**HOMEWORK**

The Vigenère and Playfair Ciphers are described in Exercises 9.4 and 9.5.

Write a program that performs the following tasks:

* ~~display a friendly greeting to the user~~
* prompt the user for the desired cypher (Vigenère or Playfair)
* prompt the user to select encryption or decryption
* prompt the user for the keyword or keyphrase
* prompt the user for a filename for input
* prompt the user for a filename for output
* attempt to open the input file
* if the input file failed to open
  + display an error message

the error message should include the name of the file; *e.g.*

Failed to open file input.txt!

* read the contents of the input file
* perform the desired operation
* write the results to the output file

Put this in a menu loop with “exit” as an option so that the instructor can perform several operations without re-running the program.

You should also provide support for command-line parameters:

C:>crypto /algorithm /action input\_file output\_file keyphrase

where

/algorithm is either /p (or /playfair) or /v (or /vigenere)

/action is either /e (or /encrypt) or /d (or /decrypt)

If the user does not provide valid input parameters, display a “usage” message. If the switch /? is used anywhere in the command line, ignore any other parameters and display a help screen. For examples, go to a command prompt and type ipconfig /? or dir /?.

Note that switches can be in any order, and can be before or after (but not amidst) the filenames and keyphrase. The only ordering that is important is that the three non-switch options are the input file, the output file, and the keyphrase, in that order.

How you handle upper and lower case, spaces, punctuation, numbers and such is entirely up to you. You are not limited to the implementation described in the text; for example, you could use a 6x6 grid for the Playfair Cypher and include all twenty-six letters plus the ten digits. Feel free to research these ciphers on the ‘net and modify the algorithms as you see fit. To test your program the instructor will encrypt, and then decrypt, the contents of plain-text files, using both your menu option and running directly from the command line.