Vigenere's

Description.

This software application encrypts and decrypts messages using the Vigenere's method. For more information on this method:
https://en.wikipedia.org/wiki/Vigenère_cipher

Files enclosed for demonstration.

The folder containing this program in the repository has two text files. The file plainText.txt contains the unencrypted message, while encrypted.txt is the encrypted version of the plain-text message. The keyword for the encryption/decryption of these messages is ***mysterious***.

User's guide.

In order to execute the program it is necessary to compile and run it through command line. For executing it, it is necessary to input three arguments through command line. The first one is the keyword of the encryption/decryption and the second one represents the command to tell the program to encipher or decipher the message. The second argument can be "encipher" or "decipher". The third argument represents the name of the text file that wants to be encrypted or decrypted

Input example:

```
EARLY ON IT BECAME APPARENT THAT THE RUMRUNNERS WERE
ENCRYPTING THEIR COMMUNICATIONS TO THWART THE COAST GUARDS
MISSION AND BY NINETEEN NINETY SEVEN THE USE OF CODES AND
CIPHERS AMONG RUMRUNNING VESSELS WAS COMMONPLACE WITH THIS
KIND OF EXPERTISE AT WORK IT WAS NOT LONG BEFORE THE SMUGGLERS
SYSTEMS GREW INCREASINGLY COMPLEX TO COUNTER THEIR EFFORTS
THE USCG ENLISTED THE HELP OF RENOWNED CRYPTOLOGIST ELIZEBETH
FRIEDMAN FRIEDMAN WAS CONSIDERED AN EXPERT IN THE CRYPTOLOGIC
REALM SHE HAD STUDIED THE SUBJECT AT A CHICAGO AREA THINK TANK
AND HAD PARTICIPATED IN CRYPTOLOGIC WORK AT OTHER FEDERAL
AGENCIES HER ROLE WAS TO PROVIDE THE COAST GUARD SOME MEASURE
OF FOREWARNING REGARDING THE RUMRUNNERS OPERATIONAL
ACTIVITIES THIS WAS NO EASY TASK THE VARIOUS SYNDICATES TOOK
STRONG MEASURES TO PROTECT THEIR COMMUNICATIONS FROM THE
COAST GUARD NOT THE LEAST OF WHICH WAS PAYING THE UNHEARD OF
SUM OF TEN THOUSAND DOLLARS A YEAR TO A RETIRED ROYAL NAVY
LIEUTENANT COMMANDER TO RUN THEIR CRYPTOLOGIC OPERATIONS.
```

Output example:

Input Message:

EARLY ON IT BECAME APPARENT THAT THE RUMRUNNERS WERE
ENCRYPTING THEIR COMMUNICATIONS TO THWART THE COAST GUARDS
MISSION AND BY NINETEEN NINETY SEVEN THE USE OF CODES AND
CIPHERS AMONG RUMRUNNING VESSELS WAS COMMONPLACE WITH THIS
KIND OF EXPERTISE AT WORK IT WAS NOT LONG BEFORE THE SMUGGLERS
SYSTEMS GREW INCREASINGLY COMPLEX TO COUNTER THEIR EFFORTS
THE USCG ENLISTED THE HELP OF RENOWNED CRYPTOLOGIST ELIZEBETH
FRIEDMAN FRIEDMAN WAS CONSIDERED AN EXPERT IN THE CRYPTOLOGIC
REALM SHE HAD STUDIED THE SUBJECT AT A CHICAGO AREA THINK TANK
AND HAD PARTICIPATED IN CRYPTOLOGIC WORK AT OTHER FEDERAL
AGENCIES HER ROLE WAS TO PROVIDE THE COAST GUARD SOME MEASURE
OF FOREWARNING REGARDING THE RUMRUNNERS OPERATIONAL
ACTIVITIES THIS WAS NO EASY TASK THE VARIOUS SYNDICATES TOOK
STRONG MEASURES TO PROTECT THEIR COMMUNICATIONS FROM THE
COAST GUARD NOT THE LEAST OF WHICH WAS PAYING THE UNHEARD OF
SUM OF TEN THOUSAND DOLLARS A YEAR TO A RETIRED ROYAL NAVY
LIEUTENANT COMMANDER TO RUN THEIR CRYPTOLOGIC OPERATIONS.

Output Message:

QYJEC FVWNT QASFI RXDUJ QLLML RBHBW DSEKY EVSLK ICJXI EKFSH
FGFZX YMWLU AKENR ZKONA ALKMS KPKUJ FRZXG FIGNY GYJWW DQGMA
ALSGH SGBCF QRWXR EQBYL KQWOI EBVYM ECGYG FLSMS ZBUBT YMFMS
YMFZV LUFOF ZGFZZ VAGYD EUSLG FUAIF BJSVI NQHBL TGKDM ELCZW
JNWKX ZASUL IMJDM KEOMF ARDHR XJSZG DCLAI JUIAY XCJLW PAHYE
EEJXA ZVQLW MQAGK CGQIE BJWQX FKCOF FCJML VQFYX RMJMW KPSOK
OEWGP ZAHYV FFWAI CXCZJ QLGPR VLQLQ BRGES XQGNW XGRXF VBVZJ
UCVFE ENFCW PKSGA RAQIF EGVXV VLOHW JNWKX ZVHBW OPQIX FTCAA
OPWTP DAVYZ MBKMY UQSXL TCKNF AMQNS FYUAM TIUIS DCSML ZVYNS
ZISGH YIRJS DRAVM GIHYV ULUKC GBCFG SGUPS ISONG FFWKJ VLSLS
XYYXR TQSMZ QPJHP VEOML ANJHZ ZLSNZ QAGTW KOIUJ PQGFI DMOMM
DCGYJ FZSQS DLAGK IMUUJ PGFZX YMFOE DSFGI IACJW DYLBS EIZUU
FGNBX ZMGNZ UQOTW EWSUK KRSLO KPSPS DGGNW JGBXA OYLXW KWCEK
FPGGK DMOMM DCKMS GZCNW ORLAI ZZQIE YSFBG RBWIF EDJHQ KPSWG
MQLZY RZRHG FRZXP VIGNG RUZBG YEOMH MWAGK KPSOF TCSKH FNGOE
ADLXR KPCOK MLVWS CTOLK MWWTV KWOLW FGJXH IWMUD ZYNRP ZMINW
ZYFMG FUAUF PCJMS ICBNZ QGJVV PXHID AEAVS GMFUL UMFL

Program's Design.

Important Variables.

The program uses two String global variables, input and output, that store the message given to the program and the results of the process, whether it was an encipher or decipher tasks.

transformEncrypt(char , char).
This method takes two arguments of type char. One of them is the character of the keyword and the other is the plain-text letter whose encryption is related to the mentioned letter of the key. This fragment of code returns the cipher-text character obtained by encrypting the plain-text character using Vigenere's techinique.

transformDecrypt(char , char).
This method takes two arguments of type char. One of them is the character of the keyword and the other is the cipher-text letter whose decryption is related to the mentioned letter of the key. This fragment of code returns the plain-text character obtained by decrypting the cipher-text character using Vigenere's techinique.

encipherToken().
The method takes a string and enciphers it using Vigenere's technique. It also takes the string and stores it in the input variable, while storing the result of the encryption in the output variable.

decipherToken().
The method takes a string and deciphers it using Vigenere's technique. It also takes the string and stores it into the input variable, while storing the result of the decryption in the output variable.

main().
The main reads the text of the input file and decrypts/encrypts every line of it using encipherToken() or decipherToken(). At the end, it prints the input and output of the processes by using the mentioned global variables. Furthermore, it is also necessary to mention that this method deals with possible three invalid arguments from the command line by showing a message about the error and ending the program.