Ethan Armstrong

CART 351

Sabine Rosenberg

October 8, 2025

Project 1: Air Quality Index: Higher or Lower

The goal for this project was to create a seamless and simple interface within the terminal that mirrored some of the higher or lower games that can be played online. I am a huge geography fan, so I decided to take advantage of the World Air Quality Index API as the full theme of the game, by comparing the different AQI values of cities across the world to create a functional game that worked similarly to the online web browser game Higher or Lower. In this game the user is prompted with the ability to choose between two randomly generated cities in no particular order and must determine whether or not the second city that's been selected has a better or worse air quality than the first city. For example, does Montreal have a better AQI value than Toronto, and the user would enter 'h' for higher or 'l' for lower. The terminal will then pull the corresponding data and determine whether the answer is correct or not. If the answer is correct, the user will get a point and the game will continue, however if the user is incorrect, then the user's game will end immediately and the score will be reset.

While developing the game, I quickly realized that I needed to utilize some sort of randomness to compare two different cities pulled from the API and not have the same order loop over and over. I wasn't familiar with how to use any sort of random functionality within Python, so I consulted W3Schools in order to solve this issue. I eventually found out about the random module and used it within my code, which solved the issue. For this project I also consulted the Rich library which was provided so that I could decorate and enhance the experience. This made everything look much neater and more user-friendly. The only issue I discovered through this library was that it would only decorate the output, but I had no control over decorating the text that was initially

set within the input, which made it a bit annoying but not too detrimental towards the overall experience.

Initially I didn't expect too many problems from this project, and I thought that it would be pretty straight forward, and that proved to be mostly correct. Like I mentioned previously, I had an issue with the input decoration, which was a problem with the library itself rather than my own coding. I did anticipate that some of the city names within the list I included within the code wouldn't be read properly, such as cities that had the word 'City' at the end like New York City, cities with more than two names in it like New Delhi or had alternate spelling, for example Kiev or Kyiv. I decided to just not put those cities in the list since it would give me multiple errors and reset the terminal, so some significant city names that most people would recognize that aren't there are for that reason. Otherwise, there weren't any other significant errors with the code or the terminal and I am very happy with the final outcome of the project.

REFERENCES:

https://pypi.org/project/rich
https://rich.readthedocs.io/en/stable/appendix/colors.html
https://www.w3schools.com/python/module_random.asp