Stack Overflow Flow Developer Survey Analysis

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OUTLINE

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- Discussion
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EXECUTIVE SUMMARY

- Provides a structured analysis of insights derived from the Stack Overflow Developer Survey
- Current Technology Usage vs Preferences
  - Identified top 10 languages and databases(current vs Preferences)
  - Identified top 10 platforms and webframes (current vs Preferences)
- Discussion highlighting implications and insights from the analysis.
- Final conclusions based on the overall research.
- conclusions based on the overall analysis

INTRODUCTION

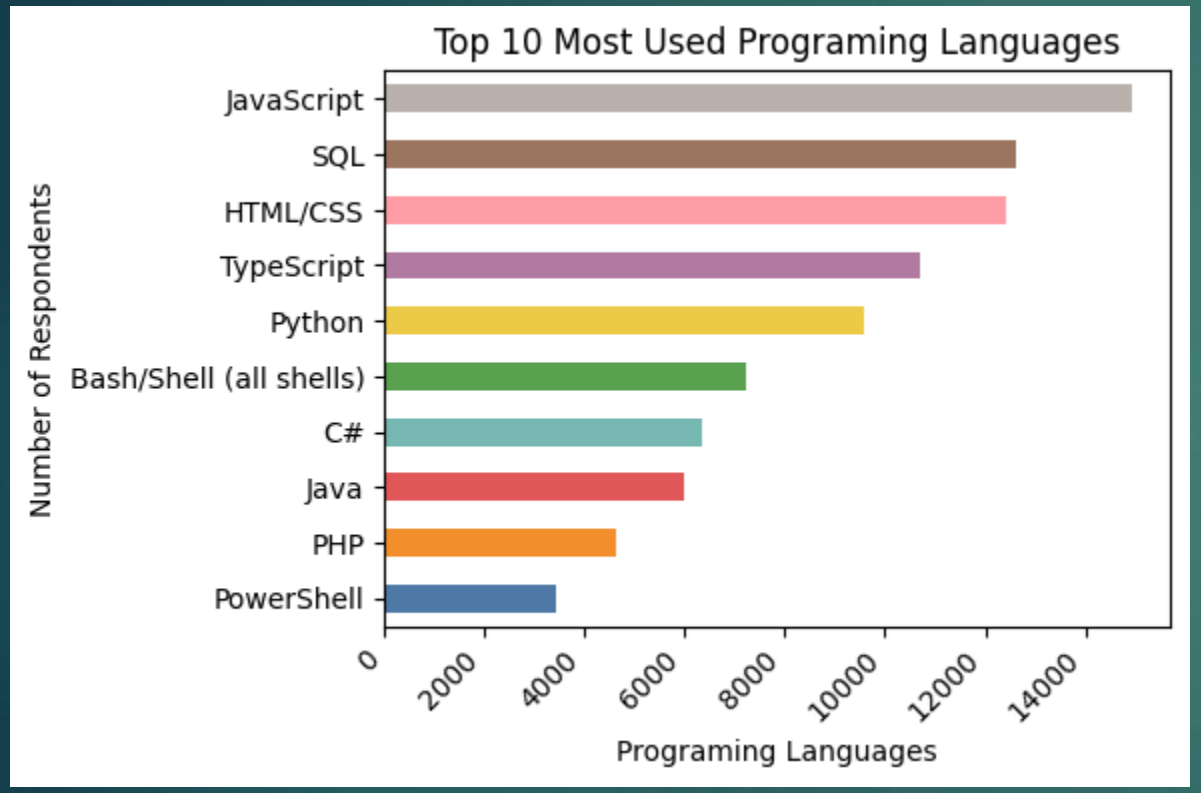
- The Stack Overflow Developer Survey is the most detailed survey of professional and hobbyist developers
- Survey included nearly 18845 participants.
- Purpose
  - Understand insights on global trends in the tech industry from developers
- Target Audience
  - Tech leaders, HR teams, educators, and product managers seeking datadriven guidance on developer tools and preference.
- Value
  - This analysis offers guidance for decision making in hiring, training, product development, and career planning

METHODOLOGY

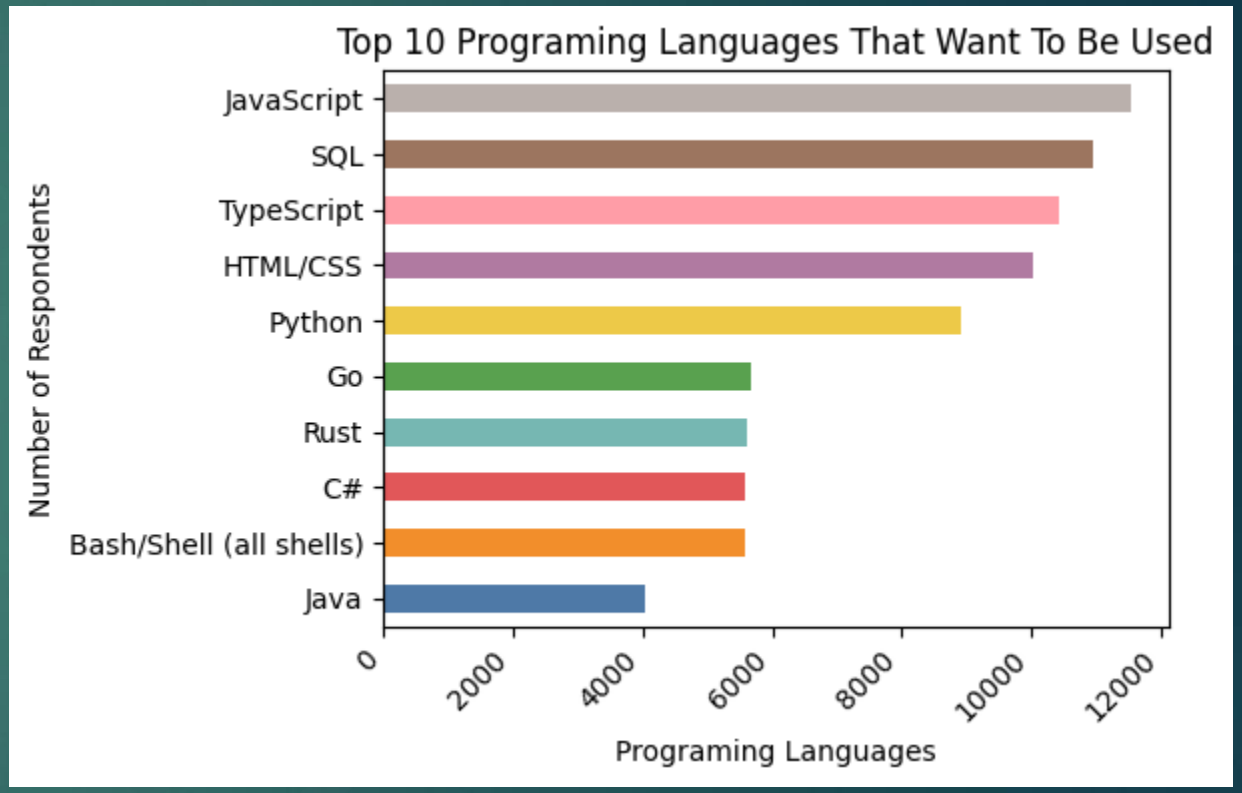
- Data Source: The analysis is based on responses from the Stack Overflow Developer Survey, which gathers input from thousands of developers globally.
- Data Collection: The dataset was downloaded from a public cloud repository using a direct link and was saved as survey-data.csv for further analysis
- Data Wrangling
  - Multi-select fields (e.g., LanguageHaveWorkedWith) contained semicolon-separated values.
  - These fields were split and exploded into individual rows to enable accurate counting and analysis.
  - Null or inconsistent entries were cleaned, and whitespace was trimmed.
- Exploratory Data Analysis
  - Analyzing data distribution
  - Handling outliers
  - Correlation
- Visualization Tools: Cleaned data was imported into IBM Cognos to build a multi-panel interactive dashboard.
- Demographics: Survey responses were also grouped by age, education level, and country to provide context for interpreting technology trends.

PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

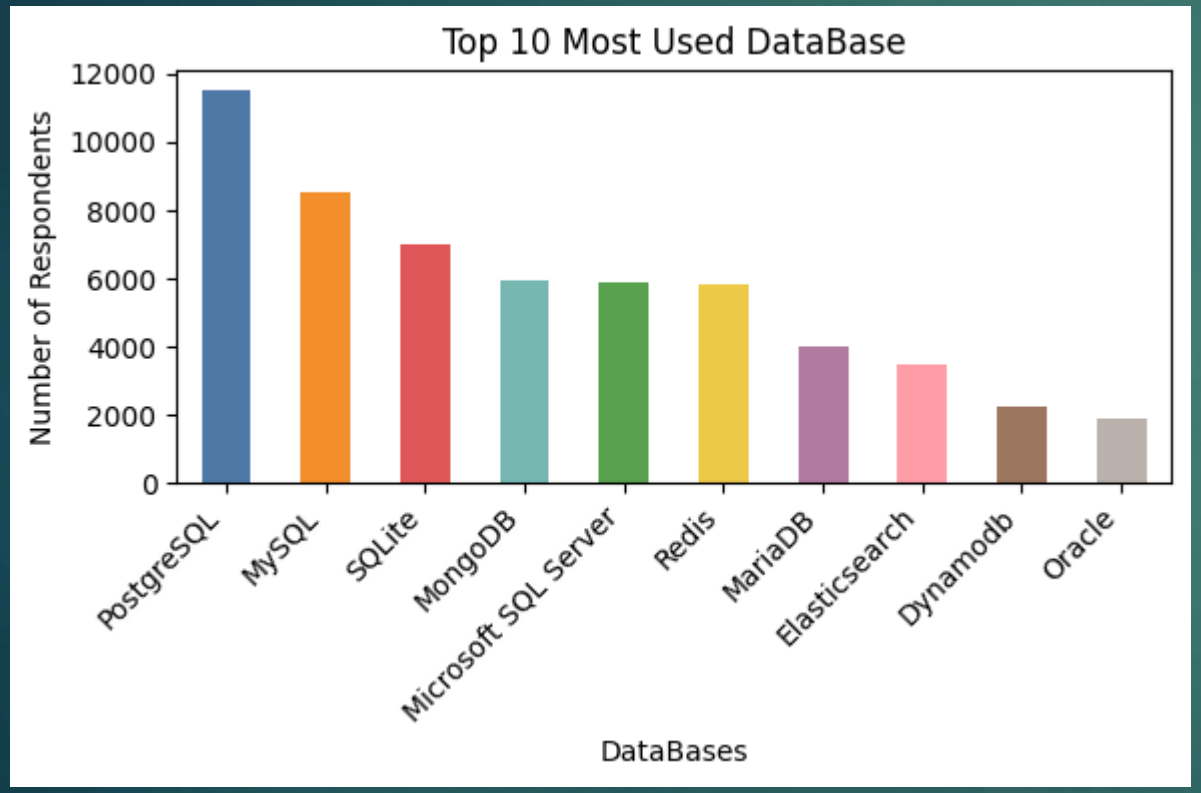
- Javascript and SQl seems to be top two languages
- Typescript and Python becoming popular in the future
- PHP and Powershell are out whereas GO and Rust will enter top 10

Implications

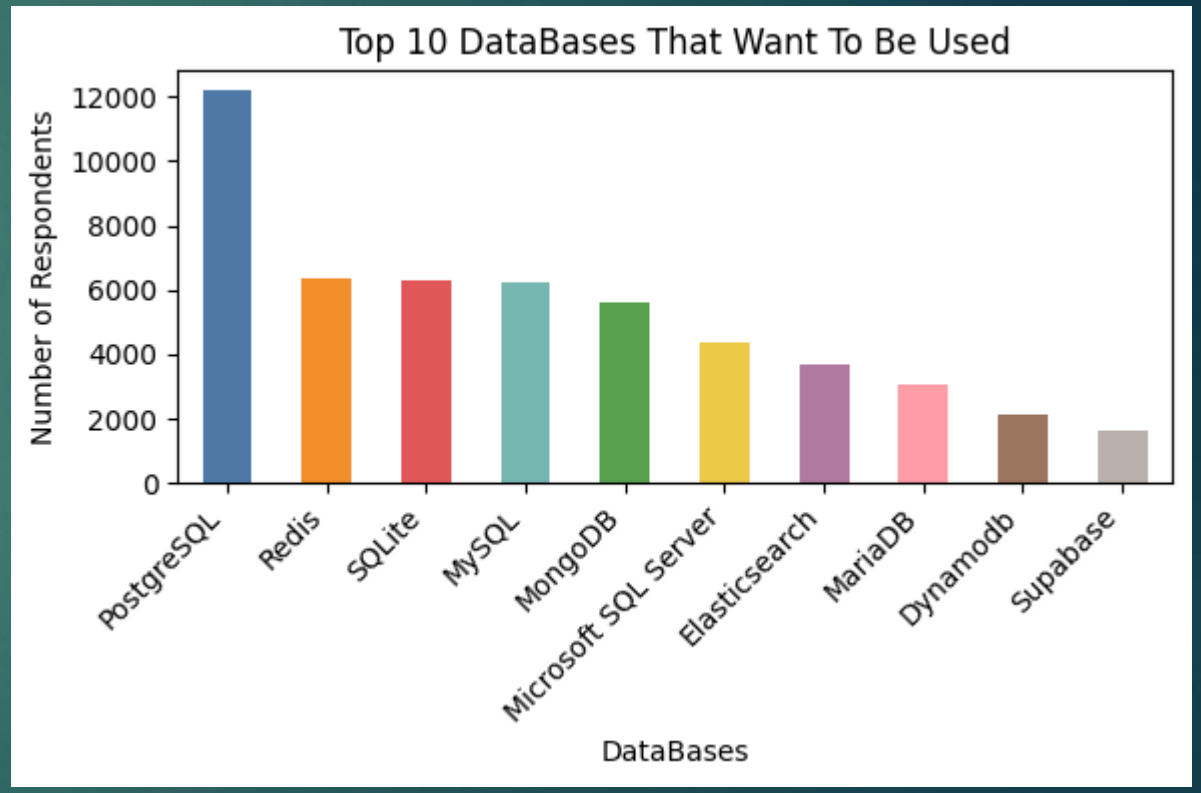
- Organizations should continue to invest in JavaScript and SQL skills
- Python is best choice with AI and ML in rising demand
- Growing need in systems programming, cloud infrastructure, and backend development

DATABASE TRENDS

Current Year



Next Year



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- PostgreSQL seems to be top database used
- Declining interests in MySQL and MongoDB
- Increasing interest in Redis and Elastic search

- Implications

- PostgreSQL preferred choice for both startups and enterprises
- Redis have speed and efficiency, particularly in caching, real-time analytics, and high-performance applications
- ElasticSearch is becoming a goto solution for indexing, logging, and real-time search in data analytics

DASHBOARD

Screenshots of each dashboard are provided in the following slides, and the full PDF version of the dashboard can be accessed through the link below.

Click Here to View Dashboard

DASHBOARD TAB 1

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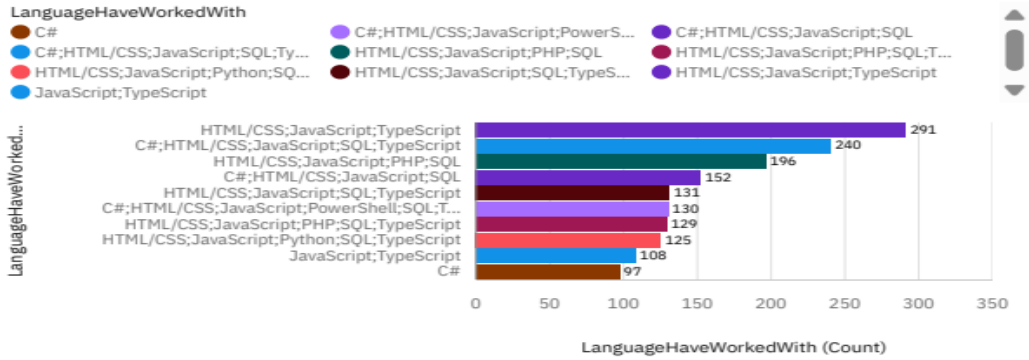
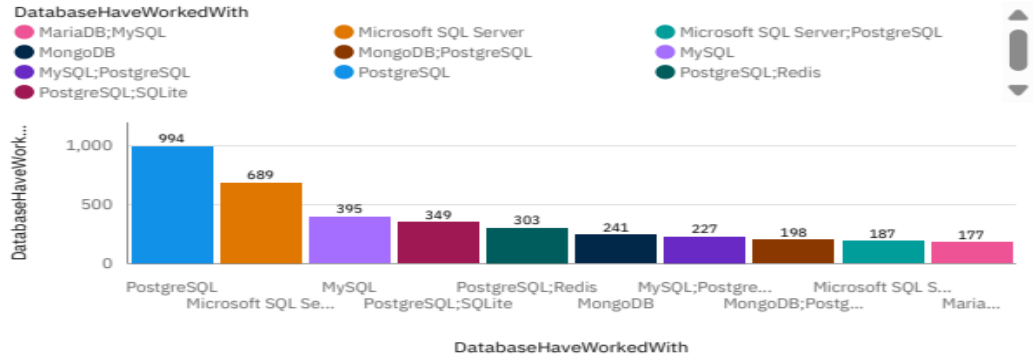
StackOverflowSurveyDashboard

Current Technology Usage

Top 10 Most Used Languages

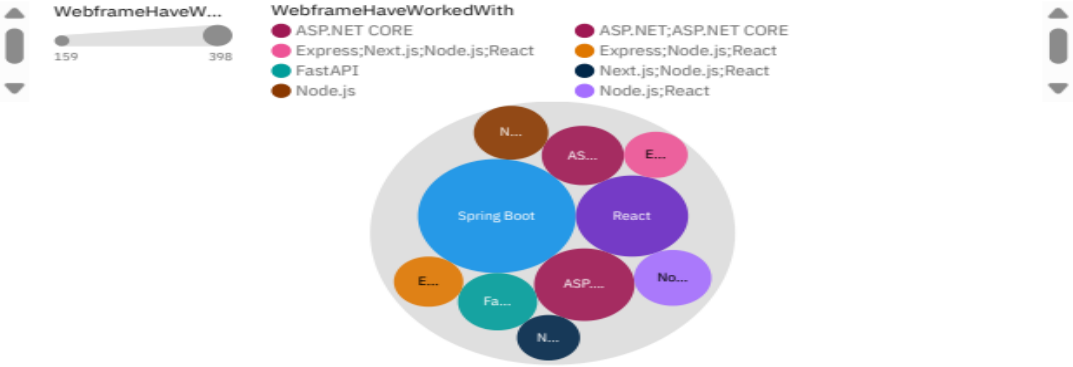


Top 10 Most Used DataBase



Top 10 Most Used Platforms

Top 10 Most Used Web Frameworks



DASHBOARD TAB 2

DASHBOARD TAB 3

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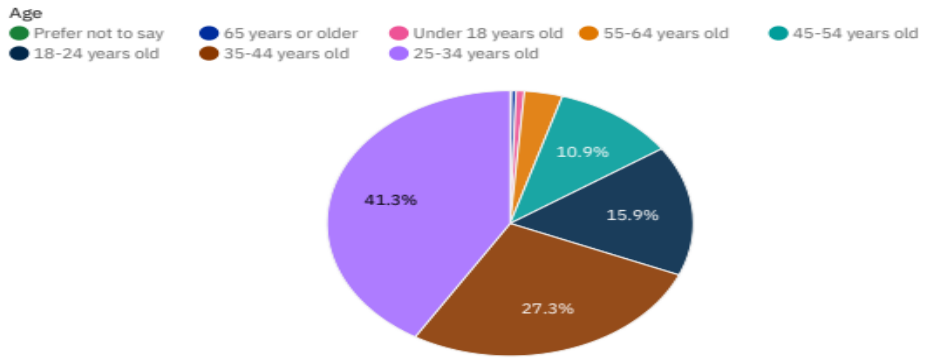
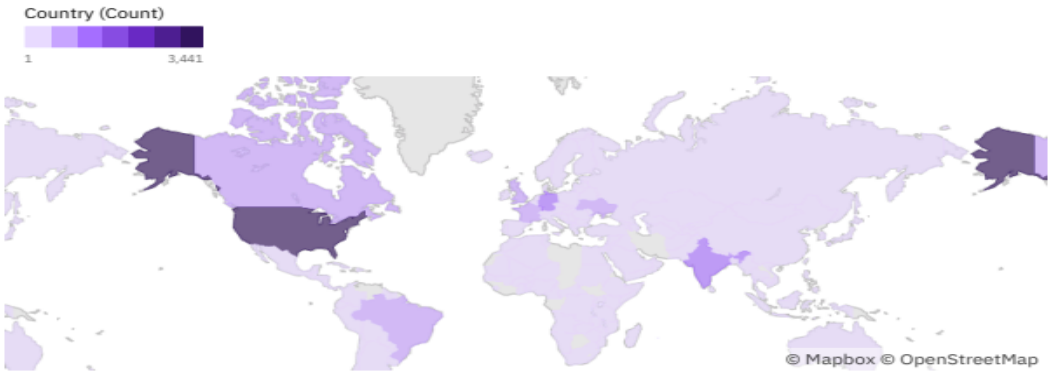
StackOverflowSurveyDashboard

Demographics

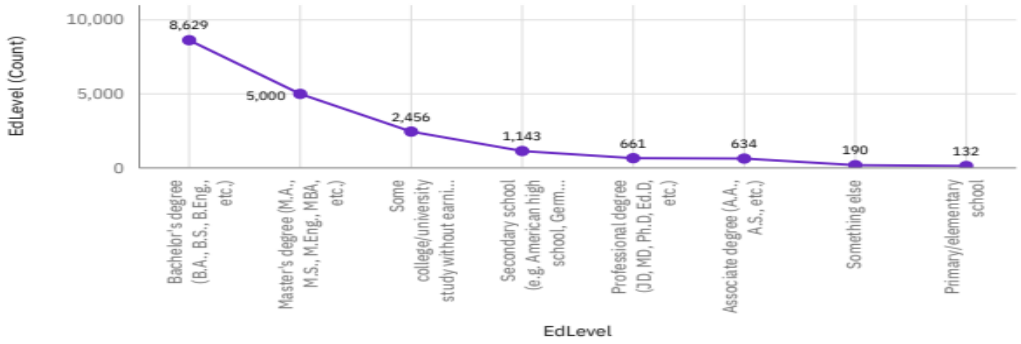
Respondent distribution by Age



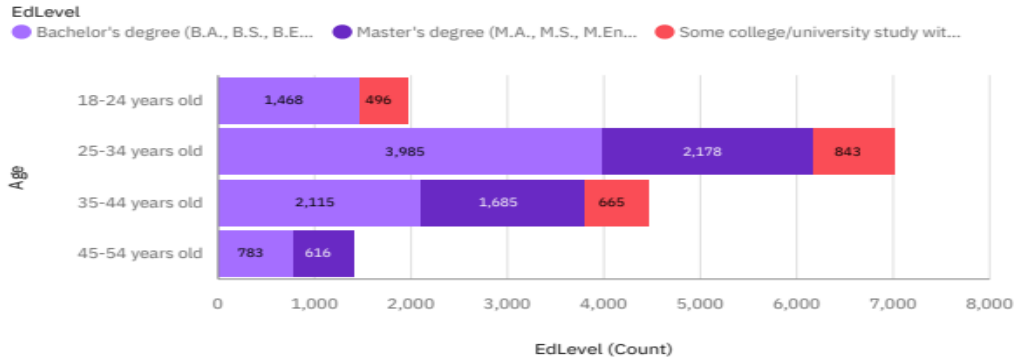
Respondent Distribution by Country



Respondent distribution by Formal Education Level



Respondent Count by Age, classified by Education Level



DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

- Findings

- JavaScript is the top language used and TypeScript gains popularity
- PostgreSQL has surpassed MySQL in popularity
- AWS remains dominant, followed by Azure and Google Cloud
- The majority of developers are between 25 and 34 years old indicates emerging young talent into the field
- Most developers hold a BA/BS or MA/MS degree

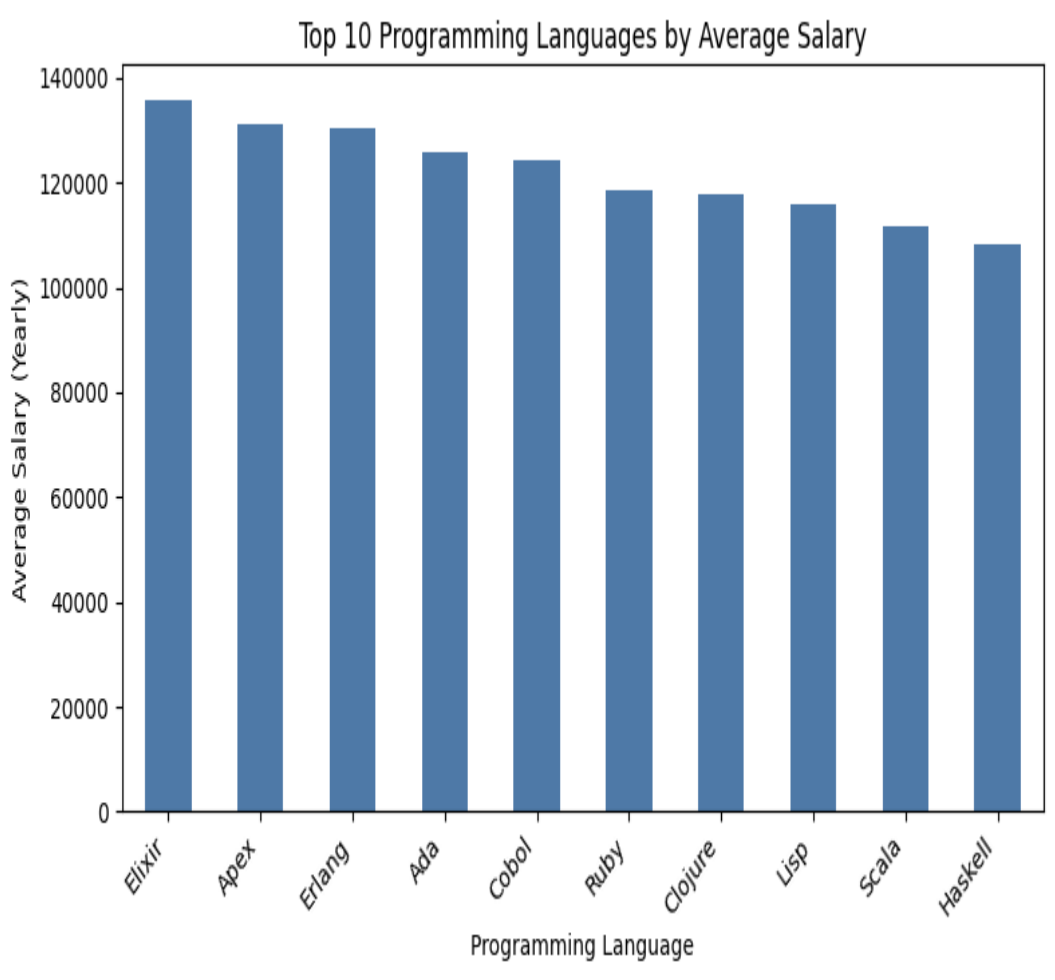
Implications

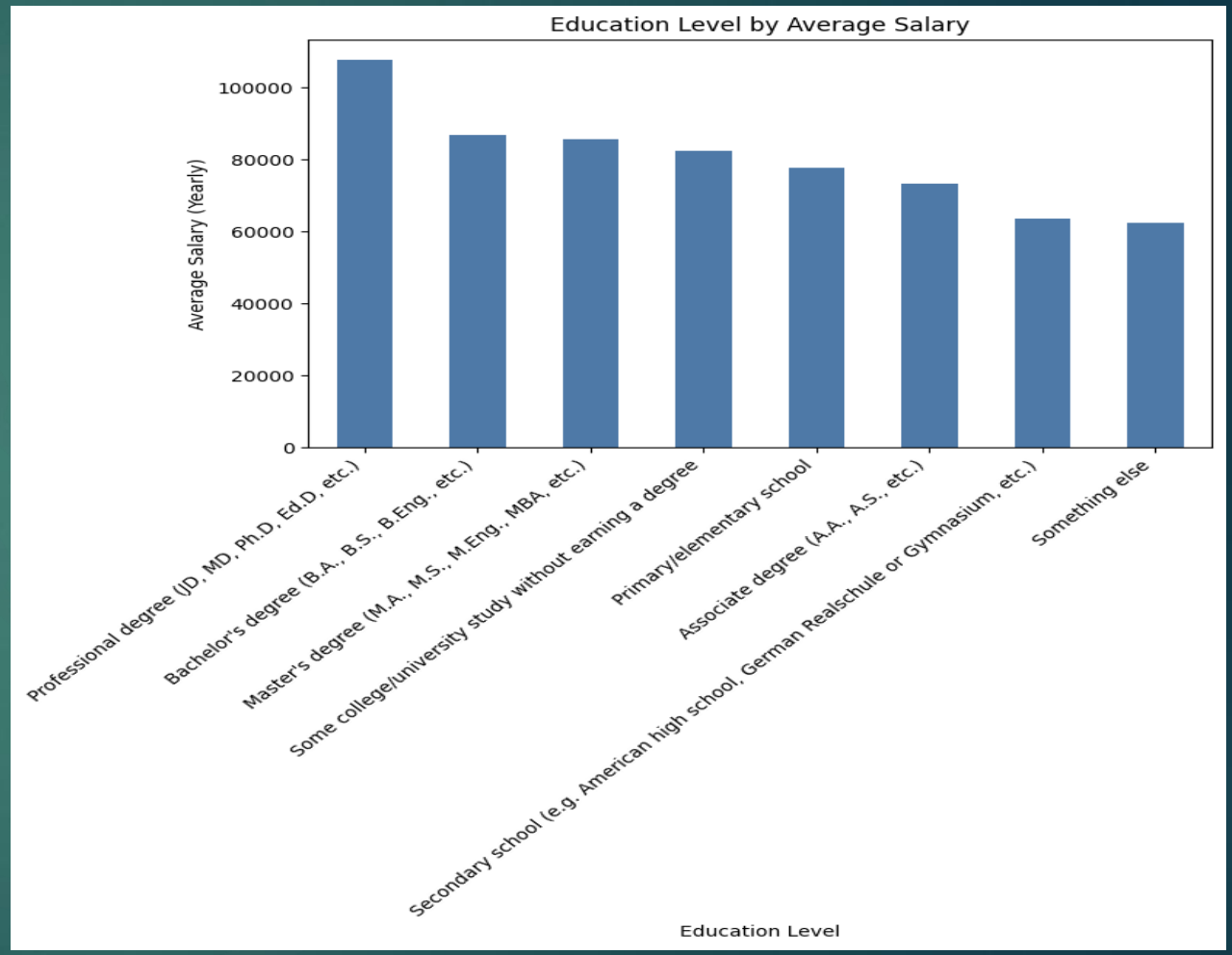
- Cloud-native architectures are now mainstream— organizations must adapt development and DevOps accordingly.
- Front-end frameworks are evolving fast (e.g., React + Next.js). Staying updated is crucial for employer attractiveness.
- The developer community is young and well educated
- Spread of developers is not uniform across the globe

CONCLUSION

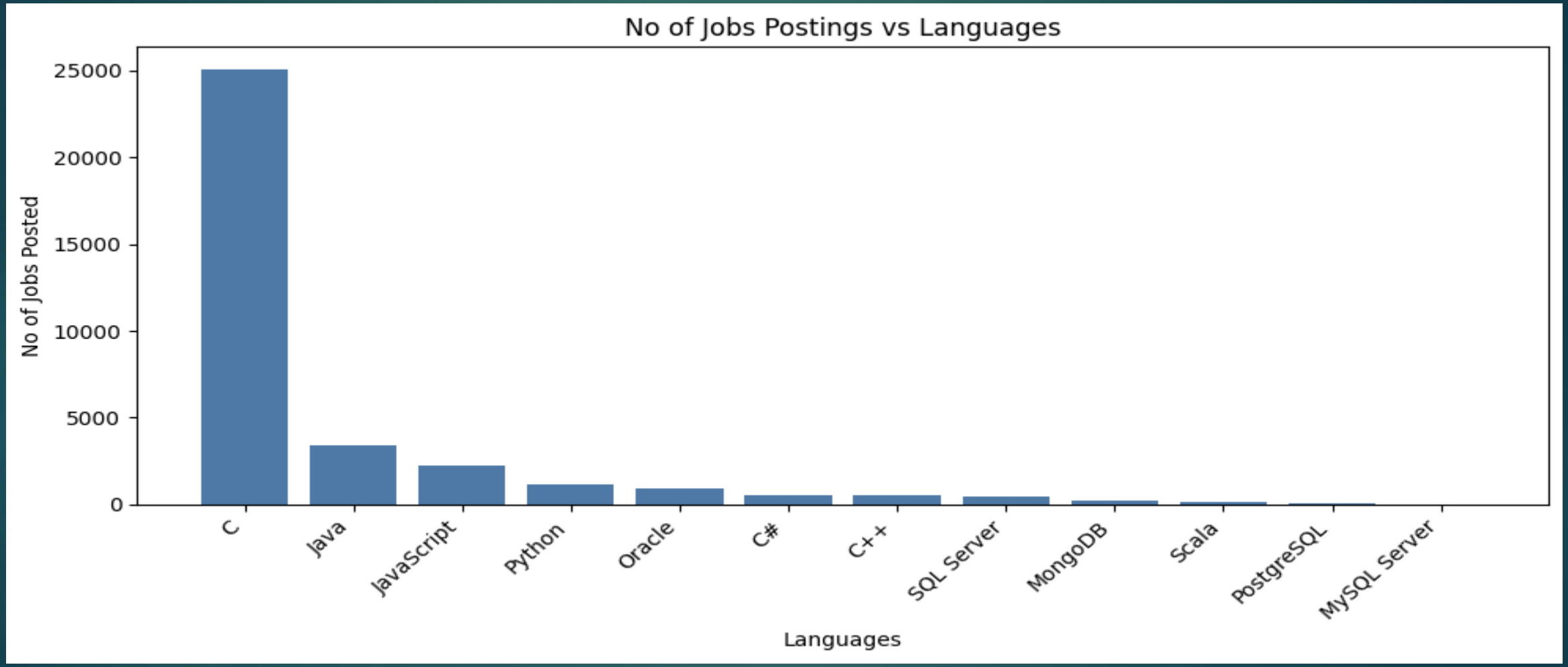
- JavaScript, SQL, TypeScript and Python continue to dominate in shaping the modern tech landscape
- PostgreSQL will remain as a strong Database
- AWS is dominating present and future cloud platforms
- The developer community remains young and globally diverse
- Tech teams should invest in modern stacks (Go, React, PostgreSQL, cloud platforms)

APPENDIX


Top 10 Programming Languages by Average Salary
Average Salary (Yearly)
140000
120000
100000
80000
60000
40000
20000
0
Elixir
Apex
Erlang
Ada
Cobol
Ruby
Clojure
Lisp
Scala
Haskell
Programming Language


Education Level by Average Salary
Average Salary (Yearly)
100000
80000
60000
40000
20000
0
Professional degree (JD, MD, Ph.D, Ed.D, etc.)
Bachelor's degree (B.A., B.S., B.Eng., etc.)
Master's degree (M.A., M.S., M.Eng., MBA, etc.)
Some college/university study without earning a degree
Primary/elementary school
Associate degree (A.A., A.S., etc.)
Secondary school (e.g. American high school, German Realschule or Gymnasium, etc.)
Something else
Education Level

JOB POSTINGS



POPULAR LANGUAGES