In task 1, the program reads the keys for each character from a text file (“charactersnandkeys.txt) and stores it within two arrays. The first array is an integer array called ‘keys’ and the second array is called the ‘character’ array. The key array stores the key at the simultaneous index for the corresponding character in the character array.

Next the program reads the text file (text.txt) starting with ‘Discrete’ written in it and stores the content in a string variable. Then the program asks the user to enter a value for k which it will apply the shift cipher and then store the resultant ciphertext to (output.txt) file.

In Task 2 the program again reads all the keys from the text file and stores them within the arrays inside the program. Then it reads the cyphertext from the (output.txt) file and stores the content into a string variable.

The program reads the first character in the string variable and finds its key value, next, since the key value for the character ‘D’ is hard coded within the program. The program will find the difference between the key value for the first character in the string variable and the key value for ‘D’ then will decipher the text and output it on the cmd.

-Our code should also work with negative k values