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Chatbot Report

CSCE 240

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Requirement: Build a chatbot that can answer questions about a South Carolina member of state legislature. The program must extract data from the district, process it, make the content available in a command-line interface, handle any user query, and report on interaction statistics.

Specifications: As to the scope of this project, I followed the guidelines of the program requirements to a tee while adding in extra functionality so that the program can be expanded in the future. I decided to take in data from a formatted local copy of the representative's page rather than retrieve it from the web at the beginning of the program. This decision somewhat limited the reusability of the of the code, but also allowed it to operate without requiring internet access at any point. I also decided to include extra functionality for retrieving more specific information than was asked in the program requirements. The functionality exists to retrieve the representatives first and last name, county, specific addresses, and specific phone numbers, though this was not expected and the queries are not currently supported.

Development Highlights: My code design was one main program with a supporting class called representative. This class had subclasses named Address, PhoneNumber, and Name, with functions to get and set each part of each subclass. The code was tested piece by piece during development to ensure that each function was being fed the proper input and giving the proper output. Once a program had been completed, corner cases were developed and tested to check the system response. Exceptions were also used to handle likely input errors and prevent the user from entering incorrect arguments. The biggest problem that I faced during the development process was that of serialization. It is complicated to implement in C++, and I ended up copying functionality between programs instead of serializing the output of one and rebuilding in the next. This had little effect on the end product, however, as all programs were combined.

Reuse: To make my code reusable, I attempted to include as much general functionality as possible, especially in the representative class. I did not use another student's code, nor did another student use mine to my knowledge. This is because most students chose to use Java or Python and the only section of my code that I would have felt comfortable replacing with another student's was the code to take in the representative information from a file or from the internet, and it likely would have taken serious modification to make it work. The biggest challenge to making my code reusable was easily the fact that my information was stored in a custom class. This was the simplest way that I could think to store and access the information, but if another student did not use my class, none of my programs would work within their project.

Future work: My chatbot has a lot of room for expansion. For instance, I'd like to expand it to take in the representative information via web query and generalize it to work for any district. Furthermore, a much wider range of regex matches could be used, as the functionality already exists to return the representatives first name, last name, business or home phone number or address, etc. These are simply not supported in regex currently as they were not explicitly required. In my opinion, I'd prefer if I could hide more of the functionality used in the main method of my main program in a class or otherwise outside of the main program, as the main program itself holds many functions and feels cluttered to look at, though it works very well.