import sys

def gcd(a,b):

if (b == 0):

return a

return gcd(b, a%b)

def encrypt(cipher\_type,operation\_type,inpput\_file,output\_file,k):

with open(inpput\_file,'r') as reader:

inp=reader.read();

cipher\_type=cipher\_type.lower()

operation\_type=operation\_type.lower()

out = ""

if (cipher\_type=="shift" ):

if (len(k)!=1):

sys.exit("key is not valid")

k[0]=int(k[0])

if (operation\_type=="encrypt"):

for i in range(len(inp)):

char = inp[i]

if(char==" "):

out +=" "

elif (char.isupper()):

out += chr((ord(char) + k[0] - 65) % 26 + 65)

else:

out += chr((ord(char) + k[0] - 97) % 26 + 97)

elif (operation\_type=="decrypt"):

for i in range(len(inp)):

char = inp[i]

if(char==" "):

out +=" "

elif (char.isupper()):

out += chr((ord(char) - k[0] - 65) % 26 + 65)

else:

out += chr((ord(char) - k[0] - 97) % 26 + 97)

else:

print("not valid input")

elif (cipher\_type=="affine"):

if (len(k)!=2):

sys.exit("keys are not valid")

k[0]=int(k[0])

k[1]=int(k[1])

if (operation\_type=="encrypt"):

for i in range(len(inp)):

char = inp[i]

if(char==" "):

out +=" "

elif (char.isupper()):

out += chr(( ((ord(char) \* k[0]) + k[1] )- 65) % 26 + 65)

else:

out += chr(( ((ord(char) \* k[0]) + k[1] )- 97) % 26 + 97)

elif (operation\_type=="decrypt"):

j=0

if(gcd(k[0],26)!=1):

sys.exit("key not have inverse")

for i in range(26):

if((k[0]\*i)%26==1):

j= i

break

a=j

b=26-k[1]

for i in range(len(inp)):

char=inp[i]

if(char==" "):

out +=" "

elif (char.isupper()):

out += chr(( ((a\*(ord(char)+b))- 65) % 26 + 65 ))

else:

out += chr(( ((a\*(ord(char)+b))- 97) % 26 + 97 ))

else:

print("not valid input")

elif (cipher\_type=="vigenere"):

if (len(k)!=1):

sys.exit("key is not valid")

key=k[0]

if (operation\_type=="encrypt"):

if len(inp) != len(key):

for i in range(len(inp)-len(key)):

key+=key[i % len(k[0])]

for i in range(len(inp)):

char = inp[i]

if(char==" "):

out +=" "

elif (char.isupper()):

out += chr((ord(inp[i])+ord(key[i])) % 26 + 65)

else:

out += chr((ord(inp[i])+ord(key[i])) % 26 + 97)

elif (operation\_type=="decrypt"):

if len(inp) != len(key):

for i in range(len(inp)-len(key)):

key+=key[i % len(k[0])]

for i in range(len(inp)):

char = inp[i]

if(char==" "):

out +=" "

elif (char.isupper()):

out += chr((ord(inp[i])-ord(key[i])) % 26 + 65)

else:

out += chr((ord(inp[i])-ord(key[i])) % 26 + 97)

else:

print("not valid input")

else:

print("not valid input")

with open (output\_file,'w') as writer:

writer.write(out)

return out

if(len(sys.argv)==6):

encrypt(sys.argv[1],sys.argv[2],sys.argv[3],sys.argv[4],[sys.argv[5]])

elif(len(sys.argv)==7):

encrypt(sys.argv[1],sys.argv[2],sys.argv[3],sys.argv[4],[sys.argv[5],sys.argv[6]])