Assignment 1: Simple Substitution Ciphers
Total Points: 40
Due: March 24, 2017 (Friday) at 11:55 PM

Hey, Novice Cryptographer! We are going to go back centuries (not really) to understand and implement two popular *simple substitution* ciphers – *Caesar Cipher* and *Keyword Cipher*. For this assignment, you are required to write a program in **Python 2.7** to convert *plaintext* into *ciphertext* and vice-versa. The program should take some arguments and an input from a file through command-line. **The output must be written into a file**.

Instructions:

Your program should be executable from the command-line, and it must take **three** arguments:

1. The type of cipher to use: **C**aesar or **K**eyword.
2. The type of operation to perform: **enc**ryption or **dec**ryption.
3. The key: numeric key (right-displacement value) for Caesar Cipher or some alphabetic word (with non-repeated characters) for Keyword Cipher.

Additionally, it will also take an input from command-line as a redirect input from a file.

Sample Execution Commands:

Caesar Cipher:

Encryption:

```
#  python simple_substitution.py c enc 3 < plaintext.txt
```

Output: `ciphertext.txt`

Decryption:

```
#  python simple_substitution.py c dec 3 < ciphertext.txt
```

Output: `plaintext.txt`

Keyword Cipher:

Encryption:

```
#  python simple_substitution.py k enc world < plaintext.txt
```

Output: `ciphertext.txt`

Decryption:

```
#  python simple_substitution.py k enc world < ciphertext.txt
```

Output: `plaintext.txt`

Sample inputs and outputs:

Below are some sample inputs and outputs for your reference. Note that whenever something not in the list of English alphabets is encountered, it is kept as is.

Caesar Cipher:

Encryption:	***Decryption:***
Input: THIS IS A FINE GOOD DAY!	Input: QEFP FP X CFKB DLLA AXV!
Key: 3	Key: 3
Output: QEFP FP X CFKB DLLA AXV!	Output: THIS IS A FINE GOOD DAY!

Keyword Cipher:

Encryption:	***Decryption:***
Input: THIS IS A FINE GOOD DAY!	Input: TFHS HS D CHMB EOOG GDY!
Key: DANG	Key: DANG
Output: TFHS HS D CHMB EOOG GDY!	Output: THIS IS A FINE GOOD DAY!

Submission Guideline

1. Write comments on your source code file (*simple_substitution.py*). Include *author name*, *date*, *description*, list of resources used, and so on.
2. Upload *simple_substitution.py* to **Moodle** by the deadline.