



Data Analysis of Technology Trend

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OUTLINE



- Executive Summary
- Introduction
- Methodology
- Results
 - Visualization – Charts
 - Dashboard
- Discussion
 - Findings & Implications
- Conclusion
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EXECUTIVE SUMMARY



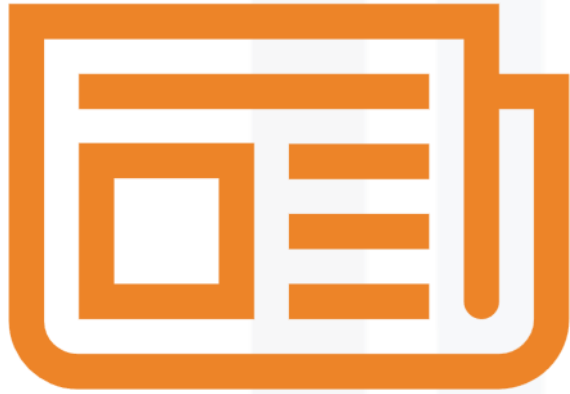
- JavaScript, HTML/CSS, and SQL maintain strong current use and will likely stay relevant
- Python and TypeScript are gaining future importance, with Python's demand rising and TypeScript showing increased interest
- Bash/Shell/PowerShell and C++ are currently used but are expected to see decreased future interest
- PostgreSQL is becoming the most desired, while MongoDB and Redis are also rising in popularity
- MySQL and Microsoft SQL Server are seeing a decline in future interest

INTRODUCTION



- Create three dashboards using IBM Cognos Analytics, visualizing data from the Stack Overflow 2019 Developer Survey dataset.
- Dataset:
 - ✓ m5_survey_data_demographics.csv
 - ✓ m5_survey_data_technologies_normalised.csv
- Dashboards:
 - ✓ Current Technology Usage
 - ✓ Future Technology Trend
 - ✓ Demographics
- Finding results and implications

METHODOLOGY



1. Upload Dataset

- ✓ m5_survey_data_demographics.csv
- ✓ m5_survey_data_technologies_normalised.csv

2. Create Dashboards

- ✓ Current Technology Usage
- ✓ Future Technology Trend
- ✓ Demographics

3. Dashboard Current Technology Usage

- ✓ Top 10 LanguageWorkedWithOutliers
- ✓ Top 10 DatabaseWorkedWith
- ✓ PlatformWorkedWith
- ✓ Top 10 WebFrameWorkedWith

4. Dashboard Future Technology Trend

- ✓ Top 10 LanguageDesireNextYearRelationship
- ✓ Top 10 DatabaseDesireNextYearComparison
- ✓ PlatformDesireNextYear
- ✓ Top 10 WebFrameDesireNextYear

5. Dashboard Demographics

- ✓ Respondent classified by Gender
- ✓ Respondent Count for Countries
- ✓ Respondent Count by Age
- ✓ Respondent Count by Gender, classified by Formal Education Level

6. Results and Discussion

RESULTS

Findings

- JavaScript, HTML/CSS, and SQL maintain strong current use and will likely stay relevant
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Implications

- Focus on core technologies like JavaScript, HTML/CSS, and SQL while upskilling in Python and TypeScript for future relevance
- Embrace open-source databases like PostgreSQL and MongoDB, and consider high-performance solutions like Redis
- Adapt to cloud-native tools and trends as they shape the industry

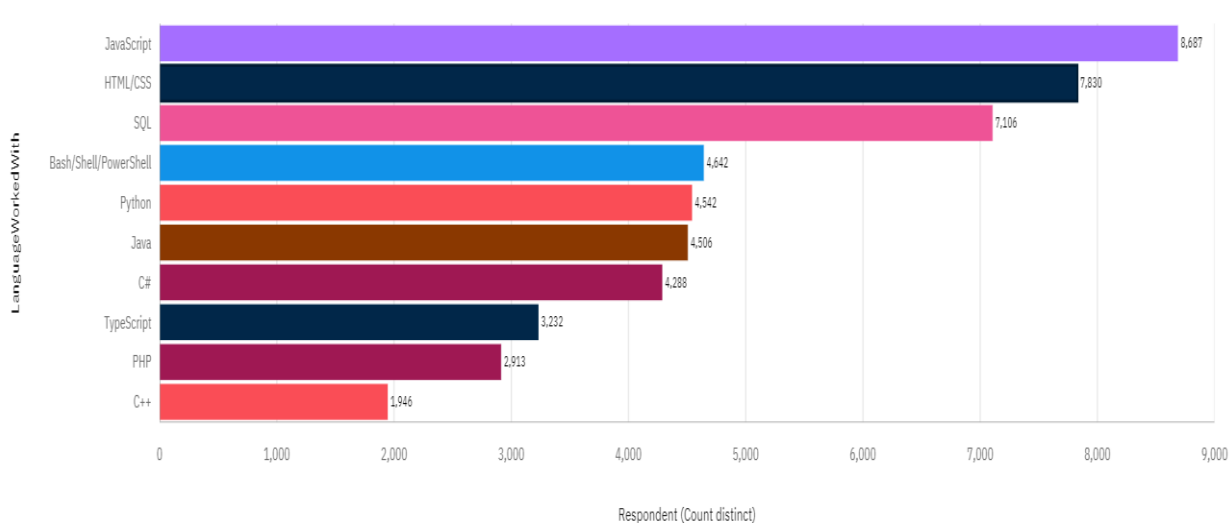
PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 Language Worked With

LanguageWorkedWith

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

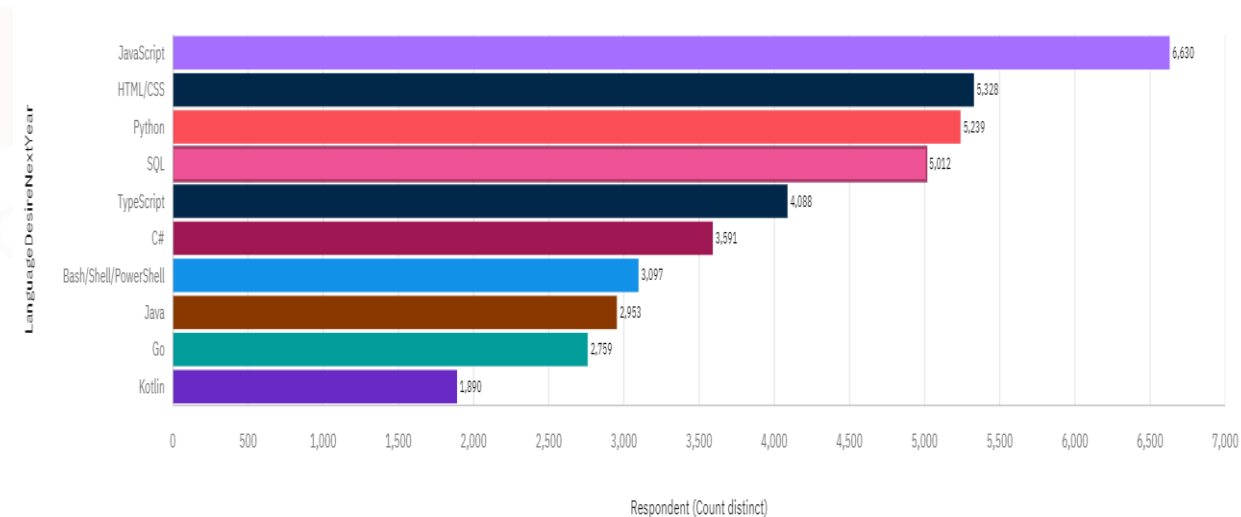


Next Year

Top 10 Language Desire Next Year

LanguageDesireNextYear

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



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- JavaScript, HTML/CSS, and SQL are highly popular, with strong current usage and continued demand for the future
- Python is in high demand for the future, ranking 3rd in desire but 5th in current use, indicating its growing importance
- TypeScript shows increasing interest, ranking higher in future desire than current experience
- Bash/Shell/PowerShell and C++ have significant current use but lower future interest, suggesting they may be less favored in upcoming projects

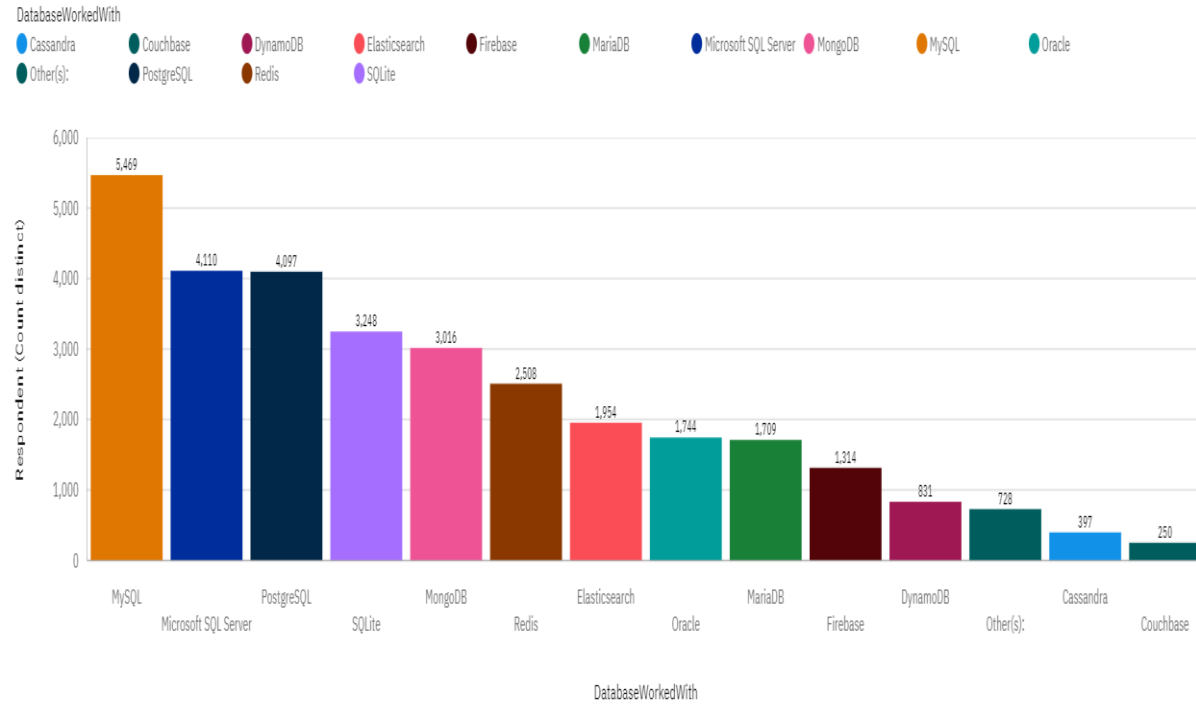
Implications

- Invest in JavaScript, HTML/CSS, and SQL: These languages will remain central to web and database development
- Upskill in Python: With rising demand, Python skills will be valuable, especially in data science and AI
- Learn TypeScript: Increasing interest suggests it's key for scalable JavaScript projects
- Diversify Skills Beyond Bash/Shell/PowerShell and C++: Lower future interest may lead to fewer opportunities

DATABASE TRENDS

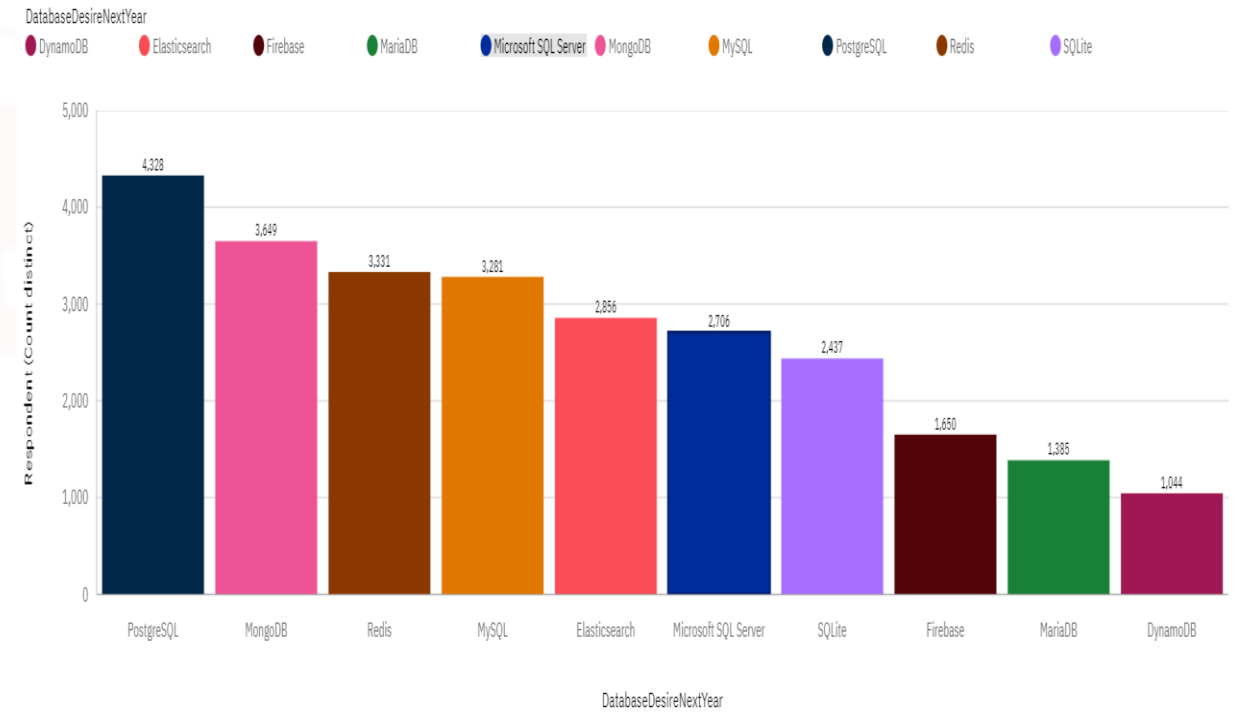
Current Year

Top 10 Database Worked With



Next Year

Top 10 Database Desire Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL rises from third in current usage to the most desired database for next year, indicating growing interest
- MongoDB jumps from fifth in usage to second in future desirability, showing strong momentum
- Redis also sees increased interest, moving from sixth in usage to third in desirability
- MySQL remains the most used but drops to fourth in future interest, suggesting a shift away from it
- Microsoft SQL Server falls from second in usage to sixth in desirability, indicating waning interest

Implications

- Rising Open-Source Adoption: Increased interest in PostgreSQL and MongoDB indicates a trend toward open-source solutions, urging companies to invest in these technologies
- Decline of Traditional Databases: Decreased interest in MySQL and Microsoft SQL Server signals a potential shift away from traditional relational databases
- Focus on Performance: The growing appeal of Redis highlights the need for high-performance, scalable solutions, especially for real-time applications
- Evolving Skillsets: Developers may need to adapt by learning more about PostgreSQL, MongoDB, and Redis, influencing training and hiring
- Cloud Adoption: Increased interest in cloud-friendly databases like MongoDB and DynamoDB may drive further cloud-native development

DASHBOARD

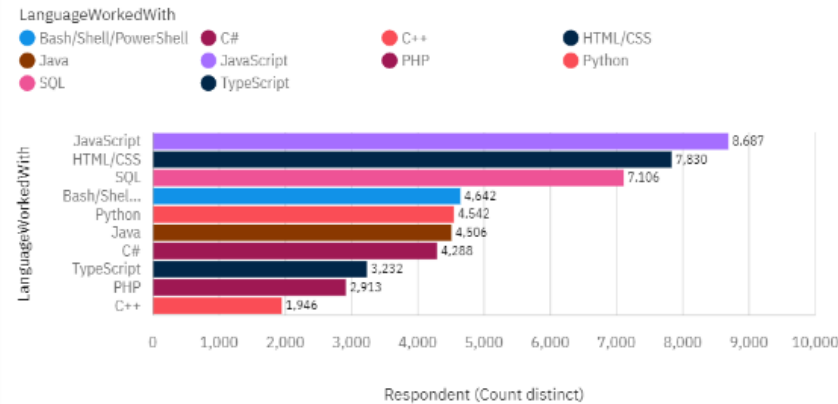


<https://github.com/herywibowoipb/Dashboards>

DASHBOARD TAB 1

Current Technology Usage

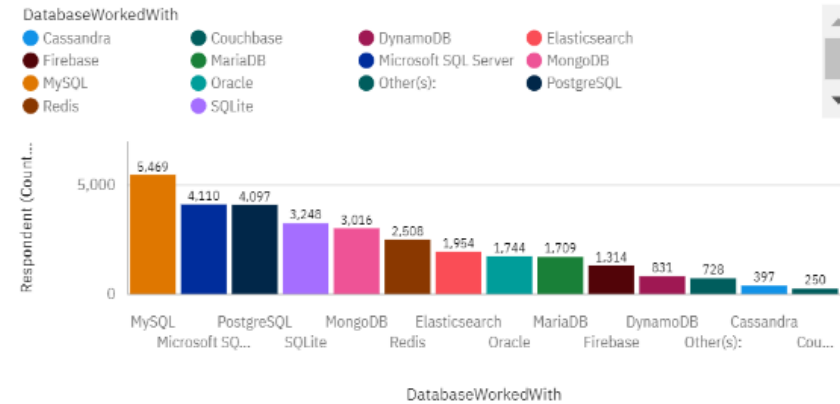
Top 10 Language Worked With



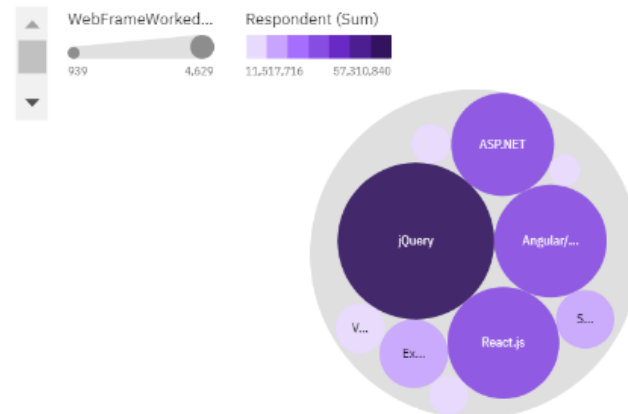
Platform Worked With



1 Top 10 Database Worked With



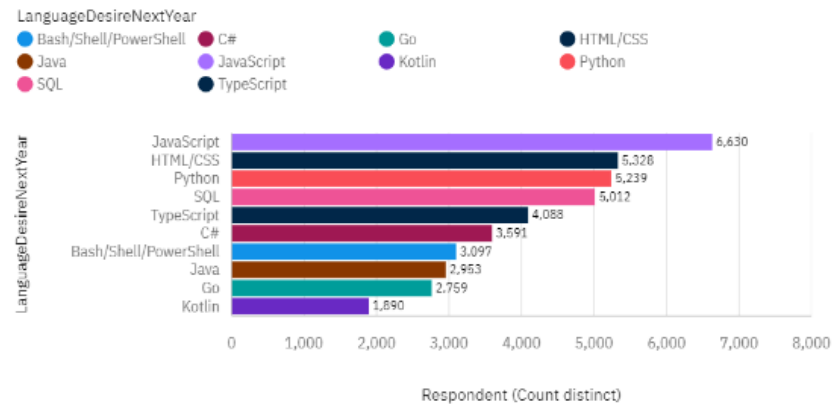
3 Top 10 Web Frame Worked With



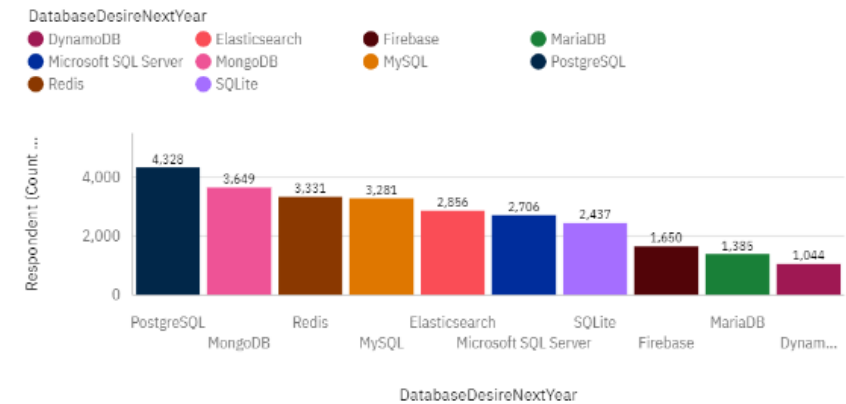
DASHBOARD TAB 2

Future Technology Trend

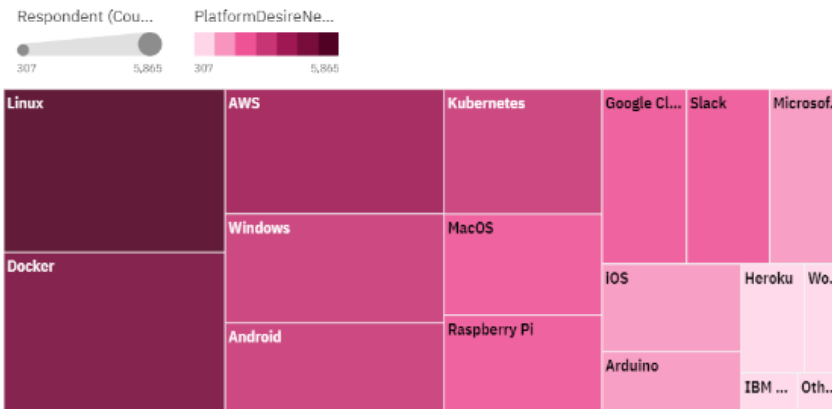
Top 10 Language Desire Next Year



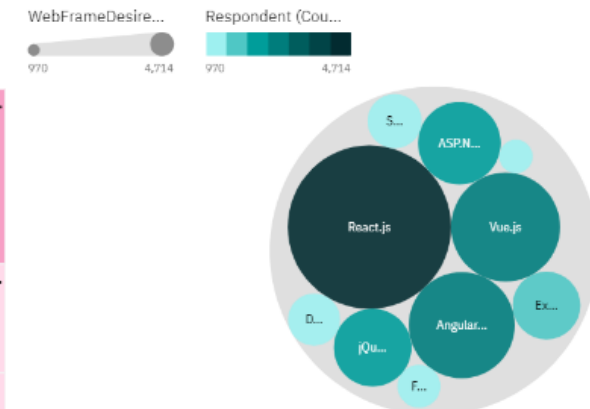
5 Top 10 Database Desire Next Year



Platform Desire Next Year



7 Top 10 Web Frame Desire Next Year

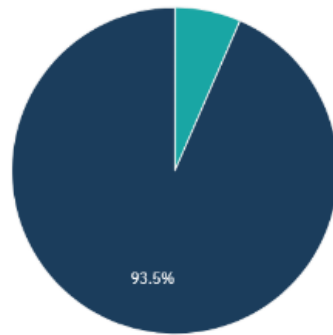


DASHBOARD TAB 3

Demographics

Respondent classified by Gender

Gender
● Woman ● Man

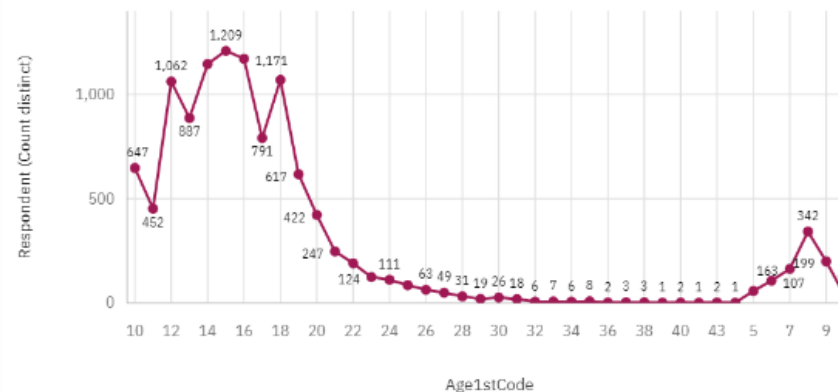


9 Respondent Count for Countries

Country (Count)
1 3,127

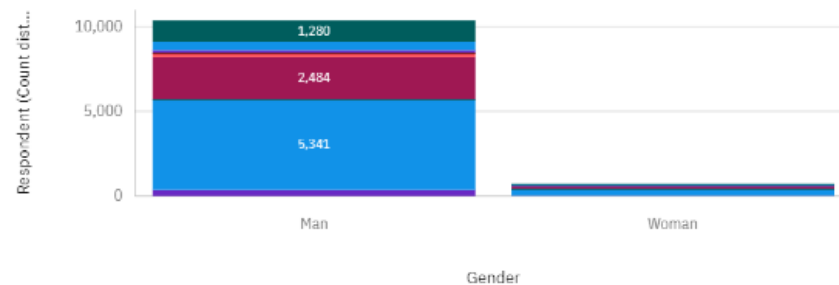


Respondent Count by Age



10 Respondent Count by Gender, classified by Formal Education Level

EdLevel
● Associate degree ● Bachelor's degree (BA, BS, B.Eng.... ● I never completed any formal edu...
● Master's degree (MA, MS, M.Eng., etc.) ● Other doctoral degree (Ph.D, Ed.D., etc.) ● Primary/elementary school
● Professional degree (JD, MD, etc.) ● Secondary school (e.g. American ... ● Some college/university study wit...



DISCUSSION



OVERALL FINDINGS & IMPLICATIONS

Findings

- JavaScript, HTML/CSS, and SQL maintain strong current use and will likely stay relevant
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CONCLUSION



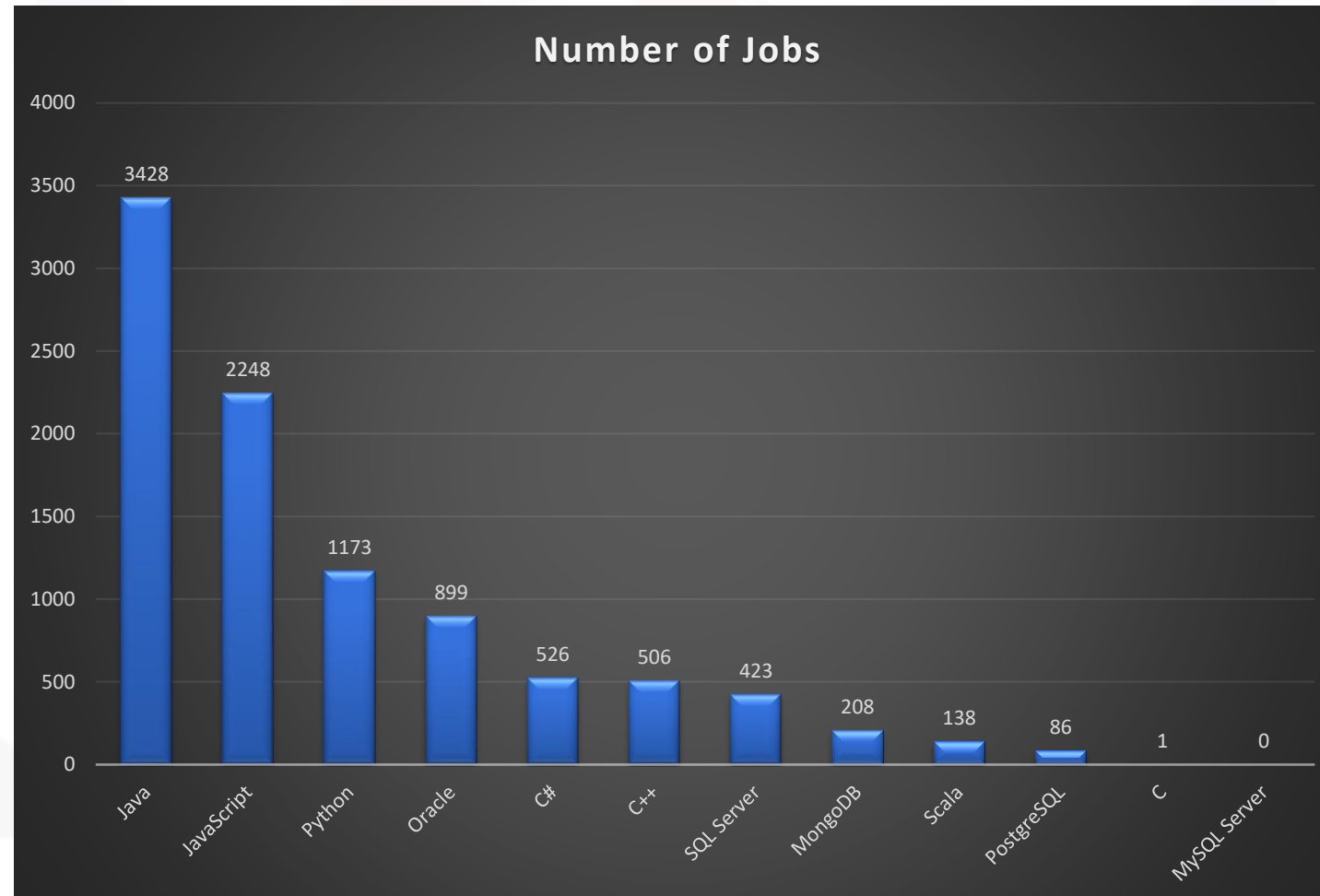
- Focus on Core Skills: Maintain proficiency in JavaScript, HTML/CSS, and SQL, as they remain essential
- Learn Emerging Languages: Upskill in Python and TypeScript, which are growing in demand
- Adopt Open-Source Databases: Shift towards PostgreSQL, MongoDB, and Redis for future-proofing
- Adapt to Cloud Trends: Embrace cloud-native tools to stay competitive

APPENDIX



- IBM Cognos Analytics
- Dataset:
 - ✓ m5_survey_data_demographics.csv
 - ✓ m5_survey_data_technologies_normalised.csv
- ✓ <https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/module%201/Accessing%20Data%20Using%20APIs/jobs.json>
- ✓ https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DA0321EN-SkillsNetwork/labs/datasets/Programming_Languages.html

JOB POSTINGS



POPULAR LANGUAGES

