Java Encryptor: : How to use the executable and code explanations

Intro This is primarily a small project to show some level of Java proficiency. Since that's the case the encryption is not meant to be a legitimate method of keeping data safe (being a Vigenere cipher). For details on how the data storage is done skip the "Technical Info" section.

This project will take a file or whole directory and apply a Vigenere Cipher. The user inputs their desired key, with all ASCII characters being valid.

Using the Executable The executable is to be used in command line. Simply invoke the executable file, command, the targeted file/directory, and key.

The commands are:

- EncryptFile - the program will take the file and apply a Vigenere cipher using all ASCII character one space after the file/directory name.
- DecryptFile - the program will decrypt the targeted file using all ASCII characters one space after the file name.
- EncryptDir - the program will encrypt the directory and all its files Since everything is put in one file encrypting a very large directory is probably not a great idea.
- DecryptDir - the program will decrypt the directory and rebuild it as it previously was.

Example of a command prompt invocation (Windows 10): "java -jar Encryptor.jar decryptfile test.txt abc"

Technical Info The file encryption and decryption is rather straight forward: File_Encrypt.java applies the user entered key to either add or subtract the ASCII value of everything in the file. Since the key and data are unlikely to be the same number of bytes the key is simply looped through the file until applied to all data. It should be noted that File_Encrypt.java also contains the only functions that apply the key to encrypt/decrypt any file. Those functions being: "Encrypt" and "Decrypt". This is done to save effort as the directory encryption process involves putting all directory contents in one file, making it identical to encrypting/decrypting regular files.

Most of the effort in encrypting a directory compared to a file is the metadata that has to be extracted and written.

The process of encrypting a directory involves the following:

- Going through the directory and adding all subdirectories and their files to a Treemap.
- Skipping the first 8 bytes of the file that will be used to indicate the size of the metadata.
- The treemap is walked through with the names of all directories and files being written. Proper gaps are left for each file's size and data address.
- The very first 8 bytes are written with the length of the metadata.
- The metadata is gone through. All files have their size and address for the start of the data written. Then data is written at the address.
- The program invokes the file encryption function which creates a new file and the unencrypted file is deleted.