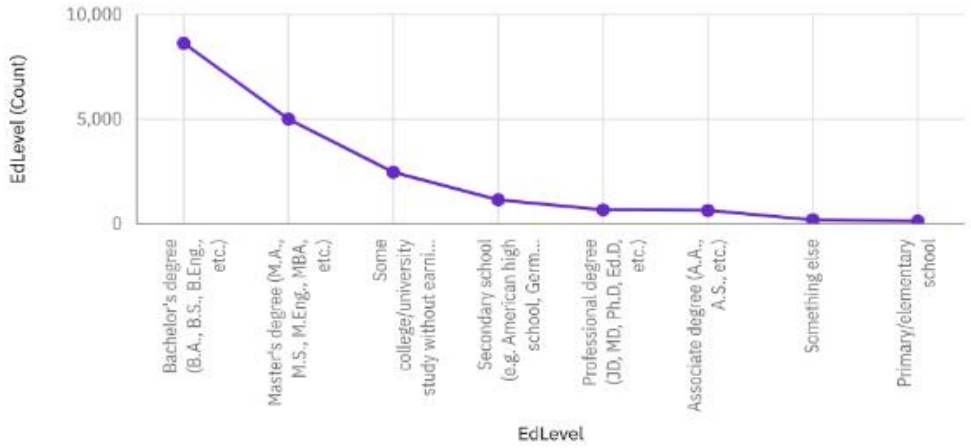
Demographics

Respondent distribution by Age

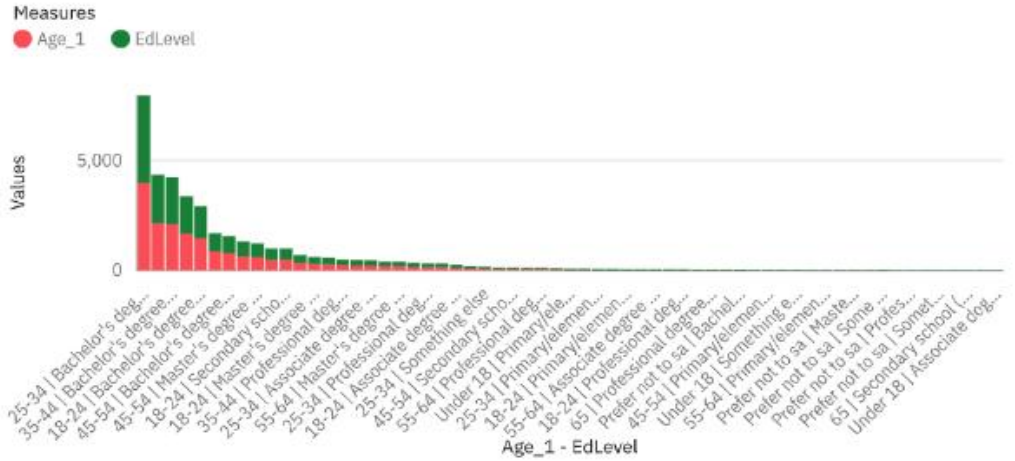


Respondent Count by Country

Respondent Count by Education Level.



Respondent Count by Age and Education Level.



DISCUSSION

OVERALL FINDING AND IMPLICATIONS

Findings

- **Language Trend:** There is consistent interest in learning and working with languages like JavaScript, HTML/CSS, and Java in the future. Additionally, languages such as Dart and Assembly are also gaining attention.
- **Platform Preferences:** Cloude platforms like Amazon Web Service (AWS), Microsoft Azure, and Google Cloude are highly desired for future work.
- **Database Interest:** Database such as BigQuery, MySQL, and Elasticsearch are among the top desired database for the next year.
- **Web Framework Demand:** Popular web framework like ASP.NET, Node.js, and React are highly sought after, highlighting the ongoing importance of robust and efficient web development tools.

Implications

- **Skill Development:** Professional should focus on acquiring or enhancing skills in high-demands area such as cloud platform (AWS, Azur, Google Cloud), popular web framework (React, Node.js), and emerging database (BigQuery, Elasticsearch) to remain competitive in the job market.
- **Technology Investment:** Companies should consider adopting cloud services and modern databases like BigQuery and Elasticsearch to improve scalability and efficiency.
- **Training Programs:** Organizations and educations institution should offer training in high-demand area such as cloud computing and web framework like React and Node.js to prepare for future trends.

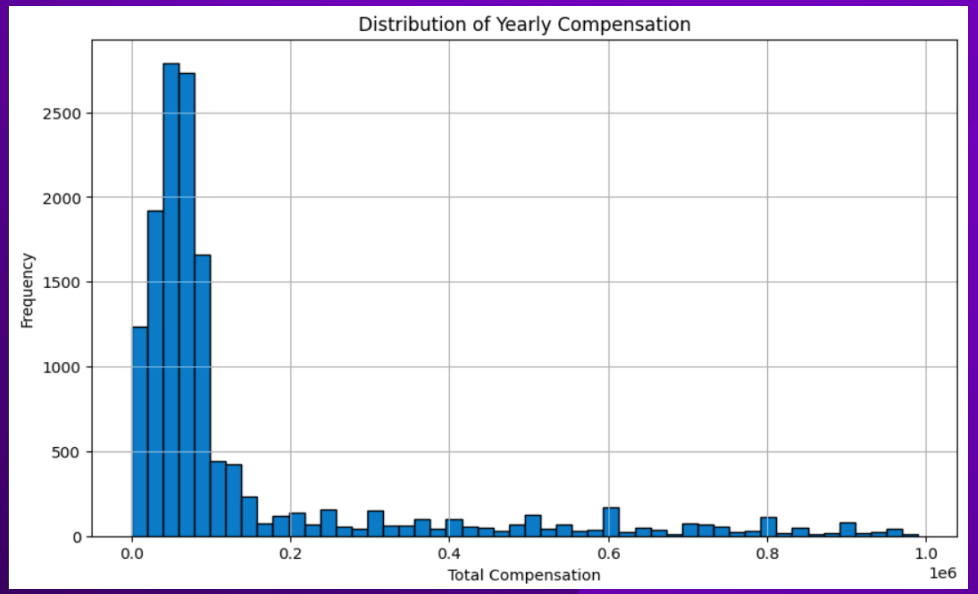
CONCLUSION

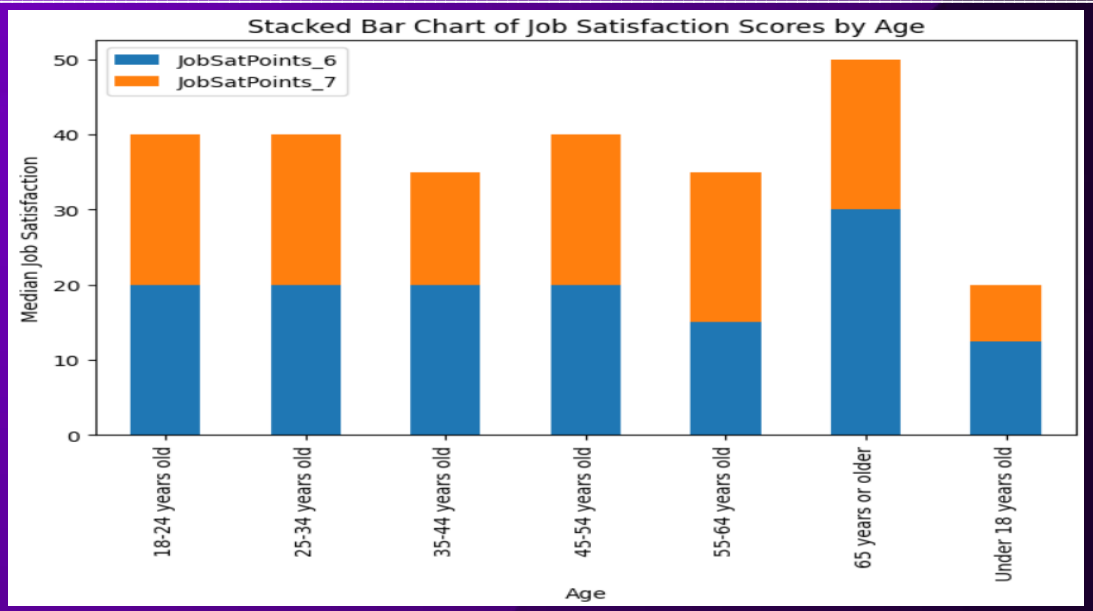
- **Sustained Popularity:** Languages like JavaScript, HTML/CSS, and Java, along with database such as MySQL and BigQuery, continue to be highly relevant, indicating their enduring importance in the tech industry.

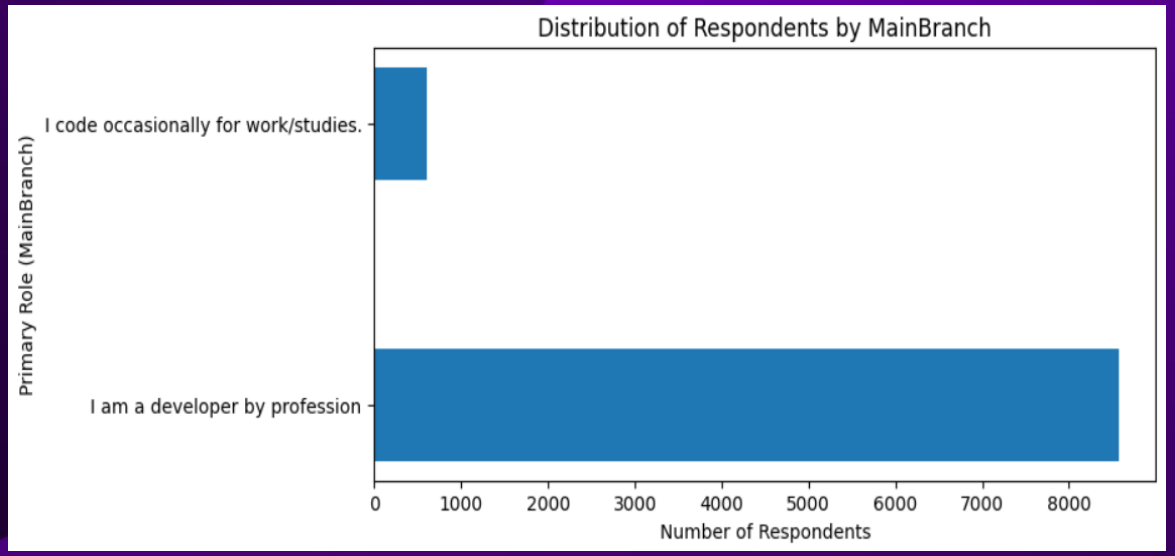
- **Emerging Trends:** There is a growing interest in cloud platform (AWS, Azure, Google Cloud) and modern web framework (React, Node.js), reflecting a shift towards scalable and efficient technologies.

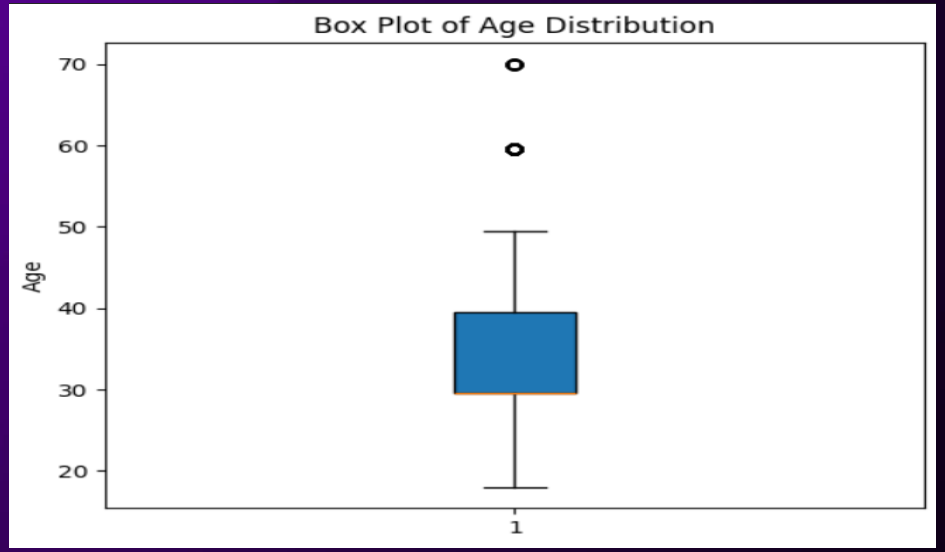
- **Skill Focus:** To stay competitive, professional and organizations should prioritize learning and investing in cloud computing, modern database, and popular programming language to align with future industry demands.

APPENDIX

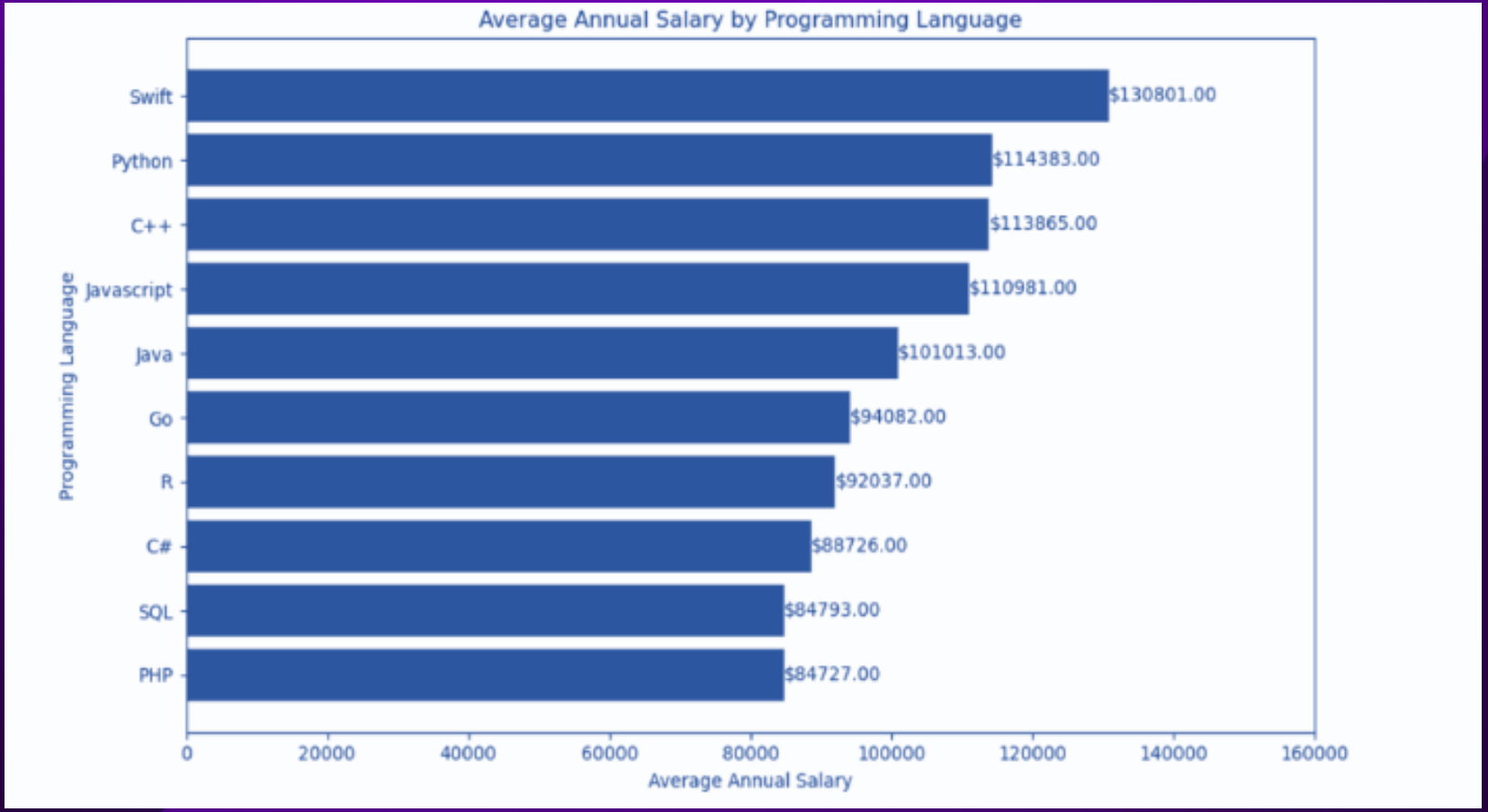

Distribution of Yearly Compensation
Frequency
Total Compensation
1e6
0
500
1000
1500
2000
2500
0.0
0.2
0.4
0.6
0.8
1.0


Stacked Bar Chart of Job Satisfaction Scores by Age
JobSatPoints_6
JobSatPoints_7
Median Job Satisfaction
Age
0
10
20
30
40
50
18-24 years old
25-34 years old
35-44 years old
45-54 years old
55-64 years old
65 years or older
Under 18 years old

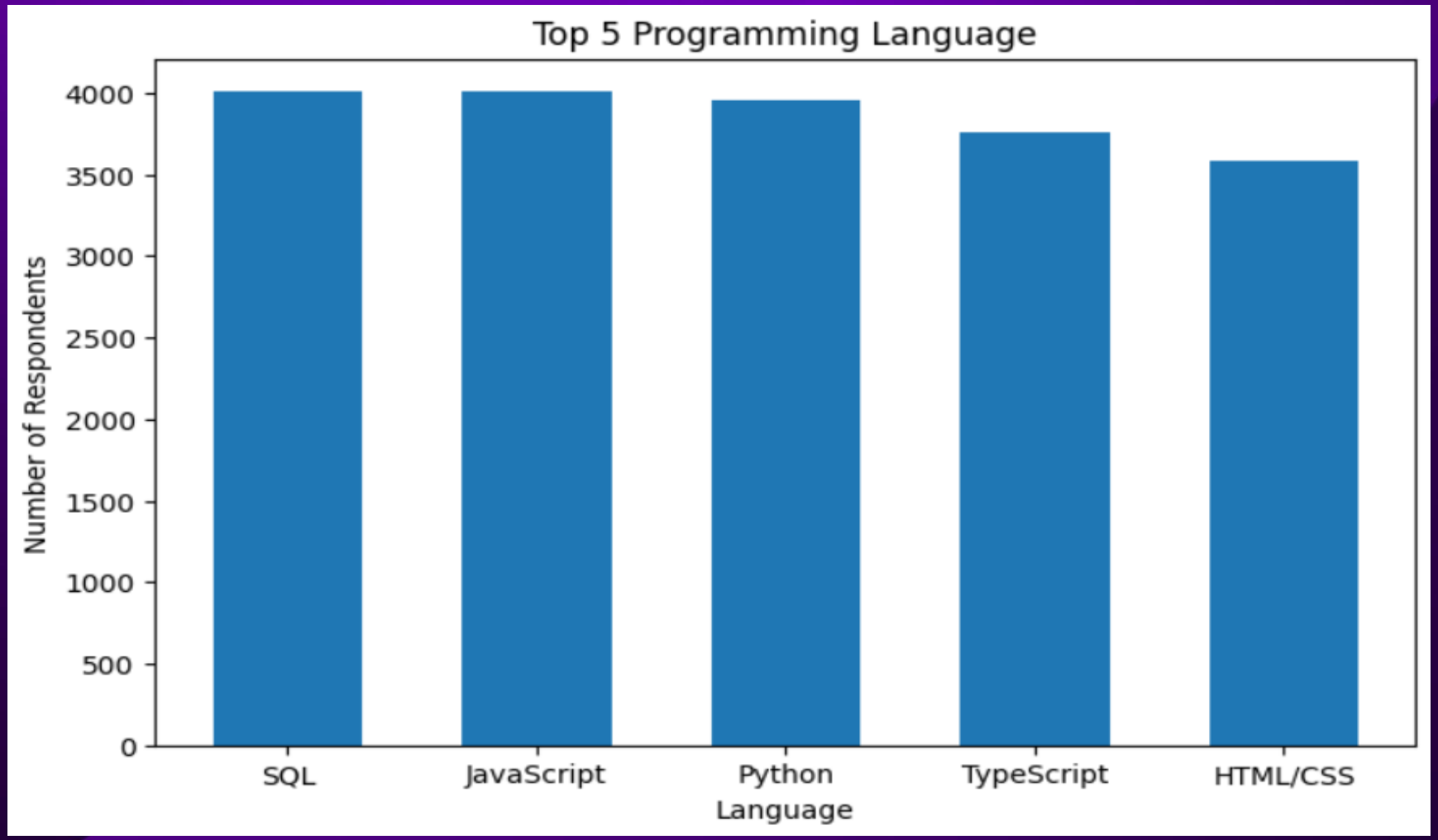

Distribution of Respondents by MainBranch
Primary Role (MainBranch)
I code occasionally for work/studies.
I am a developer by profession
Number of Respondents
0
1000
2000
3000
4000
5000
6000
7000
8000


Box Plot of Age Distribution
Age
20
30
40
50
60
70
1

JOB POSTINGS



POPULAR LANGUAGES



THANK YOU

VISHAL KUMAR

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