

Vigenère Cipher

Using the programming language of your choice (so long as it is either compilable or interpretable on my Linux OS), write a program that **mathematically** implements the Vigenère cipher. This is an individual programming assignment (i.e., **each student will submit one program**).

Notes and Requirements:

- Submit your source code only (I will provide my own key and plaintext/ciphertext to test with);
- Accept both the mode (i.e., encryption, via `-e`, or decryption, via `-d`) and the key at the command line;
- Read the plaintext/ciphertext from `stdin`; and
- Send generated output (either plaintext or ciphertext) to `stdout`.

Please, no GUIs. Make this a command line application without frills that I can execute at the command line as illustrated below. Here are several runs of my program on various inputs that provide hints about how your program should handle upper/lowercase letters, digits, spaces, symbols, etc:

```
jgourd@latech:~$ ./vigenere -e mykey
hello <-- I typed this
tcvpm <-- my code generated this
HELLO <-- I typed this
TCVPM <-- my code generated this
^D    <-- I pressed Ctrl+D (sometimes, this is needed twice)
```

```
jgourd@latech:~$ ./vigenere -e MyKeY
hello
tcvpm
HELLO
TCVPM
^D
```

```
jgourd@latech:~$ ./vigenere -d MYKEY
tcvpm
hello
TCVPM
HELLO
^D
```

```
jgourd@latech:~$ ./vigenere -e "This is my key" > ciphertext.txt
Get ready for Cyber Storm! We're going to turn your world upside down on
May 11!
^D
```

```
ciphertext.txt
Zlb jmspw psp Vfjwz Kfmbq! Ux'ym ywaze ds rnyv qwmd uyvjw bxkqvq byal hu
Usg 11!
```

```
jgourd@latech:~$ ./vigenere -d "This is my key" < ciphertext.txt
Get ready for Cyber Storm! We're going to turn your world upside down on
May 11!
```

```
jgourd@latech:~$ ./vigenere -d "This is my wrong key" < ciphertext.txt
Get ready tbb Izzsb Ryeji! Cl'aq hintu zu ygqd ieaf yhhwq rtmxoi jqiz jy
Det 11!
```