

## ***StackOverflow Developer Survey (2024) Language Analysis Project Summary***

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This project analyzes responses from the 2024 StackOverflow Developer Survey (CSV file) to help educational and supplemental institutions better understand developer behaviors in relation to language trends. Insights were primarily focused on salary, language preferences, employment, and overall satisfaction.

The targeted questions included:

- Which languages do developers most want to learn? What language has the most equal desire-admire rate?
- Are certain industries strongly associated with specific programming languages?
- Which programming languages are associated with the highest salaries among survey respondents?
- Which languages have the strongest overlap with high job satisfaction?

A project environment was set up on Google Colaboratory, where data operations would be documented through markdown and code blocks. Initial analysis using Pandas and NumPy included observations on CSV data, where it was found that among the 65,000 respondents, there were quite a lot of NA values to be handled. After cleaning, the data was aggregated and exploded to create insightful Matplotlib graphs that aimed to answer the questions above. Insights revealed that popular core programming languages that are typically grasped in beginner coding courses (Python, HTML, JS, etc), are often among the highest in quantity for the “want-to-learn”, but were not among the top languages in salary or enjoyment categories. On the other hand, more niche & uncommon languages, that were still in demand, but were not as numerically popular, including those such as Objective C and Elixir, pointed towards higher salaries and higher enjoyment, while not relating to any sector or most typical developers. The project highlighted the need for programmers to specialize while also being grounded in commonplace systems, an insight that could help students and new employees alike to advance in their careers.

If I were to present these findings to an organization, specifically those in educational or resource sectors, I would use the insights found to help bolster their content towards growing trends. For example, for an online programming bootcamp, these findings would be used to gear common course curricula to newer job trends in order to help attract new customers with the hope of learning the true “high-paying” skills.

In the future, I would like to extend this project to understand both developer trends across multiple periods of industry growth. This improved understanding that could be explored in the future with the inclusion and comparison of emerging datasets, would allow insights to essentially “predict” the next big frenzy in the world of technology & computer science.