CS 5158 Project 1

1. The OS that I used is Windows and I used Windows PowerShell to run my code.
2. I used Python version 3.8 to write and run my code.
3. Encrypt Function:
   a. To run Encrypt function:
      i. python.exe encryptOTP.py "path of key" "path of plaintext" "path of ciphertext"
   b. To run Decrypt function:
      i. python.exe decryptOTP.py "path of key" "path of ciphertext" "path of result file"
   c. To run keygen function:
      i. python.exe keygen.py "key length" "path of new key"

Encrypt Output:

```
PS C:\Users\hungn\Documents\otp_M10290670> python.exe encryptOTP.py "C:\Users\hungn\Documents\otp_M10290670\data\key.txt" "C:\Users\hungn\Documents\otp_M10290670\data\plaintext.txt" "C:\Use
s\hungn\Documents\otp_M10290670\data\ciphertext.txt"
Ciphertext is: 00110111110011111001000101111101
```

Decrypt Output:

```
PS C:\Users\hungn\Documents\otp_M10290670> python.exe decryptOTP.py "C:\Users\hungn\Documents\otp_M10290670\data\key.txt" "C:\Users\hungn\Documents\otp_M10290670\data\ciphertext.txt" "C:\Use
rs\hungn\Documents\otp_M10290670\data\result.txt"
Plain text is: bear
```

Keygen output(with different values):

```
PS C:\Users\hungn\Documents\otp_M10290670> python.exe keygen.py 64 "C:\Users\hungn\Documents\otp_M10290670\data\newkey.txt"
0110010100000001110011010100001101101011000110000011000101111010
PS C:\Users\hungn\Documents\otp_M10290670> python.exe keygen.py 64 "C:\Users\hungn\Documents\otp_M10290670\data\newkey.txt"
1010011101001011000000011101101100001011111000111001001101011100
PS C:\Users\hungn\Documents\otp_M10290670> python.exe keygen.py 32 "C:\Users\hungn\Documents\otp_M10290670\data\newkey.txt"
00101101111011110101110100011001
PS C:\Users\hungn\Documents\otp_M10290670> python.exe keygen.py 128 "C:\Users\hungn\Documents\otp_M10290670\data\newkey.txt"
01011110011001100011101111001100000010111010111111110101101100010100110100110101111111101011011010100110111100010111100110111011101
PS C:\Users\hungn\Documents\otp_M10290670> python.exe keygen.py 183 "C:\Users\hungn\Documents\otp_M10290670\data\newkey.txt"
Invalid key length
```