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CSC 113 moring

midterm project

**Introduction**

For this project, we will use Python3 to implement a Caesar cipher to a text file (\*.txt) by assigning a random n value between [-1,25] and selecting a random special alphabetic character. This project can encrypt the file to produce two files (a key file and an encrypted text file). And it also can decrypt the file base on these two files.

**Strategies**

For the programming, I separate it to the two phases, encryption phase and decryption phase. Each phase has two parts (part A and B). In part A of the encryption phase, the program can generate a n value between [-1,25] and a special alphabetic character randomly. Then it creates a key file to save two values.

In part B, the program will open the text file and read each line in the text file. Because this project is not case sensitive, the program allows all letter in the string becomes low letter. This way also helps us to distinguish special letter and letter after encrypting in the future. Then the program splits each line or string, and splits each word so we can encrypt each letter. During encrypting the program should avoid encrypting the special character, white space, numerical characters, punctuation marks, and other UTF-8 symbols. Also, we need a function to achieve encryption. For example, if the n value is 2 and the letter is ‘a’, after encrypting the letter will become ‘c’. If the letter is ‘z’, after encrypting the letter will become ‘b’, so on and so forth. In my program, I use **check = ord(word\_list[j])+n**, and check each data and adjust them by another two functions: **check = check-96+122** and **check = check-123+97.** In addition, I find out the special character in the text file and change them to capital letter. Because it helps us distinguish special letter and encryption letter. Then the program creates an encrypted text file and put each line to the file.

In part A of the decryption phase, the program read the key file and get n value and special character. In part B, the program does same steps as encrypting file, but this time the letter needs to minus n value to get original letter. Also, it needs to find out the special character in the text file and change them to lower letter. Then the program creates a decrypted text file and put each line to the file.

**Conclusion**

In this project I will review all knowledge form beginning of the class to now. We used for and while loop, if else statement, string, list and many methods to implement a Caesar cipher to a text file. Also, we learn how to use these knowledge in our real life and using Python3 to create a tool which can help us.