CECS 229 Lab 5 Explanation

The compare algorithm in our program sets an integer variable called total to 0. After that, it converts the list of votes associated with each senator to a vector instead. We then create a for loop that will count up to the length of the dictionary. Because we did the lab before the vec file was updated, we used the .get() function to get the votes from the dictionary called “**f**” contained in the Vec class, whose instance was created when we converted each senator’s list of votes into a vector. As the for loop loops, the code will iterate over the dictionary while getting the votes from each senator in the same index. The code will then multiply these two votes together, which will result in either 1 or -1, and add the answer to the total. After the for loop finishes, the total will be the dot product of the vectors of the senators. The total is then returned.

The most\_similar algorithm iterates through a given dictionary using a for loop and compares a given senator to all other senators in the dictionary. If any of these senators score below a 0, that value is saved into a variable named **i**. After that loop, another for loop executes through the given dictionary again and if the score is more that that of **i** updates **i** to be the new value, then saves the name of the senator into the variable named **sameSen**. If the program happens to find another senator with the same score, it will add that senator’s name as well. After the loop finishes, the names are returned.

The least\_similar algorithm starts off by setting a variable named **i** to the maximum score by comparing the given senator to themself. It then iterates through the given dictionary while comparing other senators to the given one, and if that score is lower than **i** the value of **i** will be updated to be that score. The senator’s name will then be saved into a variable called **sameSen**. If the program happens to find another comparison with the same score, it will add that senators name as well to **sameSen**. After this loop finishes the names are returned.