

TRENDING TECHNOLOGIES: STACK OVERFLOW DEVELOPER SURVEY

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EXECUTIVE SUMMARY



Top programming languages in demand:

- HTML/CSS, Bash/Shell/PowerShell, Java Script, C#, C, C++.
- Top database skills in demand:
- PostgreSQL, My SQL, SQ Lite, MongoDB, Redis, Microsoft SQL Server.
- Popular platforms:
- AWS, Microsoft Azure, Google Cloud, CloudFlare, Firebase.
- Popular Web Frames:
- Node.js, React, Next.js, Express, ASP. NET CORE.

Future Technology Trend:

- JavaScript takes the third row, followed by Bash/Shell and HTML/CSS.
- PostgreSQL, My SQL, MongoDB, Redis, SQL Lite place in Top 5.
- Amazon Website Services is in the Top 5 demanded platforms, the rest remains
- Node.js, React, Next.js, Express, ASP. NET CORE still continues dominate.



INTRODUCTION



- In the ever-evolving world of programming and technology, several key trends continue to shape how we build, deploy, and interact with software.

These insights shed light on the shifting landscape of programming languages, web frameworks, and the demographics of today's developers.

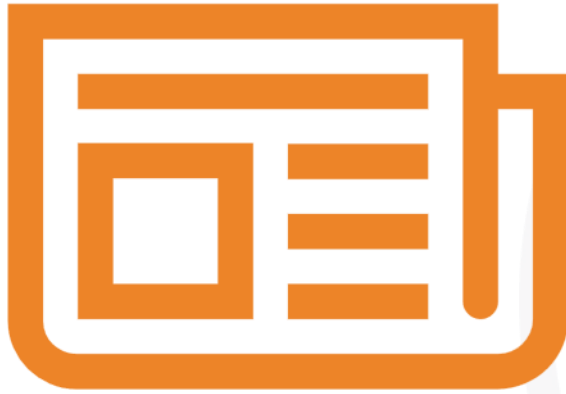
Stack Overflow conducts a comprehensive global survey every year, reaching a diverse community of individuals engaged in coding across all levels and industries.

The 2025 edition marks the 15th consecutive year of the Developer Survey, covering a broad range of topics—from most loved technologies to career goals and workplace satisfaction.

Nearly **18.845 developers** participated in this year's 20-minute survey.

Let's explore some of the most notable findings from the Stack Overflow Developer Survey 2025.

METHODOLOGY



- Data is based on the survey conducted by **Stack Overflow** from January 23 to February 14 and involved **18845 software developers** from **161 countries**.
- Familiarization with this dataset was achieved through completing **IBM** labs on **Coursera**, which encompassed topics such as Web Scraping, Dataset Exploration, Data Wrangling, Exploratory Data Analysis, and Data Visualization.
- Data analysis and visualization was conducted via **IBM Cognos Analytics**



RESULTS

2025 Trends

- **Full-Stack Focus:** Rise in demand for JavaScript-based stacks (React, Node.js)
- **Cloud-First Development:** Developers increasingly favor platforms like **AWS**
- **Data-centric Skills:** High demand for **SQL**, **PostgreSQL**, and **Python**
- **Remote Work Ready:** Tools supporting distributed teams (e.g., Git, Docker) remain crucial

Most Used & Wanted Tools

- **Languages:** HTML/CSS, JavaScript, Bash/Shell, Python
- **Frameworks:** React, Node.js, Next.js, ASP.NET
- **Cloud Platforms:** AWS dominates, followed by Azure and Google Cloud
- **Databases:** PostgreSQL, MySQL, MongoDB continue to lead

Developer Survey 2025 – Key Trends & Insights

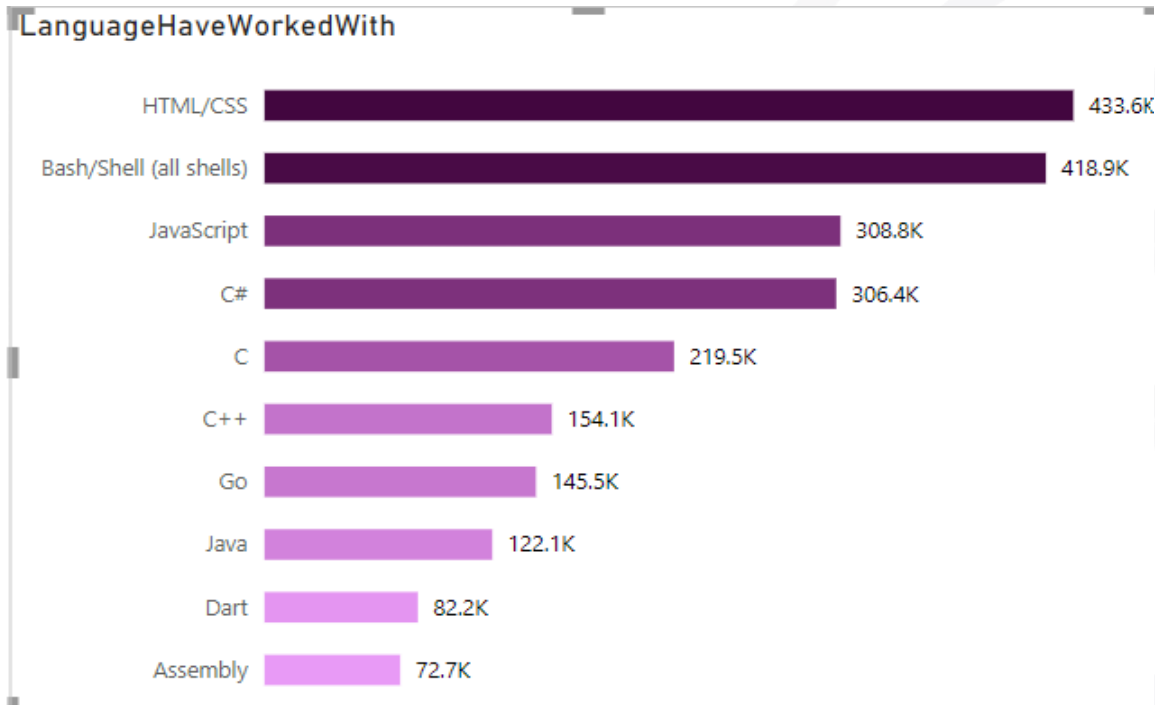
Who Are the Developers?

- **Age:** Mostly between **25–34 years old**
- **Education:** Majority hold a **Bachelor's or Master's degree**
- **Top countries:** **India, USA, UK**, and **Germany**

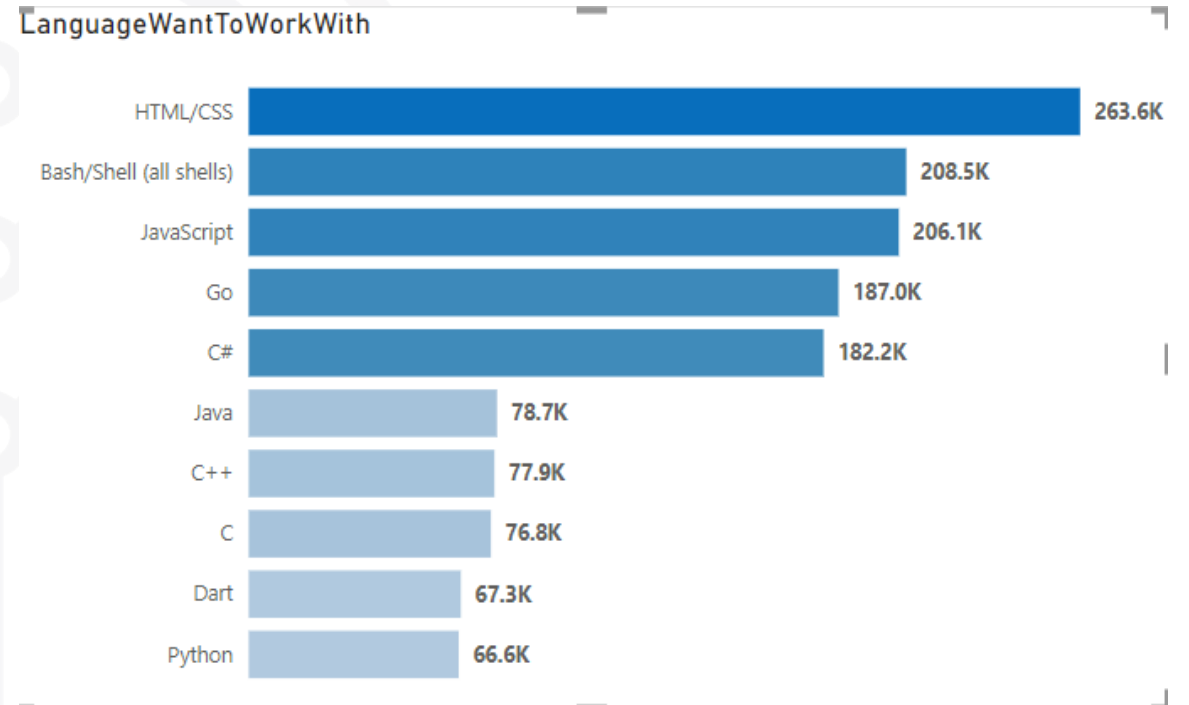


PROGRAMMING LANGUAGE TRENDS

Current Year



Next Year



PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

KEY FINDINGS

1. Most Used Languages (Current Year)

- **HTML/CSS** and **Bash/Shell** top the list, showing widespread use in web development and scripting tasks.
- **JavaScript** and **C#** are also popular, each used by many developers.
- Lower down: Go, Java, Dart (82.2K), and Assembly .

2. Most Desired Languages (Next Year)

- **HTML/CSS** still leads , but with significantly fewer developers expressing desire compared to usage — suggesting it's seen as essential but not particularly aspirational.
- **Go** ranks 4th in desire despite being only 7th in current use — indicating **strong rising interest**.
- **Python** appears **only** in the “want to work with” chart — a **rising star** despite not being in the top used languages.

IMPLICATIONS

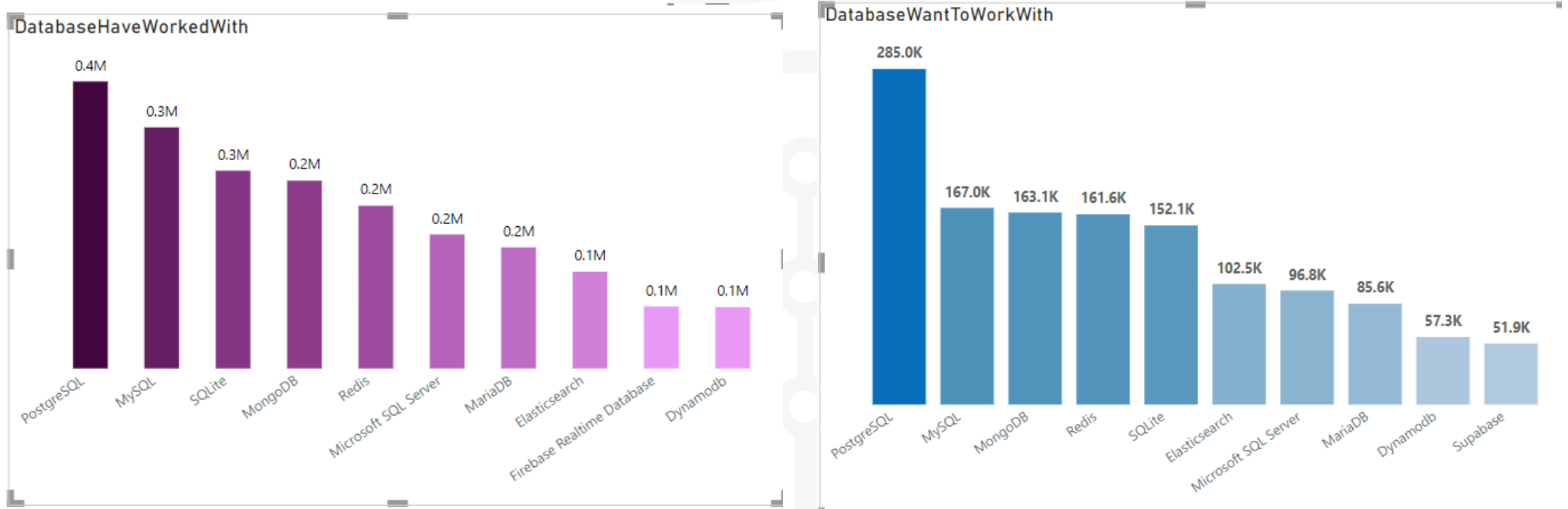
HTML/CSS (263.6K) remains the most desired, though interest is lower than current usage — likely seen as necessary but not exciting.

Go (187.0K) ranks high in interest despite limited use today, highlighting fast-growing developer enthusiasm.

Python (66.6K) enters solely as a "most wanted" language — a clear signal of its rising popularity and perceived value.



DATABASE TRENDS



DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

1. **PostgreSQL** is the clear leader in both categories:
 1. **Most worked with** (~400K developers)
 2. **Most wanted to work with** (285K developers)
2. **MySQL** and **SQLite** remain highly used, but **interest in PostgreSQL and MongoDB** is catching up or surpassing them.
3. **Redis** shows strong demand (161.6K) despite lower actual usage (~200K), highlighting its appeal in high-performance use cases.
4. **Emerging interest** in newer databases like **Supabase** (51.9K) and **DynamoDB** (both worked and wanted).
5. **Elasticsearch** and **Firebase** show moderate popularity but steady developer interest.

Implications

- **PostgreSQL's popularity** signals it as the top choice for future-proof backend development.
- **Demand-supply gap** for Redis and MongoDB implies potential learning opportunities and hiring focus.
- **Organizations** may want to invest in **training** for in-demand databases like PostgreSQL, Redis, and Supabase.
- **Legacy systems** using MySQL and SQL Server still dominate, but may gradually transition as developer interest shifts.



DASHBOARD

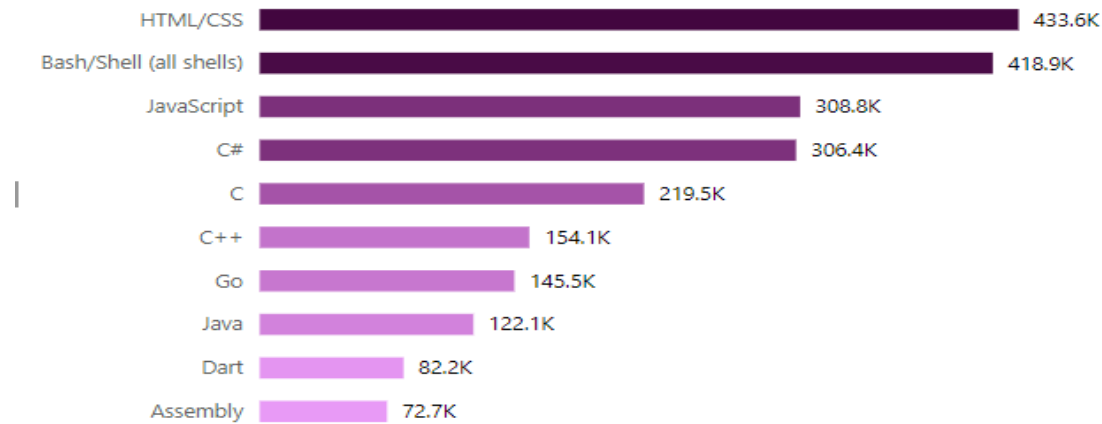


<The GitHub link of the Cognos/Looker Studio dashboard goes here.>

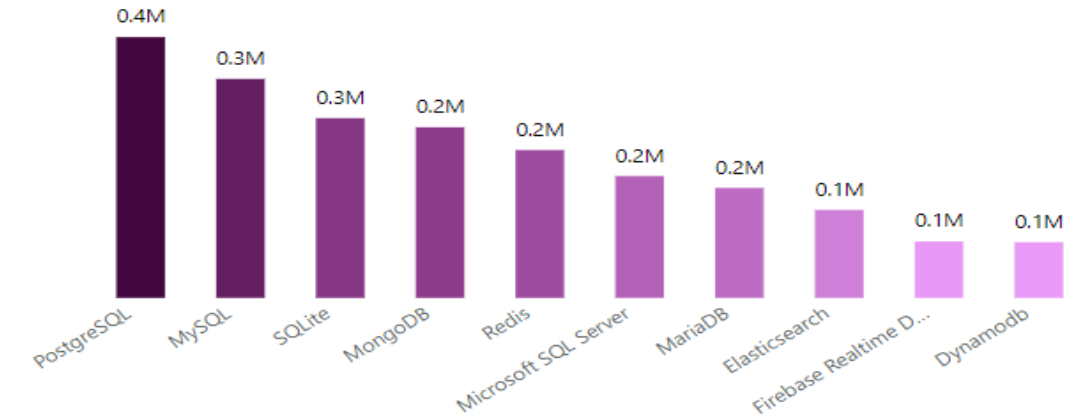


DASHBOARD TAB 1

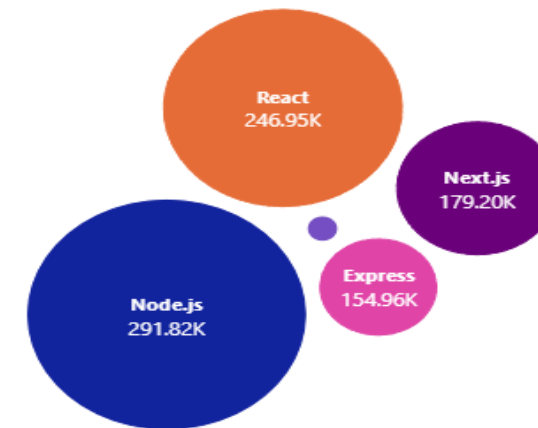
LanguageHaveWorkedWith



DatabaseHaveWorkedWith

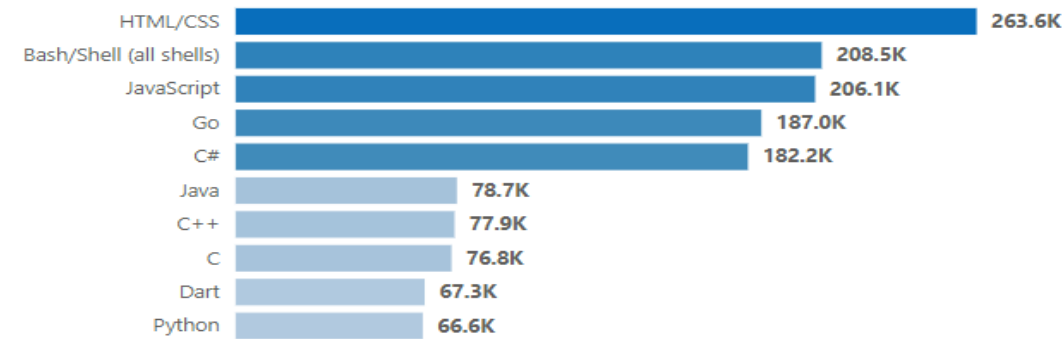


WebframeHaveWorkedWith

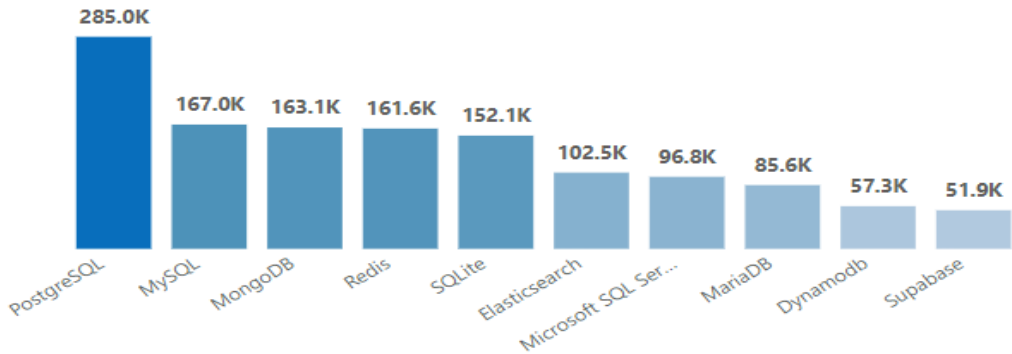


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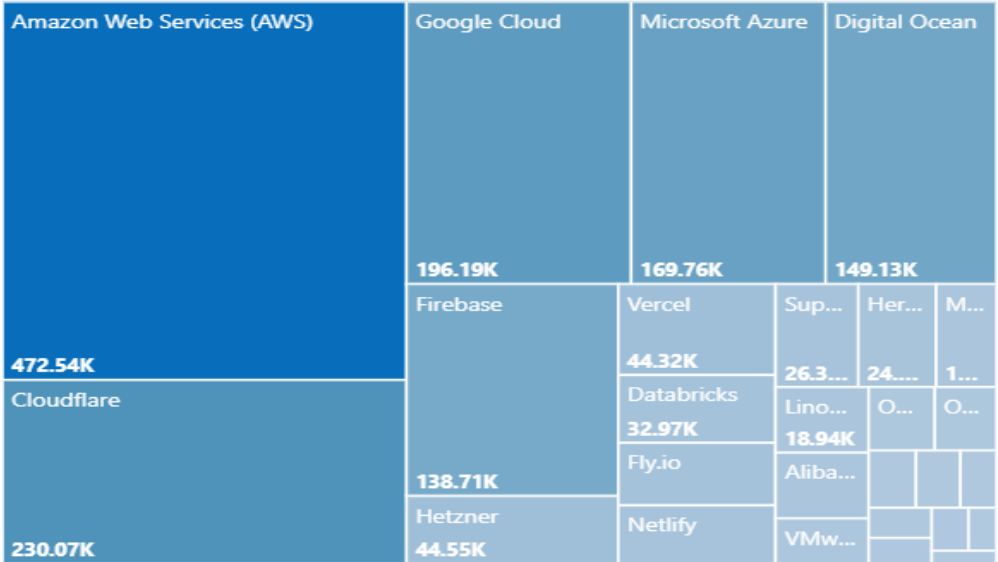
LanguageWantToWorkWith



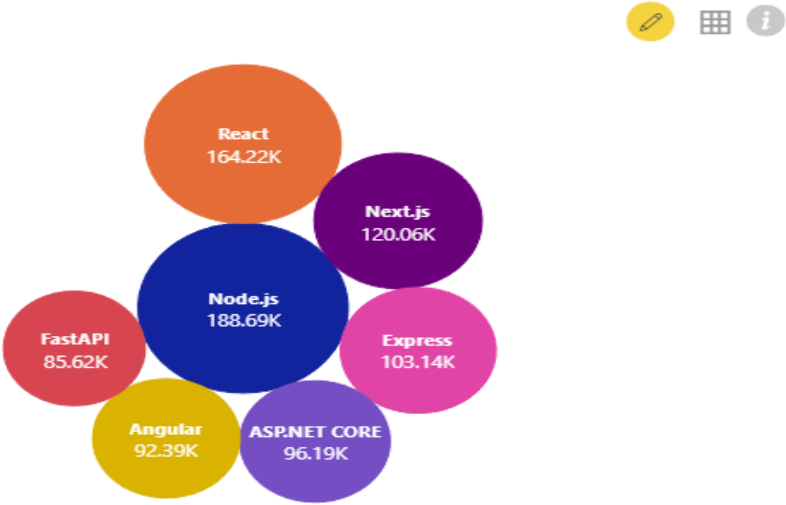
DatabaseWantToWorkWith



PlatformWantToWorkWith

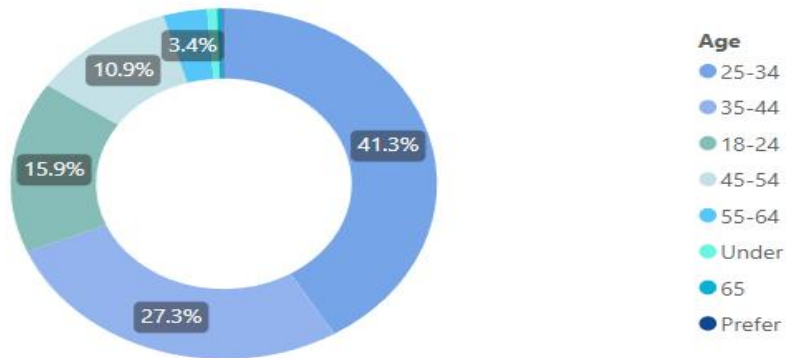


WebframeWantToWorkWith

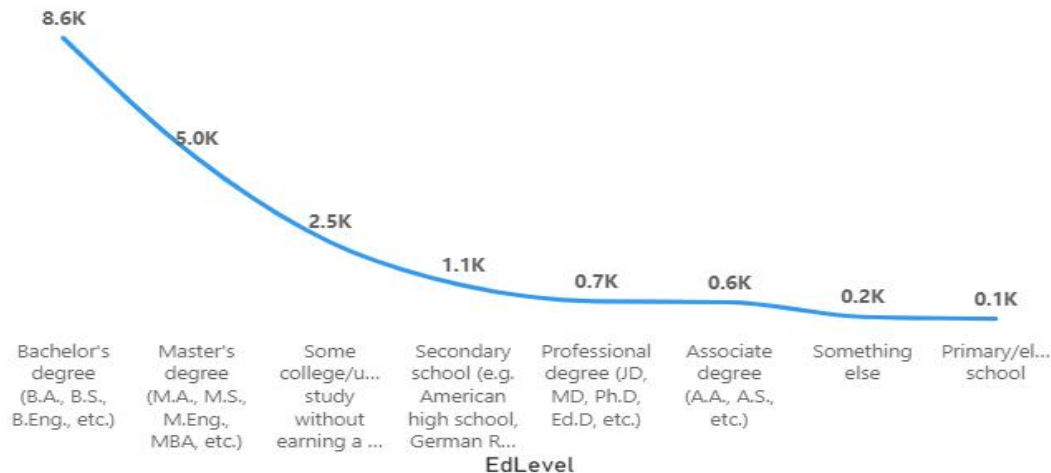


DASHBOARD TAB 3

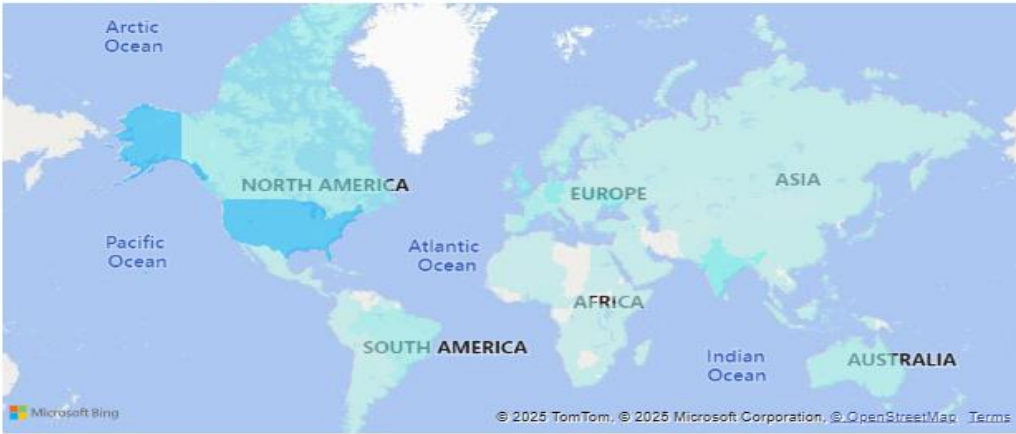
Distribution Responseld by Age



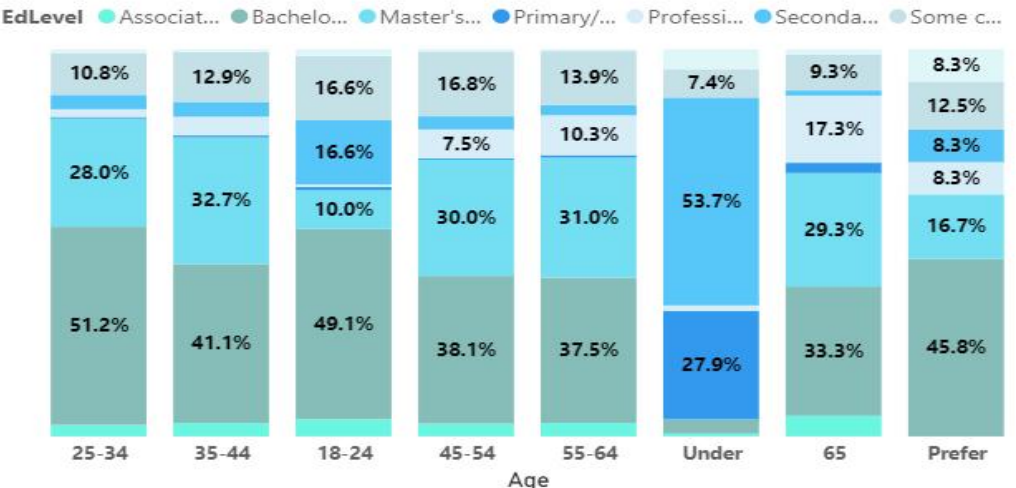
Responseld by EdLevel



Distribution Responseld by Country



Respondent Count by Age, classified by Education Level.



DISCUSSION



- **Task 1 – Tools, Languages, Frameworks, and Platforms Used**
 - This task identifies the tools developers currently use, highlighting trends in programming languages, web frameworks, databases, and platforms.
- **Task 2– Technologies Developers Want to Work With**
 - This task explores what developers are excited to learn or use in the future, offering insights into upcoming trends and areas of investment.
- **Task 3 – Developer Demographics**
 - This task explores the background of survey respondents, focusing on their **age**, **education**, and **region**. Understanding who makes up the developer community helps contextualize the tools and technologies they use.



OVERALL FINDINGS & IMPLICATIONS

FINDINGS

Task 1: Technology Preferences

- Finding: Most preferred languages and tools include HTML/CSS, JavaScript, PostgreSQL, and AWS. React and Node.js are top web frameworks.

Task 2: Experience vs. Interest


- Finding: Developers want to work more with Go, Dart, and FastAPI, which are less experienced but highly desired. Older tools like C, Java, and Assembly are used more but less desired.

Task 3: Developer Demographics

- Finding: Most developers are aged 25–34 (41.3%), followed by 35–44 (27.3%). The majority hold Bachelor's or Master's degrees.

IMPLICATIONS


Conclusion for Task 1– Skills and Tools Usage

-  *Implication:* Developers favor widely supported, open-source technologies and robust cloud services. Core web tech and scalable platforms remain critical.

Conclusion for Task 2 – Career and Tech Trends

-  *Implication:* Developers are shifting toward **modern, high-performance, and developer-friendly** tools. PostgreSQL and React ecosystems continue to grow in influence.

Conclusion for Task 3 – Demographics

-  *Implication:* The tech community is young, well-educated, and globally distributed—ideal for innovation and adaptability in fast-changing technologies.

CONCLUSION



Overall Conclusion

- The developer community is **young, educated**, and **globally distributed**, creating a dynamic environment for technology adoption.
- Developers continue to rely on **classic web technologies** (HTML/CSS, JavaScript) and are rapidly embracing **modern frameworks** (React, Next.js) and **cloud-based platforms**.
- There is a clear interest in **learning and working with newer tools**, signaling a shift toward **efficiency, performance, and developer experience**.
- 📌 These insights are essential for educators, employers, and tool creators to align with developer interests and the future of software development.

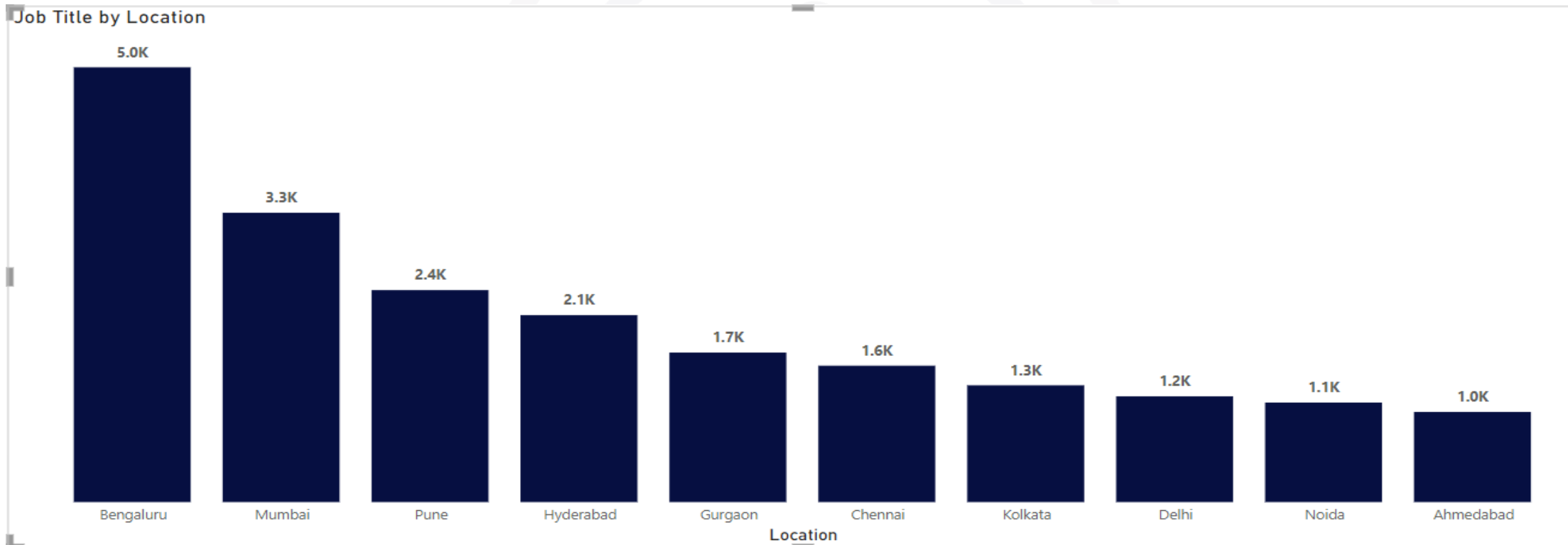


APPENDIX



JOB POSTINGS

In Module 1 you have collected the job posting data using Job API in a file named “job-postings.xlsx”. Present that data using a bar chart here. Order the bar chart in the descending order of the number of job postings.



POPULAR LANGUAGES

In Module 1 you have collected the job postings data using web scraping in a file named “popular-languages.csv”. Present that data using a bar chart here. Order the bar chart in the descending order of salary.

