Stack Overflow Developer Survey

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OUTLINE

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EXECUTIVE SUMMARY

- This report is based on Stack Overflow's annual Developer Survey.

- Python and SQL are growing in popularity.

- JavaScript maintains its position.

- SQL-based databases remain popular.

- Amazon Web Services (AWS) is the top platform preferred by developers.

- Node.js and React are the top two web frameworks preferred

INTRODUCTION

- The survey includes around **65K developers** from diverse backgrounds and countries.

- The survey focuses on programmers' choices of language, platform, and web framework for both the current and next year, along with their demographic background, work modules, and education levels.
  - Most programmers are from the **U.S.** and aged around **25-34**
  - The most frequent work module is **hybrid**, followed by **remote**.
  - The second most common education level is **some college degree**, but there are developers from lower educational backgrounds as well.
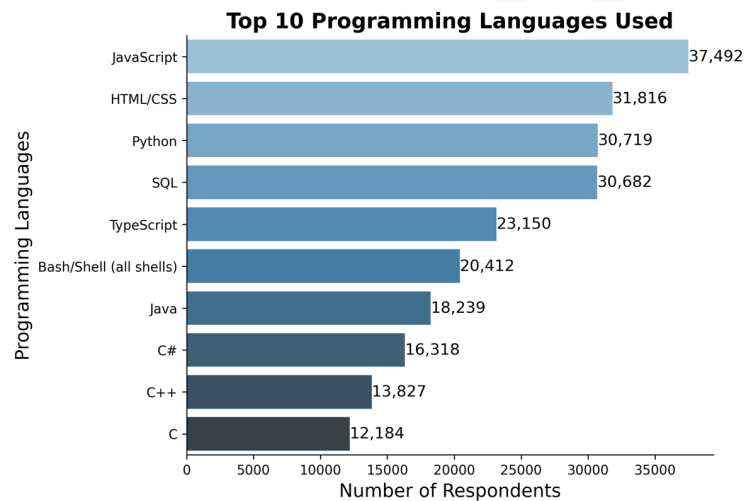 - Most developers are satisfied with their work, regardless of work module.
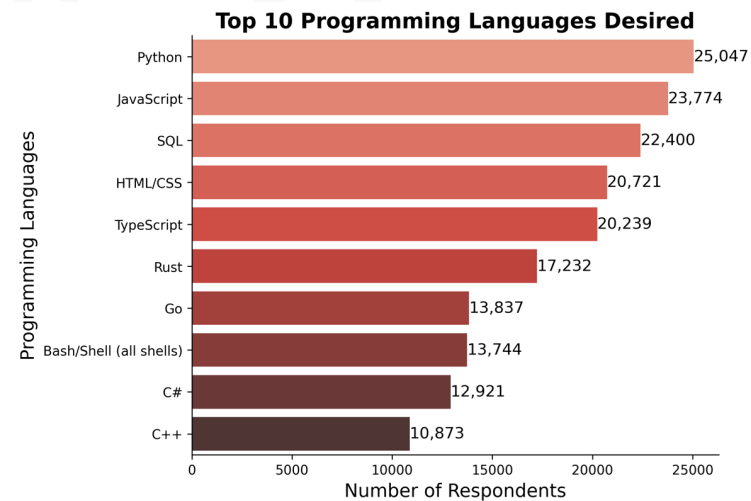
METHODOLOGY

- Collect survey data and describe
    - Web Scraping & APIs
    - Python Libraries
- Cleaning the data to analyze using Pandas
- Analyzing data distribution.
    - Using Python Libraries and IBM Cognos
- Data Visualization:
    - Python Visualization Libraries
    - IBM Cognos
- Dashboards are created with IBM Cognos

PROGRAMMING LANGUAGE TRENDS

Current Year

Top 10 Programming Languages Used

Programming Language	Number of Respondents
JavaScript	37,492
HTML/CSS	31,816
Python	30,719
SQL	30,682
TypeScript	23,150
Bash/Shell (all shells)	20,412
Java	18,239
C#	16,318
C++	13,827
C	12,184

Next Year

Top 10 Programming Languages Desired

Programming Language	Number of Respondents
Python	25,047
JavaScript	23,774
SQL	22,400
HTML/CSS	20,721
TypeScript	20,239
Rust	17,232
Go	13,837
Bash/Shell (all shells)	13,744
C#	12,921
C++	10,873

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PROGRAMMING LANGUAGE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **JavaScript** is the most popular language among current languages.
- **Python** seems poised to replace it soon in the rankings.
- **C** and **C++** appear to be the least popular languages in the list.
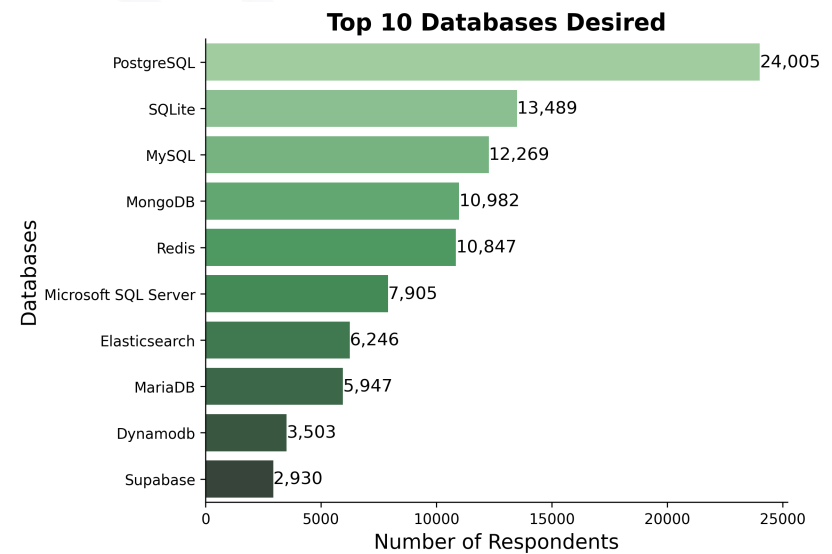
Implications

- **JavaScript's dominance** suggests it will remain crucial for web development.
- **Python's growth** signals a shift towards data science and automation.
- **Declining interest in C/C++** points to a shift towards higher-level languages in development and education

DATABASE TRENDS

Current Year

Top 10 Databases Used

Database	Number of Respondents
PostgreSQL	25,536
MySQL	21,099
SQLite	17,365
Microsoft SQL Server	13,275
MongoDB	13,007
Redis	10,463
MariaDB	8,991
Elasticsearch	6,533
Oracle	5,273
Dynamodb	4,138

Next Year

Top 10 Databases Desired

Database	Number of Respondents
PostgreSQL	24,005
SQLite	13,489
MySQL	12,269
MongoDB	10,982
Redis	10,847
Microsoft SQL Server	7,905
Elasticsearch	6,246
MariaDB	5,947
Dynamodb	3,503
Supabase	2,930

DATABASE TRENDS - FINDINGS & IMPLICATIONS

Findings

- **PostgreSQL** maintains its position in both the current and future years.
- **Oracle** loses ground in the competition.
- **MongoDB** gains popularity.

Implications

- Users are increasingly adopting **SQL-based databases**.
- **Python** and **SQL** should integrate more effectively.
- Firms should adjust themselves to new changes,

RESULTS

Dashboard Link

CURRENT TECHNOLOGY TRENDS
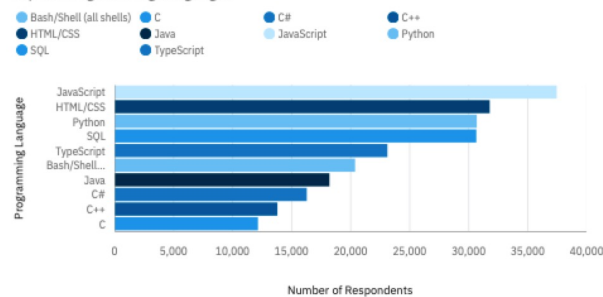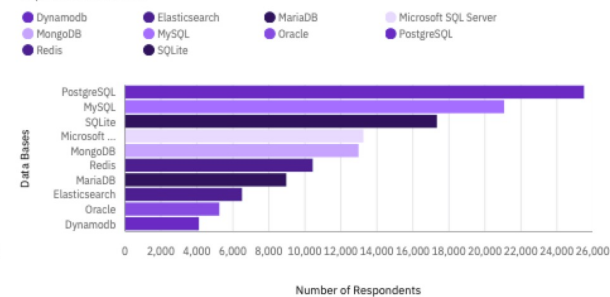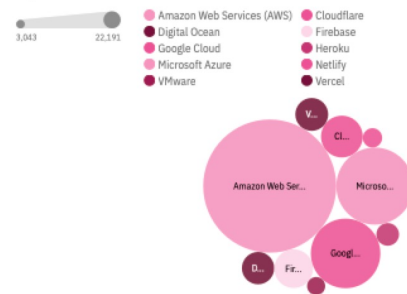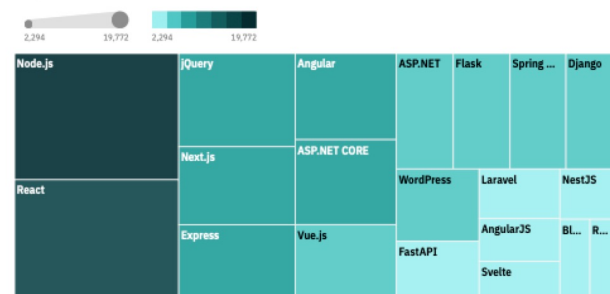
FUTURE TECHNOLOGY TRENDS
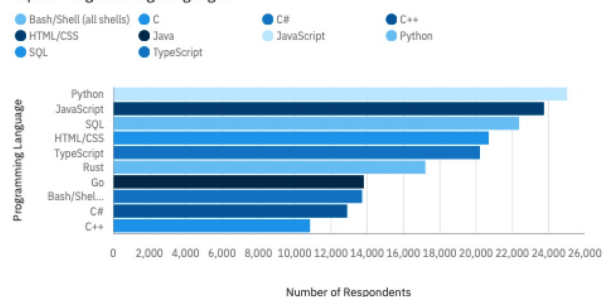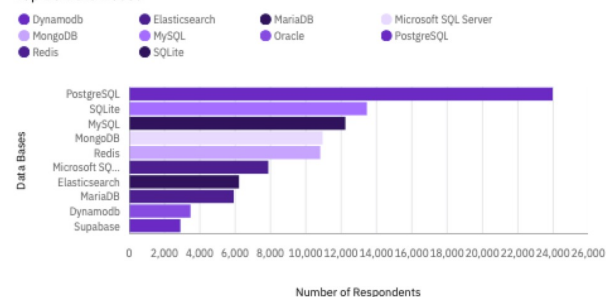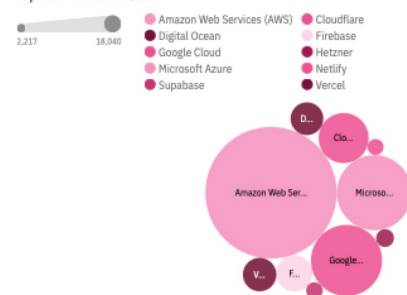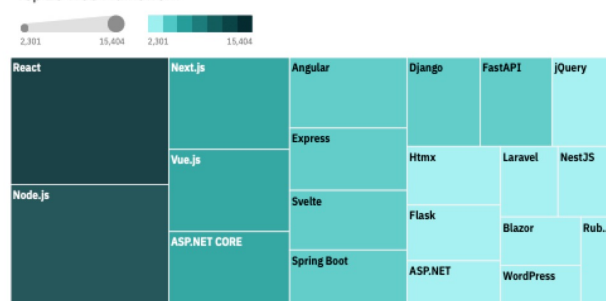
DEMOGRAPHICS
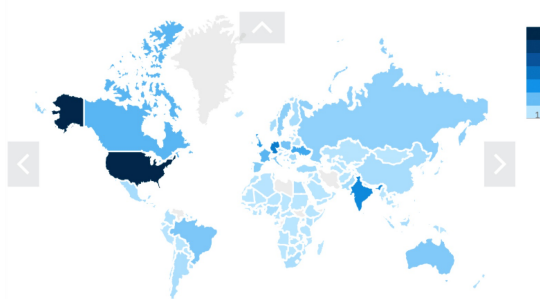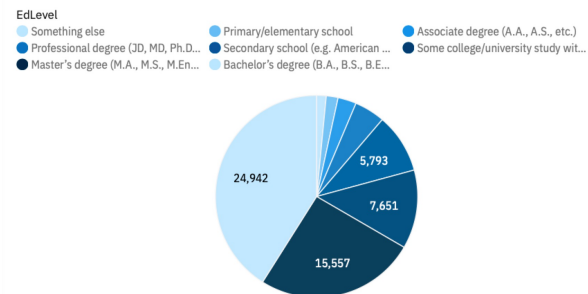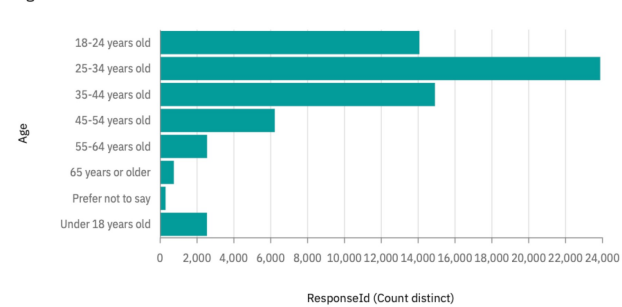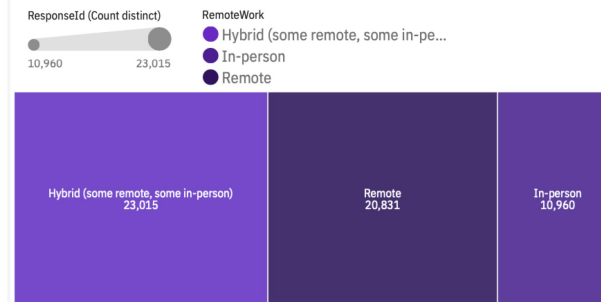
DISCUSSION

OVERALL FINDINGS & IMPLICATIONS

Technology Trends Findings

- **JavaScript** remains the most popular language, but **Python** is growing rapidly, especially among juniors.
- **C** and **C++** are declining in popularity.
- **PostgreSQL** maintains its position in both current and future years.

Implications

- **Python's** rise indicates a growing shift towards **data science** and **automation**.
- The decline in **C/C++** suggests a move toward higher-level languages in both **development** and **education**.
- The widespread adoption of **SQL-based databases** is evident, with **PostgreSQL** and **MongoDB** gaining momentum.

OVERALL FINDINGS & IMPLICATIONS

Job Market Findings

- **Washington, D.C.** offers the most developer opportunities.
- **Swift** leads in salaries, followed by **Python**.
- Developers are largely **satisfied with their work**, independent from work **environments being remote or not.**
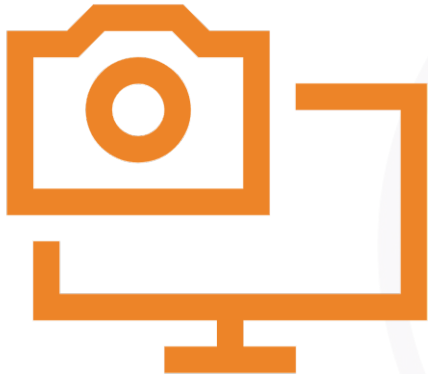
CONCLUSION

- Integration between **Python** and **SQL** will become increasingly important for businesses.

- Firms should adapt to the growing shift towards newer database technologies.
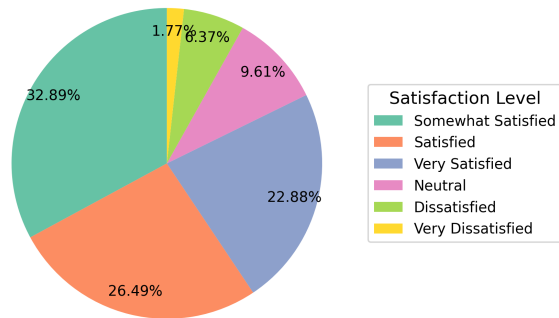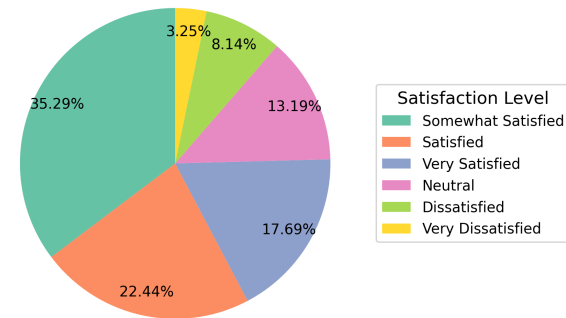
APPENDIX

- Include any relevant additional charts, or tables that you may have created during the analysis phase.
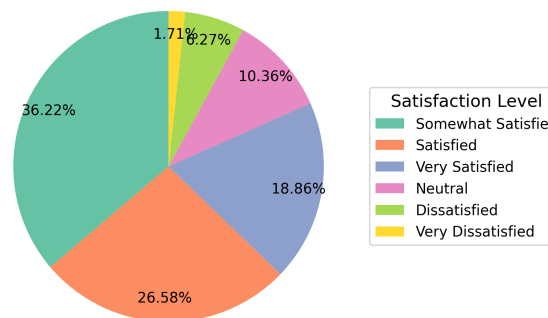
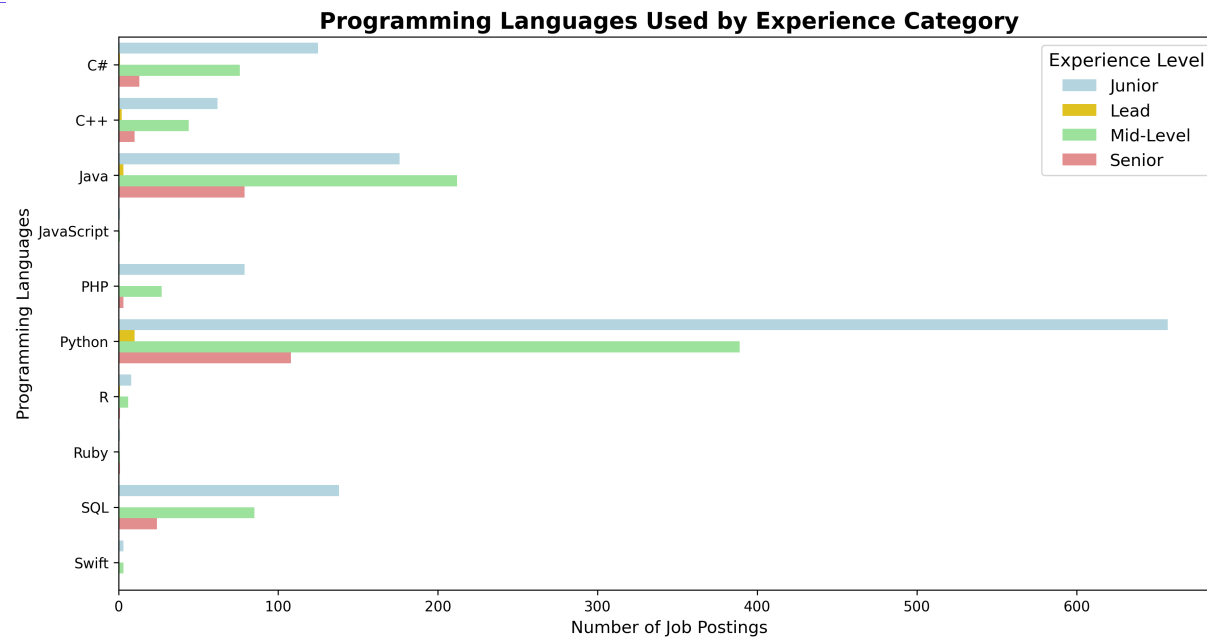# JOB SATISFACTION (SURVEY DATA)

Job Satisfaction Distribution for Remote

Job Satisfaction Distribution for In-person

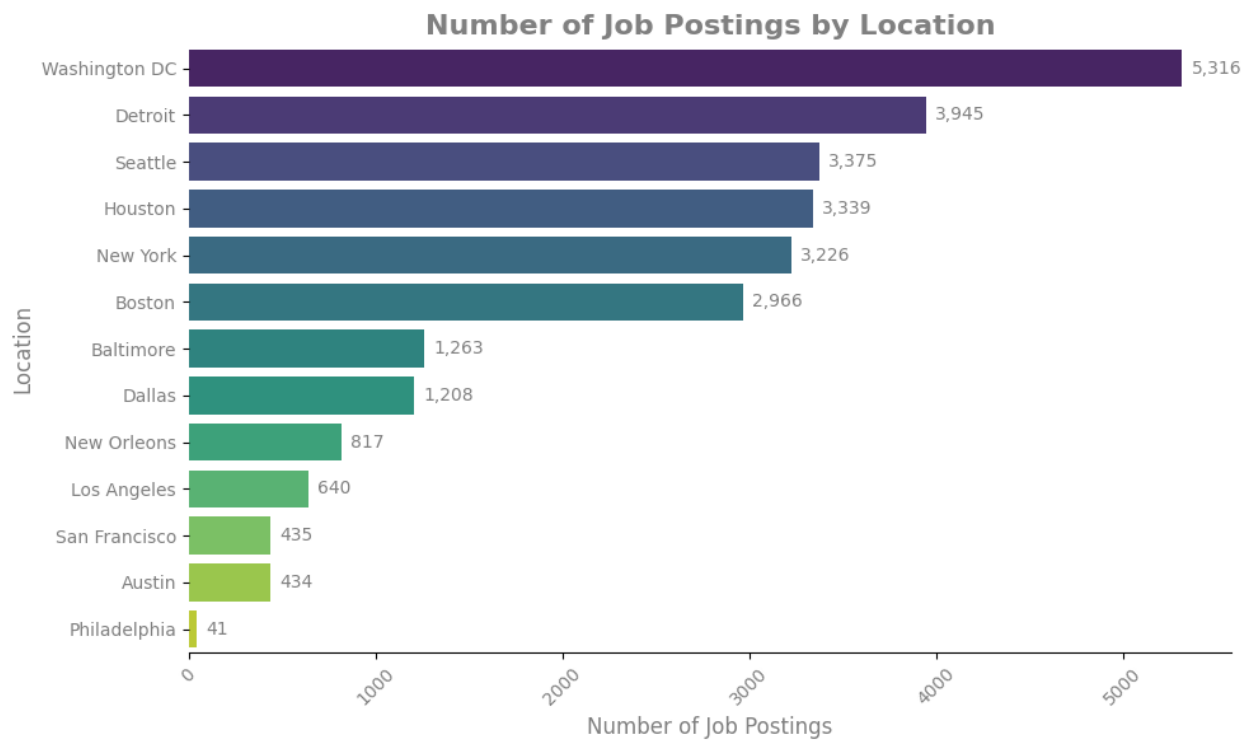**Job Satisfaction Distribution for Hybrid (some remote, some in-person)**

JOB POSTINGS

Programming Languages Used by Experience Category

Junior: 0 - 3 years
Mid-Level: 4 - 7 years
Senior: 8 - 12 years
Lead: 13 - 18 years
Expert: 19+ years

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JOB POSTINGS

Number of Job Postings by Location

Location	Number of Job Postings
Washington DC	5,316
Detroit	3,945
Seattle	3,375
Houston	3,339
New York	3,226
Boston	2,966
Baltimore	1,263
Dallas	1,208
New Orleons	817
Los Angeles	640
San Francisco	435
Austin	434
Philadelphia	41

POPULAR LANGUAGES

Average Annual Salary by Programming Language