Future Trends

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EXECUTIVE SUMMARY

- Web-based technologies, notably JavaScript and HTML, reign as the most popular.

- Within the realm of web frameworks, React.js and jQuery stand out as particularly dynamic.

- Windows and Linux continue to dominate as the preferred platforms for development.

- Android indisputably leads the mobile platform landscape.

- While MySQL maintains its position as the most widely used database, MongoDB and PostgreSQL show promising trends for future adoption

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INTRODUCTION

- This presentation has been created for stakeholders and business decision makers within global IT and business consulting services firm

- The primary objective of the annual surveys is to gather data regarding technology usage and trends among developers.

- The comparison between current & next year technology trend will provide great inside into the market.

- The study consist of 4 main parts:
  - Top language using
  - Top database using
  - Top platform using
  - Top web frame using

METHODOLOGY

❖**Data Wrangling:** A portion of the dataset (provided by IBM) was loaded and cleaned using SQL and Python's pandas library.

➢ Cleaning procedure: Duplicates removal, data imputation, data Normalization

❖**Analysis & Visualization:** EDA and data visualization were conducted using various Python libraries and Cognos. Specifically, the following measures were examined:

➢ Technologies (i.e., languages, databases, platforms, and web frames used in 2019)

➢ Technologies most desired for the next year

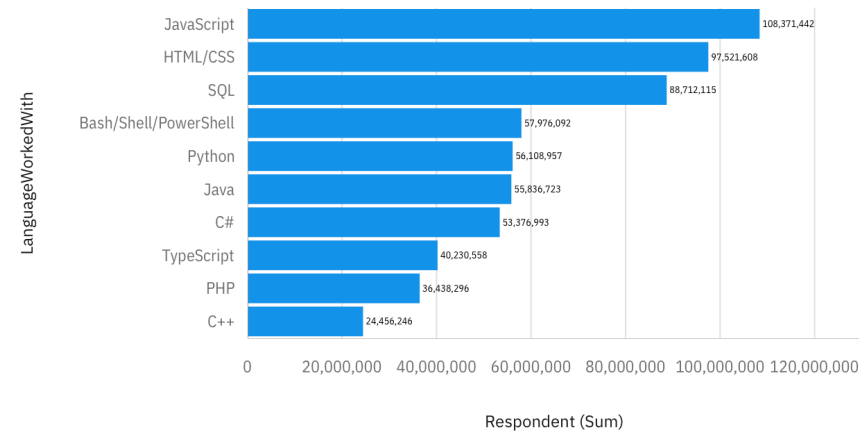➢ Demographics (i.e., gender, country, age, and education).

RESULTS

- The results consists of 4 main parts:
  - Programming language trend
  - Database trend
  - Platform trend
  - Web frame trend

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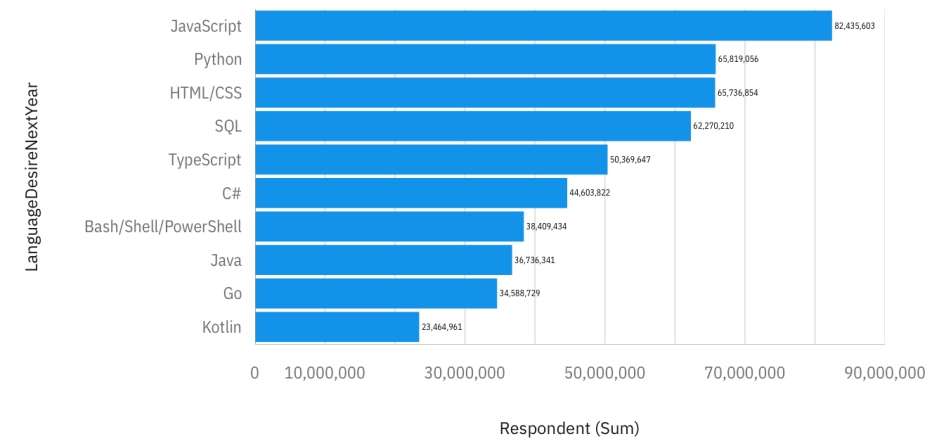SKILLS NETWORK

PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 Languages Currently

LanguageWorkedWith	Respondent (Sum)
JavaScript	108,371,442
HTML/CSS	97,521,608
SQL	88,712,115
Bash/Shell/PowerShell	57,976,092
Python	56,108,957
Java	55,836,723
C#	53,376,993
TypeScript	40,230,558
PHP	36,438,296
C++	24,456,246

Next Year

Top 10 LanguageDesireNextYear

LanguageDesireNextYear	Respondent (Sum)
JavaScript	82,435,603
Python	65,819,056
HTML/CSS	65,736,854
SQL	62,270,210
TypeScript	50,369,647
C#	44,603,822
Bash/Shell/PowerShell	38,409,434
Java	36,736,341
Go	34,588,729
Kotlin	23,464,961

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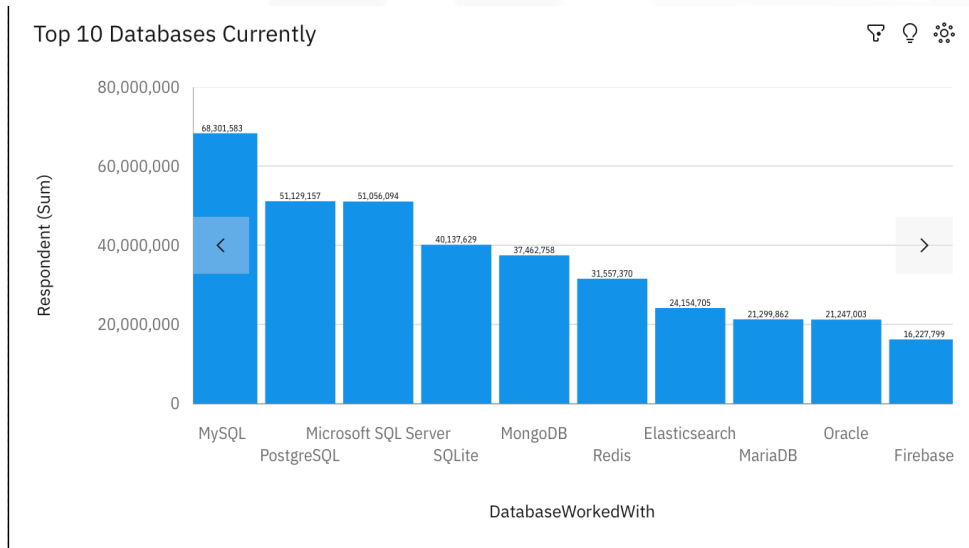# PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript & HTML/CSS are top programming languages for both current and future trend.

- Python moves from 5th position to 2rd position in top 10.

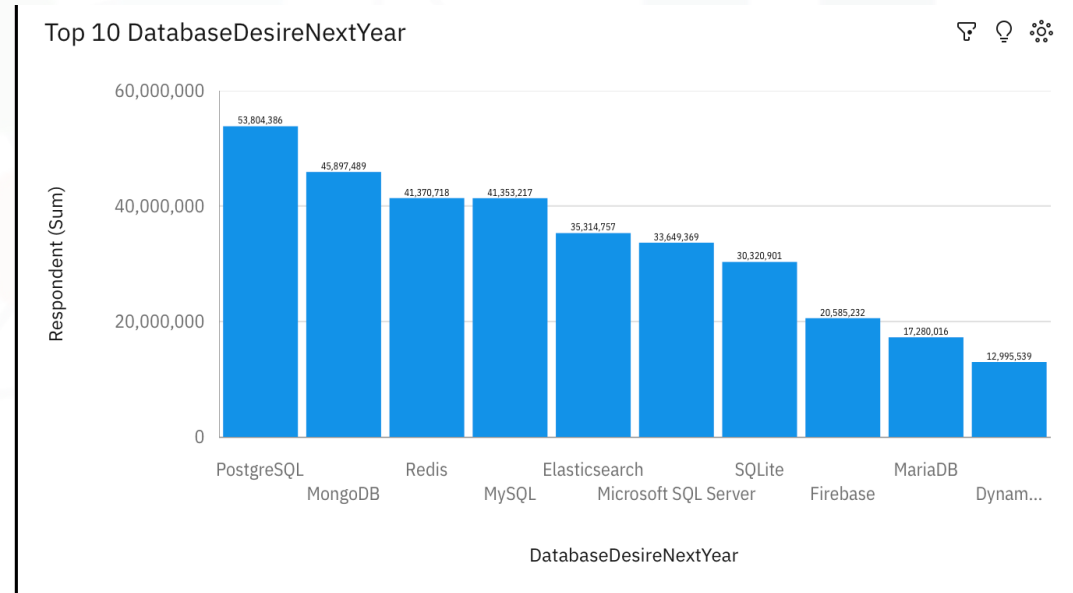- C++ and PHP area disappearing from top 10.

Implications

- Web programming languages still stay dominance in near future.

- Python & data science is becoming more and more important.

- Legacy language such as C++, PHP … are gradually falling out of interest.

DATABASE TRENDS

Current Year

Top 10 Databases Currently

Respondent (Sum)

- 80,000,000
- 60,000,000
- 40,000,000
- 20,000,000
- 0

68,301,583 — MySQL
51,129,157 — PostgreSQL
51,056,094 — Microsoft SQL Server
40,137,629 — SQLite
37,462,758 — MongoDB
31,557,370 — Redis
24,154,705 — Elasticsearch
21,299,862 — MariaDB
21,247,003 — Oracle
16,227,799 — Firebase

DatabaseWorkedWith

Next Year

Top 10 DatabaseDesireNextYear

Respondent (Sum)

- 60,000,000
- 40,000,000
- 20,000,000
- 0

53,804,386 — PostgreSQL
45,897,489 — MongoDB
41,370,718 — Redis
41,353,217 — MySQL
35,314,757 — Elasticsearch
33,649,369 — Microsoft SQL Server
30,320,901 — SQLite
20,585,232 — Firebase
17,280,016 — MariaDB
12,995,539 — Dynam...

DatabaseDesireNextYear

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DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- MongoDB & Redis quickly moves up to No.2 and No.3

- PostgreSQL moves from No.2 to No.1

- MS SQL server drops from No.3 to No.6

- Oracle disappear from top

Implications

- Open source database becomes more and more popular compared with commercial one.

- Non-relational database see increasingly usage in the future.

- Relational database still takes a leading position in the near future.

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PLATFORM TRENDS

Current Year

Next Year
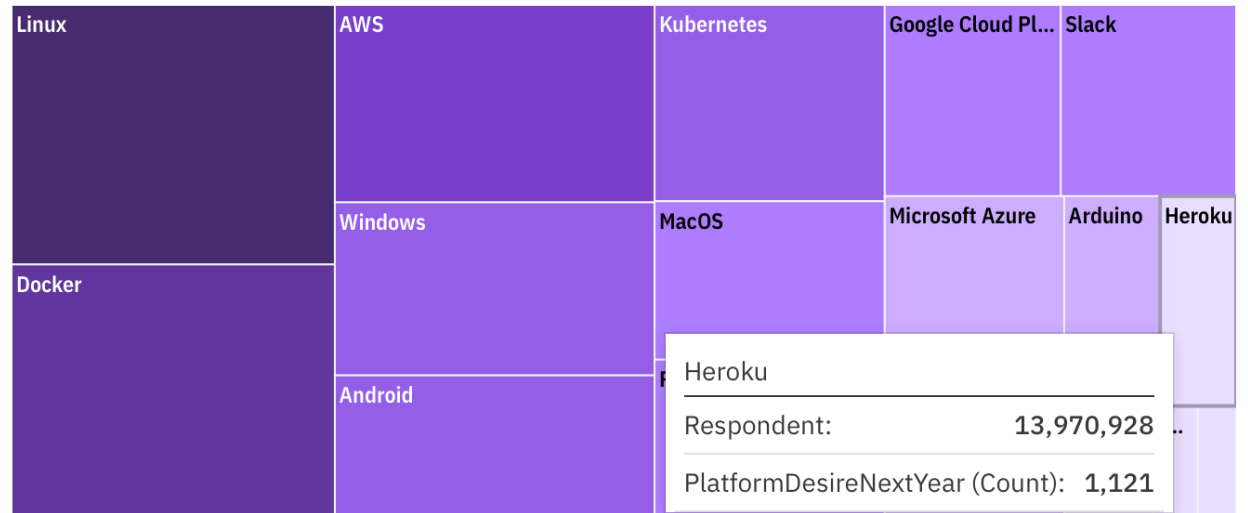
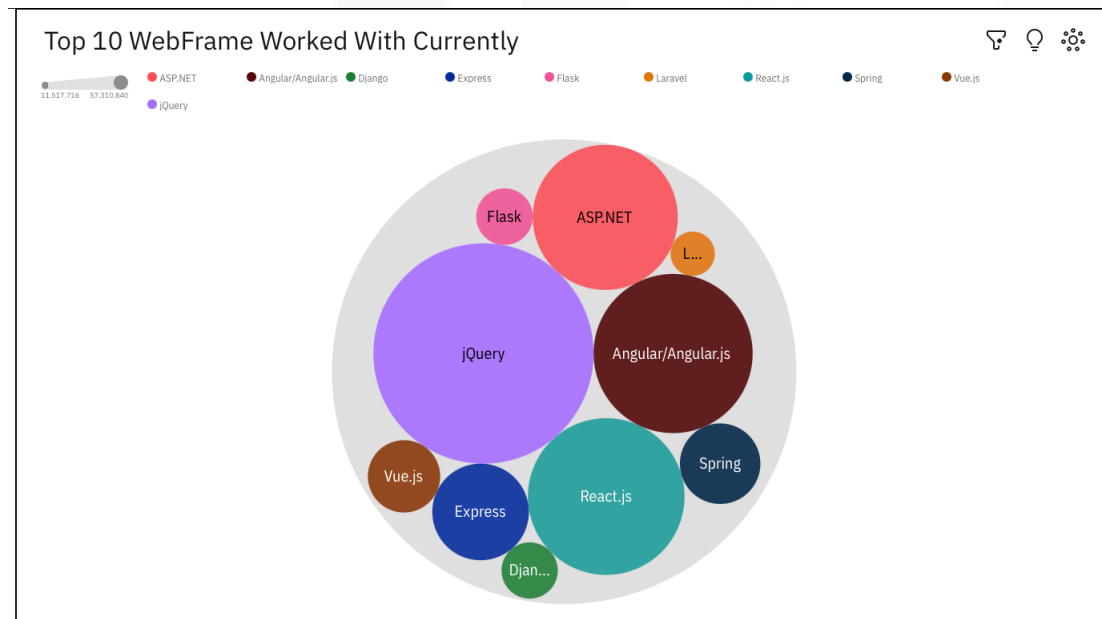# PLATFORM TRENDS - FINDINGS & IMPLICATIONS

Findings

- Windows and Linux still dominates the platform trend.

- Android is No.1 in mobile platform.

- Cloud platform such as Kubernetes, Docker, AWS is getting more and more market share.
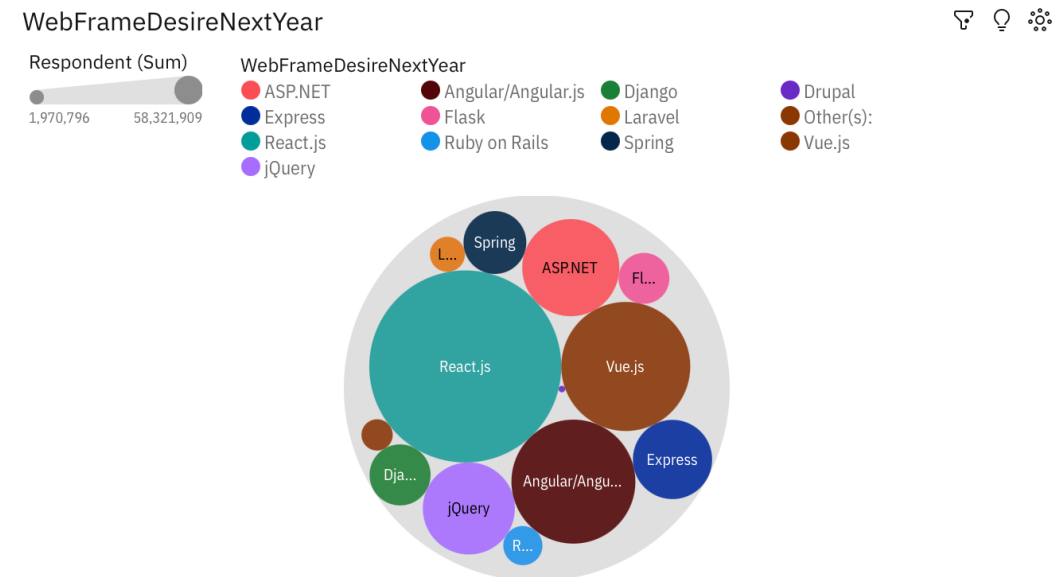
Implications

- Windows and Linux are still main developing platform in a foreseeable future.

- The transformation to cloud computing is a non-reversible process.

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WEB FRAME TRENDS

Current Year

Top 10 WebFrame Worked With Currently

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

11,517,716   57,310,840

Next Year

WebFrameDesireNextYear

Respondent (Sum)

WebFrameDesireNextYear

● ASP.NET ● Angular/Angular.js ● Django ● Drupal
● Express ● Flask ● Laravel ● Other(s):
● React.js ● Ruby on Rails ● Spring ● Vue.js
● jQuery

1,970,796   58,321,909

WEB FRAME TRENDS - FINDINGS & IMPLICATIONS

Findings

- jQuery decreases from No.1 to No.5.
- React.js moves up from No.3 to No.1
- Vue.js moves from No.9 to No.2.
- Angular.js stays at same position.

Implications

- jQuery quickly loses market share show lack of interest in its future development.
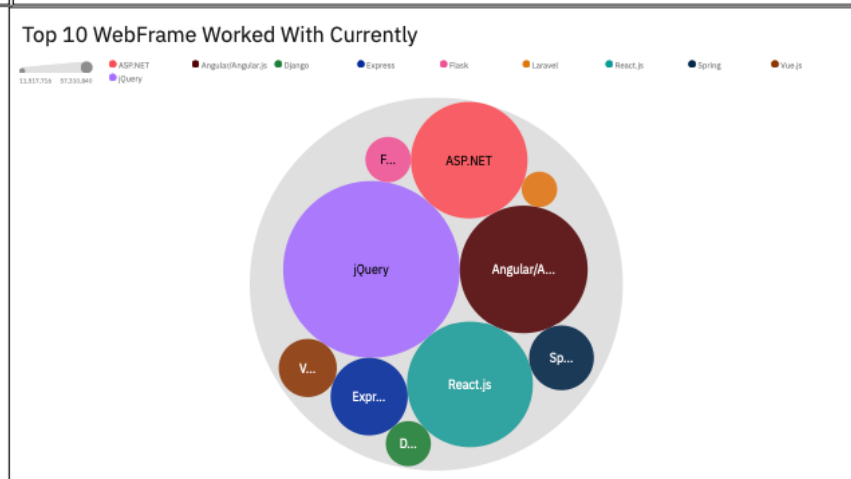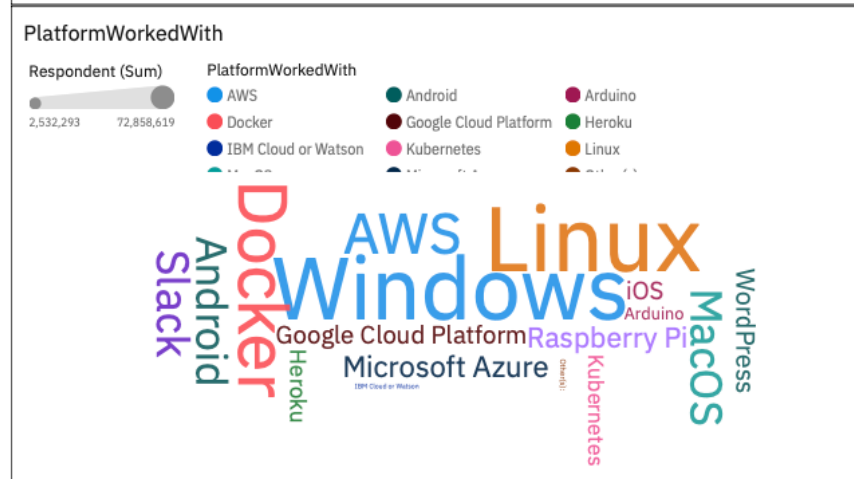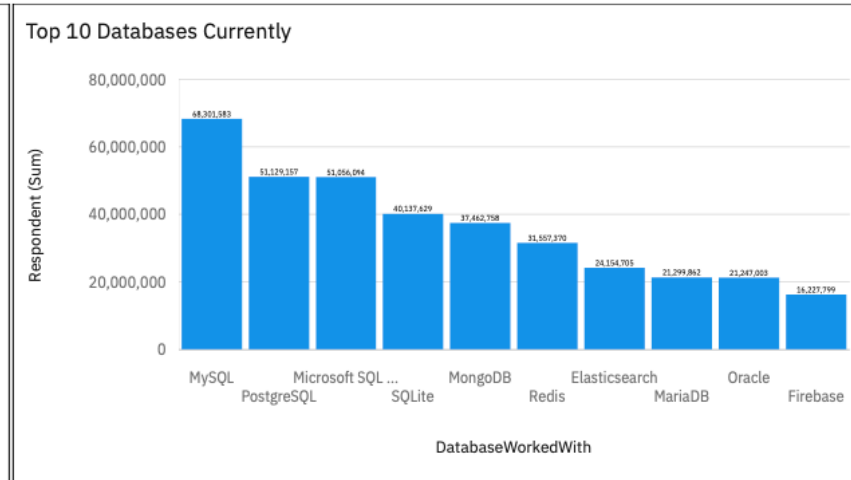- React.js and Vue.js becomes the new standard for web frame development.
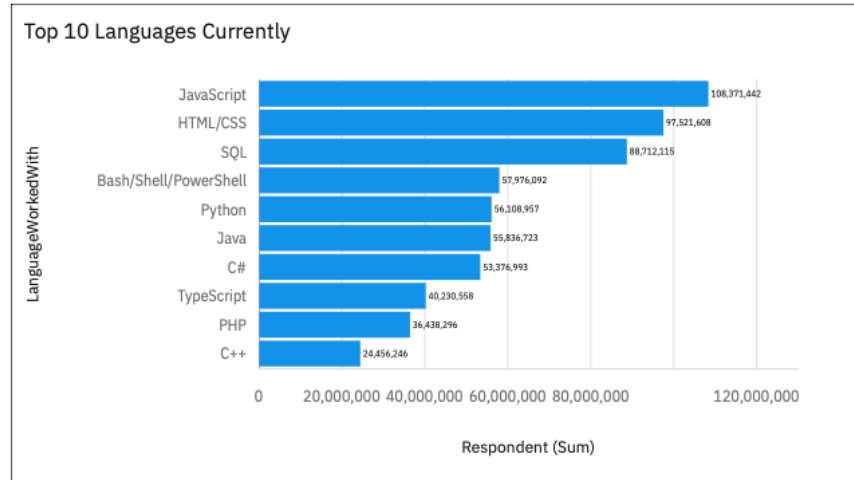
DASHBOARD

https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FCapstone%2BProject%2BDashboards&action=view&mode=dashboard&subView=model0000018ee56bdb7b_00000000
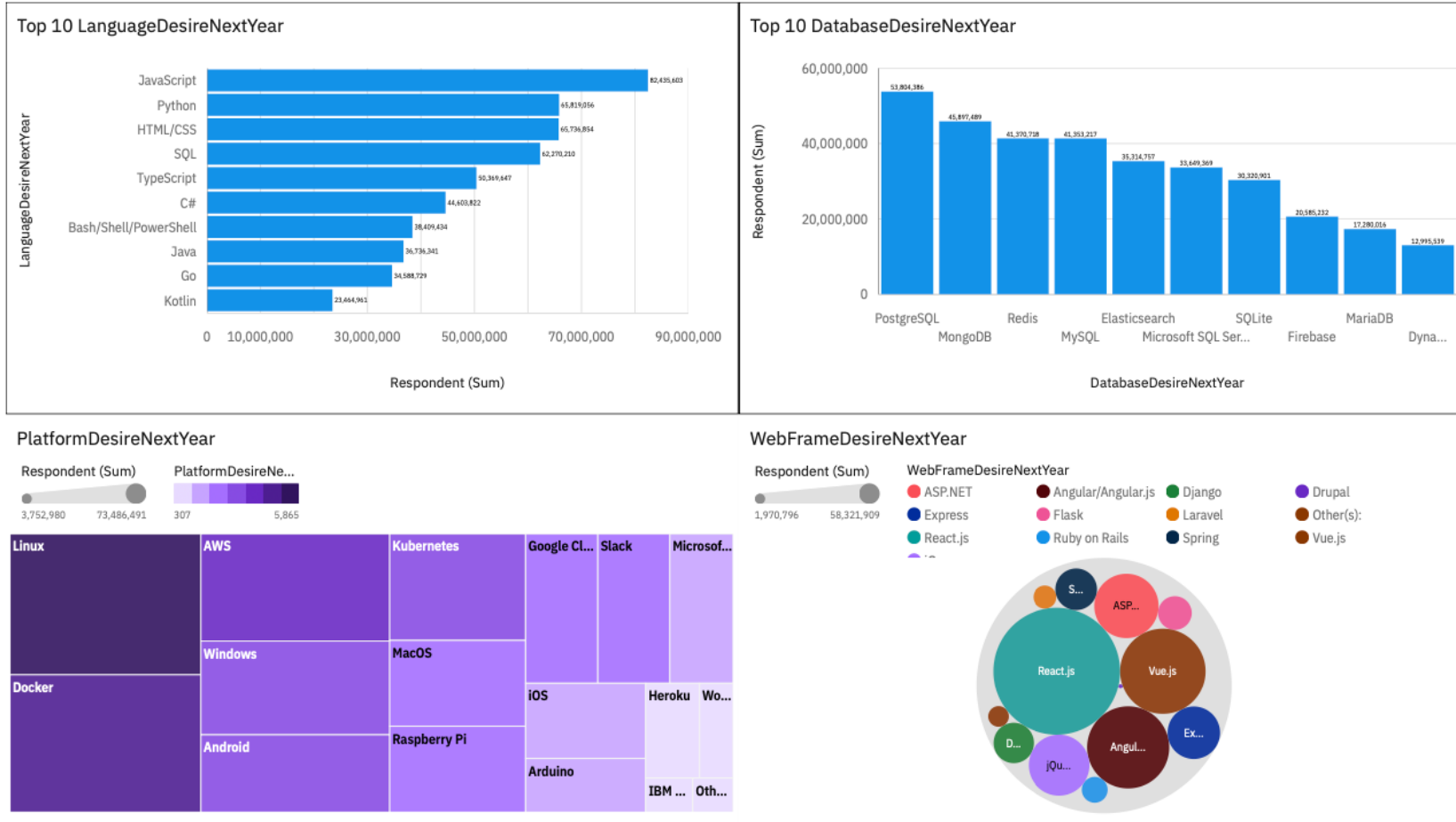
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DASHBOARD TAB 1

Current Technology Usage

Top 10 Languages Currently

Top 10 Databases Currently

PlatformWorkedWith

Top 10 WebFrame Worked With Currently

DASHBOARD TAB 2

Future Technology Trend

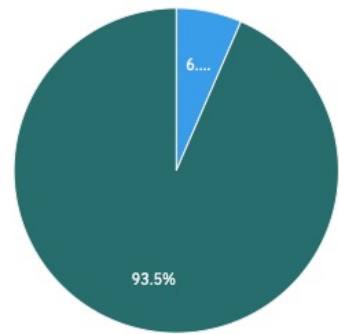# DASHBOARD TAB 3

Demographics

Respondent by Gender

Gender
● Woman ● Man
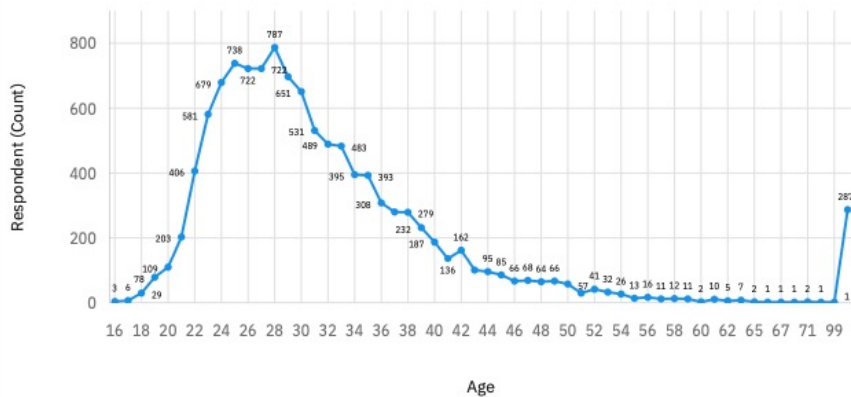

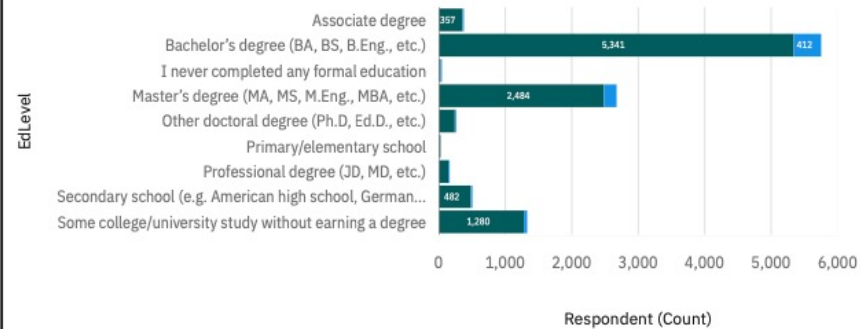### Respondent Count for Country

Respondent (Count)

1   3,127

© Mapbox © OpenStreetMap

Respondent Count by Age

Respondent by EdLevel colored by Gender

Gender
● Man ● Woman

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DISCUSSION

- Majority of respondents are at young age (20, 30s) ➔ this could skew the result in favor of new technology.
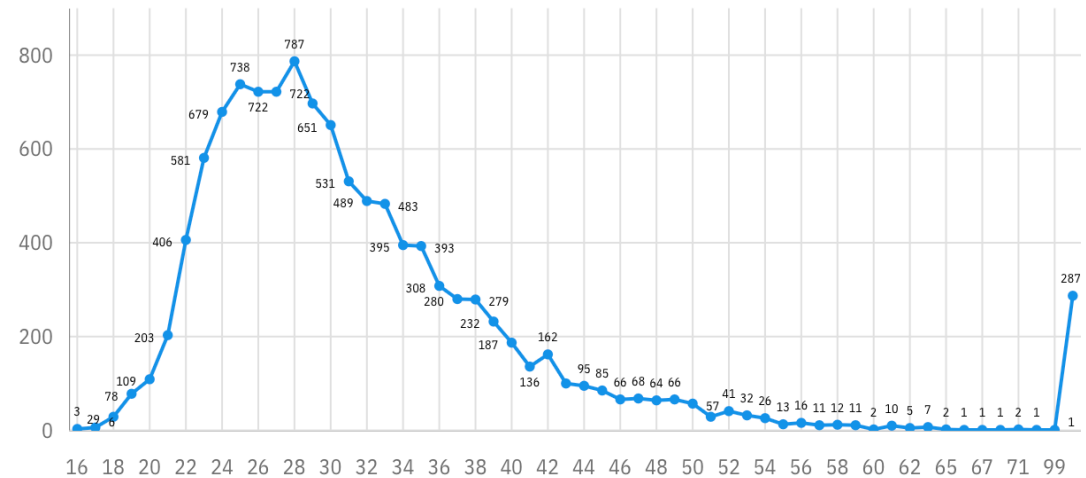
OVERALL FINDINGS & IMPLICATIONS

Findings

- Web based language stays at No.1
- Non-relational database moves to No.2 & No.3
- Cloud-based platform moves to No.1
- React.js stays at No.1 on web framework.

Implications

- Web based application is taking over the traditional application.
- Non-relational database sees increasing adoption.
- Cloud-based services become top-choice for platform development.

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CONCLUSION

- To stay relevant in the technology field, it's important to learn web-based language & non-relational database.

- Among web framework, React.js is the best to learn for your future.

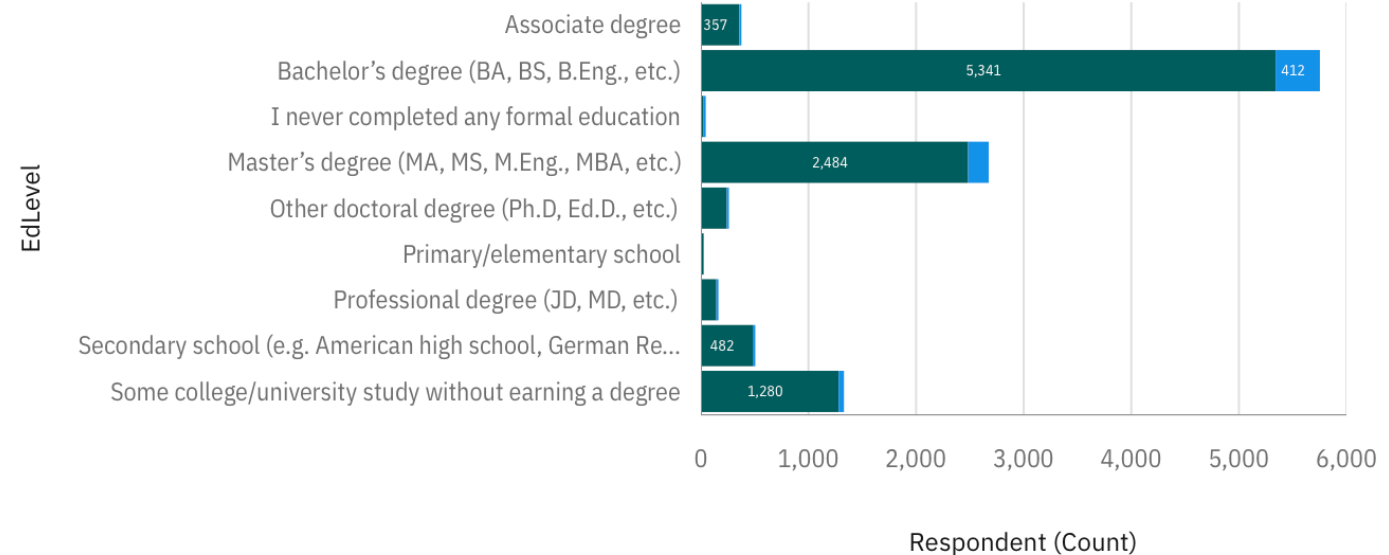- Cloud-based service is the right direction for IT investment.

APPENDIX

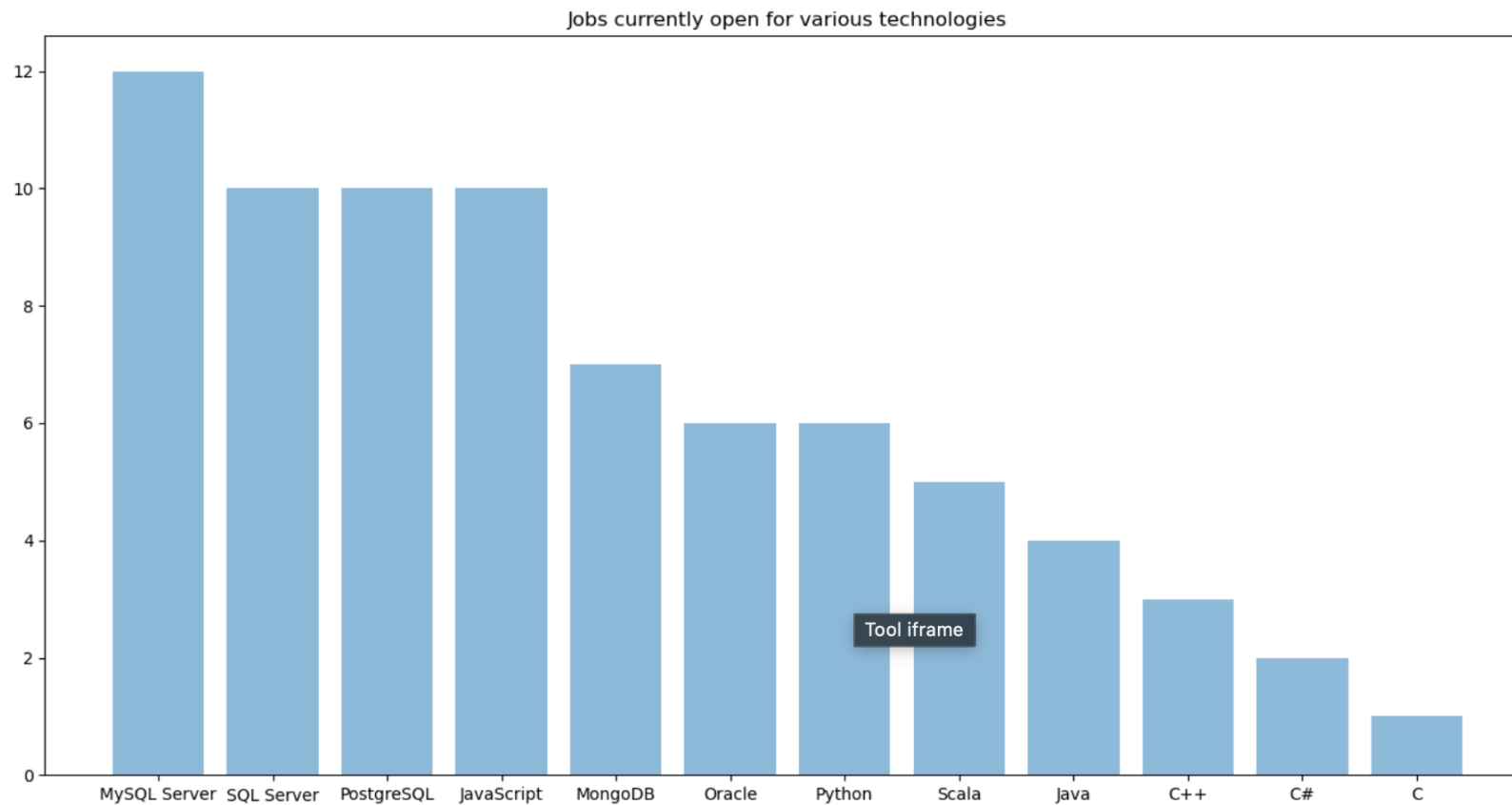Respondent by EdLevel colored by Gender

Gender
● Man   ● Woman

EdLevel	
Associate degree	357
Bachelor's degree (BA, BS, B.Eng., etc.)	5,341 / 412
I never completed any formal education	
Master's degree (MA, MS, M.Eng., MBA, etc.)	2,484
Other doctoral degree (Ph.D, Ed.D., etc.)	
Primary/elementary school	
Professional degree (JD, MD, etc.)	
Secondary school (e.g. American high school, German Re...	482
Some college/university study without earning a degree	1,280

Respondent (Count)

0   1,000   2,000   3,000   4,000   5,000   6,000

GITHUB JOB POSTINGS

Jobs currently open for various technologies

POPULAR LANGUAGES

Programming Language