

Project Report

The Requirement – Dr. Biplav asked us, his students to make a chatbot that can answer a question about the State Legislature of South Carolina.

Specification – What I did for my chatbot was allow let the user to type in any question they want however they will get an error message until they type in the district number for, from there the user can ask questions about the representative's contact information, such as their party, business/home phone number, Columbia/Home address, and their name. It can give you all the information about a representative's committee assignments. My chatbot can answer a few questions regarding a member's personal information, such as their birthday, the number of children they have, marital status, their parents/guardians, or print out all their personal information. It cannot provide the user with any information involving voting records, sponsored bills in the house, or service in public office. Due to the scope I defined and my district leader not having any services in office, I did not have my chatbot provide that information to people. Also, both the sponsored bills and voting records were dynamic so, I decided not to include these things either. Some decisions I made were to make my program very simple and easy to follow. In addition, have my classes and functions be easy to use for code recode. I added a feature that allows the user to type in the word example so they can see example questions they could ask too.

Development Highlights – How my code was implemented was simple first I made a series of goals I wanted to accomplish for each programming assignment. I frequently write pseudocode and diagrams to help plan out my various programming assignments til this final project. I chose to stick with C++ because I wanted to not only challenge myself but fully develop my C++ programming skills. To implement my code I researched numerous amounts of functions and data types. Plus, I received help from the TAs and some of my colleagues. I mainly did unit testing in the beginning for each programming assignment but for this last assignment, I did integration testing. Problems I faced throughout the entirety of programming the chatbot is debugging redefinition errors, logic errors involving regex expressions, and inheritance issues. How I solved these issues/problems is doing using print statements to see where outputs are getting lost. Thoroughly going through class headers checking the include statements and their respected CPP files. Also, doing heavy hours of unit testing.

Reuse – what did to make my code more reusable is making classes that are easy to manipulate, and alter to get the desired output. Furthermore, I made sure that my methods in each of the classes had comprehensible names that generally gave people an idea of what they did. I made sure my regex expression were broad enough to obtain information from most of the district's .txt files. I also made sure to put my helper function at the top of my main so people could reuse those too. Plus, I made my classes public making it extremely easy for other classes individuals wrote to inherit from my classes. The code I reused is from Antonio Turner. I reused his code since it gives me extra credit. However, it was mainly due to its complexity it truly interested me on how he made his classes and the relationship/inheritance between them. From program 2 up to program 5, I have reused his code. I addressed what I specifically reused from his code in the past project reports. However to further illustrate a few of the functions I used was his Counter,

Breakdown, Keywords, and most recently his summary method. Antonio Turner reused my code as well due to it being fairly simple and easy to follow. Plus, I think it's due to the extra credit too. The challenges I faced when implementing his code and vice versa were for both of us trying to understand one another's code. For me specifically, it was hard to understand which of his classes inherited from other classes but after a sit down of him explaining his code and me reading/testing his code I could get a better feel of the functionality it had.

Future work – Some more that could be done to have my chatbot more useful is instead of having to download a .txt of the website directly regex the information straight from the website. Also, by adding a component to my program that can predict what the user might type next based upon their past chatbot sessions. If I were to keep working on it my code will probably require me to develop more functions for my conversation saver class that checks and calculates the number of user utterances that are similar to each other. I'll also have to make a function that can take all the information from the web and store it in a string.