

Locations of Tutorial Programming Sites

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Abstract

As the industry of technology is constantly, it has become more and more important to be able to program. While some could enjoy the luxury of going through proper schooling, there is a rise in self-teaching using online resources. An issue that many beginners may come across is where to properly start. Using multiple known sources, I have compiled a treemap where the size is compared to the topic and clicking each topic shows a list of sites that have said topic as their specialty.

Related Work

Although there are not too many studies on hosting a database for novice users, there have been numerous studies on which environments novice programmers thrive in and the methods that improve their retention.

[1]Judith Good did a study on novice programmers and which resource they prefer. In here study, it was acknowledged that users prefer a game type of learning, but more importantly, there was a realization that students are rather bored when learning through a linear path in coursework.

[2]A study conducted in 2008 indicates that there was a “turning away” point for master students when specifying a single language. However, when students found the language they felt the most natural in, there were a higher course retention rate and more positive sentiment towards programming.

[3]Similar to the last study, one was conducted on university students who are in introductory programming courses. The sentiment was that there was a lot of fear going into programming, and a decently high drop out rate for the course. With a tool implementation, that emphasizes the concepts learned in the course, there was an increase in the pass rate for the course from 50% to 70% in one year.

[4]This study which focused on getting the interest of middle school-aged girls into programming, demonstrates that when beginner programmers have their own freedom of choice on the design, and less emphasis on a linear path, the interest in the user only increases.

[5]A tool previously mentioned in other studies is Scratch. This educational tool is on the rise for students who showed to have an interest in learning programming. Again, similar to other results, when a specialized tool is implemented, students are more engaged with the material and eager to learn more.

[6]One study looking into students entering a programming course for the first time, discovered that after the course, more students shared a positive sentiment and interest in learning programming then they did before. Again, having the right tool to get people started only increases their interest in the material.

[7]In another study to see what motivates computer science majors and non-computer science majors in programming, the authors identified that obviously there are different interests in computer science for different majors. In order to see success and attendance in beginner course work, the course should be tailored to each motivation.

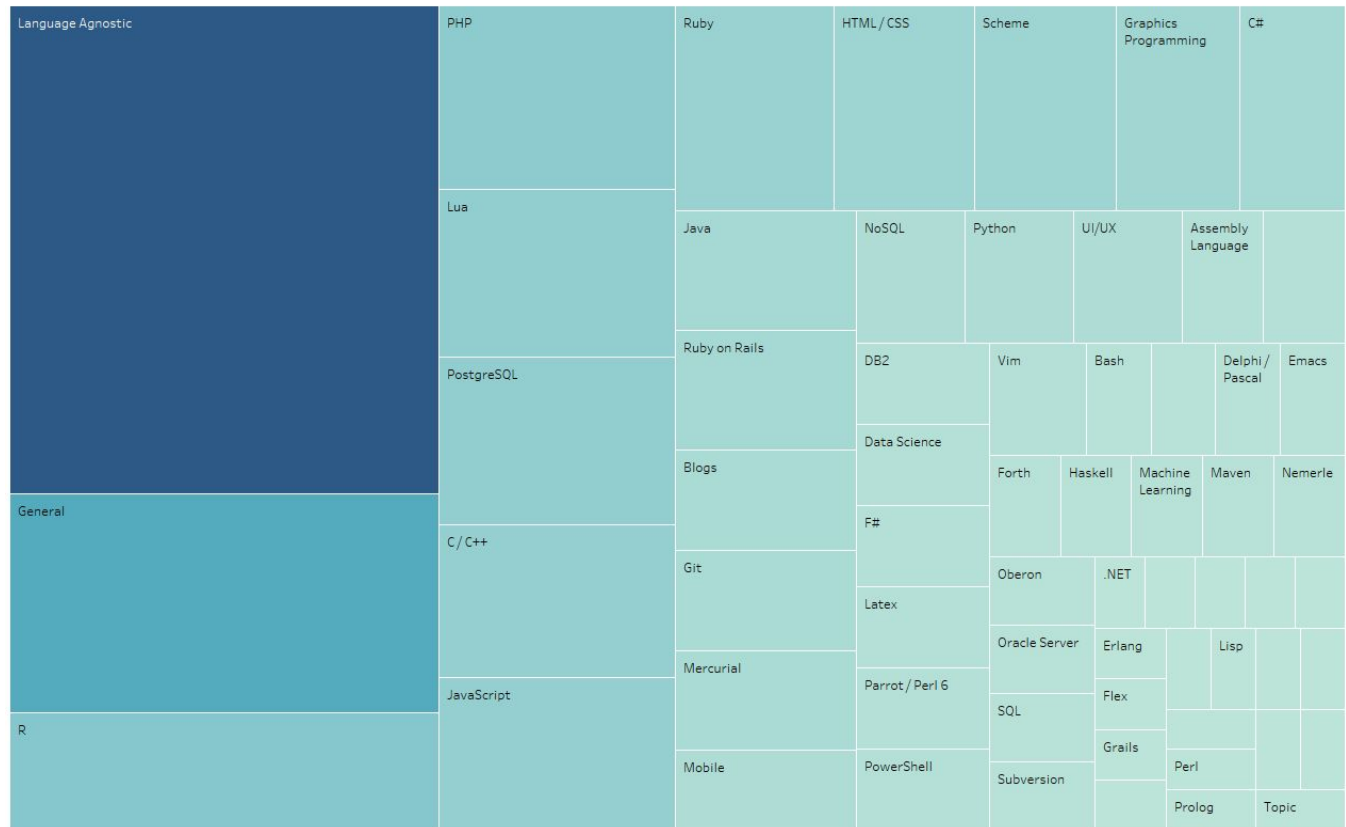
[8]Continuing on the idea of motivation, another course study on college-level students, indicated that there was a higher performance with those who identified as having intrinsic motivation. It makes sense as those who are want to learn will seek out outside help to improve their programming abilities.

1 Project

While there are thousands of websites out there that teach anyone programming skills, I decided to stick to sites that are tailored for adults and beginner programmers. Searching through sites that specifically were made to show a list of programming languages, I compiled three hundred sites that I felt were the most common when searching “beginner programmer sites.” Using Python library BeautifulSoup, I was able to scrape the site name, link to the site, and the topic that was mostly covered in the course. While some sites only specify in one topic, there are numerous sites that hold a variety of topics. If there were over four different topics covered, then they were labeled as “General.” After all the data was collected, I then imported it into Tableau in order to make a treemap. I felt like this was the best representation of idea. Using the number of topics as the size of the tree node, the user gets a better understanding of what is the more popular subject matter, and also which sites are a niche for the one topic they seek. Because of the variety of topics, I included a color scale to indicate how close some topics are since the size of the topic can be harder to distinguish. Included with the topic filter and color scale, I also implemented a slider where the user can showcase topics that fall in the interval they desire based on the number of sites. While this isn’t the most prominent feature of my design, I felt like having the choice to see where the niche topics are would be relevant to the user.

2 Discussion

All Languages



At a quick glance on the graph, one could see why I decided to have a color scale. After the first three topics, it is hard to tell the difference in the count of sites based on observations. Unsurprisingly, “General” and “Language Agnostic” are the two most popular topics. Both cover the general idea of programming, and it makes sense that a tutorial site wants to be as wide as possible in order to retain the user. Having this treemap should help beginners to understand the variety of paths they could take when starting to program and the sheer amount of knowledge that exists beneath each topic. Like previously mentioned, this not the definitive source of all tutorial websites. I also purposefully did not include a review for each site, since reviews can be biased, and some sources had tons while others only had singular reviews or did not showcase any.

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