Assignment 1

Due: 11:59pm June 12 (Sunday)

This assignment is done individually.

You can use **either C, C++, Java, or Python** to implement this assignment.

Goal :

1. Learn how to write and use makefile

2. Implement the row transposition cipher.

Description:

In this assignment, you will implement the row transposition cipher to encrypt/decrypt files containing only lower-case letters a-z. The file contains only ONE line and does not contain space, tabs, and newlines. You can assume that the file contains less than 10000 letters.

Your code should result in an executable with name trans, which has four arguments <inputfile>, <outputfile>, <key>, and 1/0.

- inputfile: input file name
- outputfile: output file name
- key: The key used in the cipher
- 1/0: encryption/decryption (1 represents encryption and 0 represents decryption)

For example, an example command for executing your C program is:
./trans in out 2436175 1: encrypt file in with key 2436175 and store the result in file out.
./trans out in1 2436175 0: decrypt file out with key 2436175 and store the result in file in1.

After the above two commands, files in and in1 should contain the same content because the key used in encryption and decryption is the same.

Compiling your program

Please write a makefile so that when typing "make", your program will be compiled.

E.g. C makefile tutorial: https://makefiletutorial.com

Submission guideline

Please hand in your **source code**, a **readme**, and a **makefile** electronically through brightspace.binghamton.edu (**please do not submit executable code**). Your code should compile and run correctly on remote.cs.binghamton.edu.

- Write a **README** file (**text file, do not submit a .doc file**) which contains

    - Your name and the email address
    - The programming language used
    - Whether your code was tested on remote.cs.
    - How to compile and execute your program.
    - (Optional) Anything special about your submission that you would like the grader to take note of.
- Place all your files under one directory with a unique name (such as p1-[userid] for assignment 1, e.g. p1-pyang).
- Tar the contents of this directory using the following command.
  tar –cvf [directory_name].tar [directory_name]
  E.g. tar -cvf p1-pyang.tar p1-pyang/
- Use brightspace.binghamton.edu to upload the tared file you created above.