# Homework 4

## Due: Thursday April 21st -- 11:59 PM

We debated calling this homework: “Nightmares aren’t Meant to End so Easy” or “Homework 4: Return of Homework 3.” All jest aside, it really isn’t too hard.

This homework will build off the last one. Wasn’t it a pain to type in all the test cases every time? We will be adding some automated testing to the encryption program. You will need to make your program accept a **file** as input, encrypt the contents of that file, then check the encrypted text against another file. You must save the results to an output file so correctness checking is easier for you.

Your program will receive a file in the following format:

- If a line contains a colon, it should be treated as an options line
  - e.g., swap distance:shift distance
    - Note, there could be white space that you need to remove
- All lines below that options line should be encrypted (or decrypted) using the options in the line above until another options line is found below.
- Lines before the first options like can be skipped (no output)

In your new and improved version of the program:

- You are required to use several functions or subprocedures. Make sure each procedure does only one thing. For example, one to read from the file, one to write to the file, one to shift, and one to swap. If your code is written logically you should be able to easily refactor (move/reorganize) your code.
- You will offer 3 buttons: Load File, Save File, and Check File.
- Offer two radio buttons, “Encrypt” and “Decrypt”, that execute the operation after the input file is loaded. Remember that encrypting is the normal operation from last homework. To decrypt you must modify the option parameters after reading them.
- Display the resulting text to an output textbox inside the program as you did in the last homework.
- Prompt the user to save the new message to a file in the location of their choosing.
- Have a button that checks whether the output file matches the expected output

## Files

You will be given 2 sets of files. One are the files to encrypt, the others are the encrypted versions of those files. See the diagram below.