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CMSCI 442 A

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Project 1 Writeup

The program runs using the fives.txt file, so one must have that in order to run it properly. Additionally, the input must be a five-letter word, followed by a 5-number sequence of 0s, 1s, and 2s to indicate the colors of the guess. Each guess is separated by a comma and a space. For example, ‘arise00001, cleft01100, lemon22000, ledge22020’ is an acceptable input while ‘arise0001’ would not be acceptable. If there is no input or invalid input, the word list is printed and the user is notified. Array lists are used to store and represent data primarily because of how easily they can grow and shift to reflect the information.

Algorithmically, with a valid word, the letters associated with 0s, 1s, and 2s are pulled out along with the indices of those letters in the second and third case through the use of different functions. Then, for each guess, the letters in the text file are compared in separate functions against those lists to see if the word fits as a possible solution. Each possible word is added to acceptable word list. After every guess has been evaluated, then a HashMap is used to understand how often the words occur in that list. If they occur equivalent to the number of possible guesses, then they are added to a consensus list, which is the final list of possible words printed out. Given invalid or no input, the entire possible word list is given with a message regarding the invalidity.

Advantages of using Java for this project include the easy use of data structures which help to keep track of the relevant data and changes to that data. Array Lists were an easy choice to use for the building of lists of characters and indices relevant to identifying a word that potentially is the solution. The use of the HashMap also helped to characterize how often a word was included in the acceptable words list, helping me to understand those words which were a consensus amongst all guesses. Disadvantages personally were the use of brackets to separate language. I struggled with keeping track of where certain if-statements lined up. As such, I did my best to avoid nested loops and logic where it was reasonable to create an entire new function for part of the solution. Otherwise, the use of Java accommodated my work well.