

Test Another Language

Eckel, TJHSST AI1, Fall 2022

Background & Explanation

This is a chance to go in a pretty different direction for one assignment. I tried this on a whim a few years back and the students that chose to do it reported they had a great time, so I've kept it ever since. Here's a chance to change your perspective a little bit, and instead of learning new content, learn a different language. At TJ, we teach a few different languages in different courses but we don't tend to do direct comparisons; here, you can explore what it would be like to do this course using different tools.

No, you can't choose Java.

Another Programming Language

I will trust you, on your honor; I expect you to choose **a language that you are not familiar with**. (If you, like, spent 20 minutes on a tutorial website once, that's fine, but nothing you've used for longer than an hour for any reason.)

Some ideas:

- Julia is a new programming language that is gaining some popularity as an alternative to Python in many contexts. It's compiled rather than interpreted, and so it can run much faster than Python, while offering an interpreted-like syntax that retains Python's flexibility.
- Rust is another more recent language that's making waves; it's the most beloved language to program in, according to people who program in that language professionally.
- I've also heard mentions of Dart, Zig, and Deno as good alternatives; I know **nothing** about these languages and would love to hear more.
- You can also choose a different language that isn't one of those five, just make sure to run it past me first.

We're intrigued by the possibility of switching AI to one of these languages at some point in the next several years; probably not yet, but maybe someday. Your advice will help us monitor the situation and determine if this is a good idea.

I will say that you might also want to be careful if you're planning to use FCPS laptops; a lot of the programs/utilities you may need could be blocked. Look for a language you can use on firewalledreplit.com perhaps?

Partner

THIS ASSIGNMENT MAY BE DONE WITH A PARTNER! There is an additional requirement; see below.

Required Task

This is the task:

- Choose an assignment from AI1 where efficiency is relevant. (Ie, pick an assignment with a case that has a runtime of at least a few seconds; choose a long 15-Puzzle path or Sudoku or Othello, etc. Don't choose, like, Peg Solitaire.) **If you are working with a partner: choose two.**
- Learn enough of your chosen language to be able to recreate your algorithm as exactly as possible. Presumably, each language's homepage contains links to many resources; feel free to search for anything beyond that you like. Keep track of any resources you use so you can report them later.
- Recreate your Python code as exactly as possible in the new language. Don't add in additional improvements; try to get as close to line-by-line recreating your Python code as you can. If the language isn't able to do so, make a note of what you had to change.
- Write a ***BRIEF*** report (this really should not take long) where you write two paragraphs or so about the experience of learning the language, what resources / programs / tutorials / websites you used, and how easy you felt the whole experience was. Report the difference in runtimes between your Python code and your code in the other language. Finally, tell what you think about a future version of this class using that language instead of Python in the future. **With a partner: you need to have recreated two programs, but you only need to write one report.**

Specification

Submit your Python code, your code in the other language, and your report (three files) to the link on the course website. If working with a partner, this would be five files – two pairs of Python and the other language, and one report.

This assignment is **complete** if:

- You follow the instructions on the submission form to format your submission properly. (If working with a partner, include both last names and first initials.)
- Your files meet the above requirements. In particular, I should be able to open the files in each language next to each other and see how they correspond; choose similar variable names, etc, to facilitate this.