PPL MINI-PROJECT

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Title ➔

File encryption and decryption system using Python

Programming language used ➔

Python

Programming Domain ➔

Cryptography

Central Idea ➔

In the evolving world of data and information transfer, security of the file contents remain to be one of the greatest concerns for companies. Some information can be password protected (emails, logins) while other information being transferred via emails or FTP lacks efficiency if protected by some keyword. This is where file encryption plays a big role and provides security and convenience sought by parties engaged in file transfers.

So what is encryption? It is a process of converting information into some form of a code to hide its true content. The only way to access the file information then is to decrypt it. The process of encryption/decryption is called cryptography.

We need the python library called pycryptodome, which can be installed using command "pip install pycryptodome".

And then we create some sample files such as text, images, music.

Our project is capable of handling all of them.

Next step is of creating a key. Fernet is authenticated cryptography which doesn't allow to read and/or modify the file without a key.

After we generated the encryption key, we would need to load it into our environment in order to encrypt/decrypt the files.

Now that we have the file to encrypt and the encryption key, we wrote a function to utilize these and return the encrypted file

After you encrypted the file and, for example, successfully transferred the file to another location, you will want to access it. Now, that data is in the encrypted format. The next step is to decrypt it back to the original content.

The process we will follow now is the reverse of the encryption in the previous part. Exactly the same process, but now we will go from encrypted file to decrypted file.

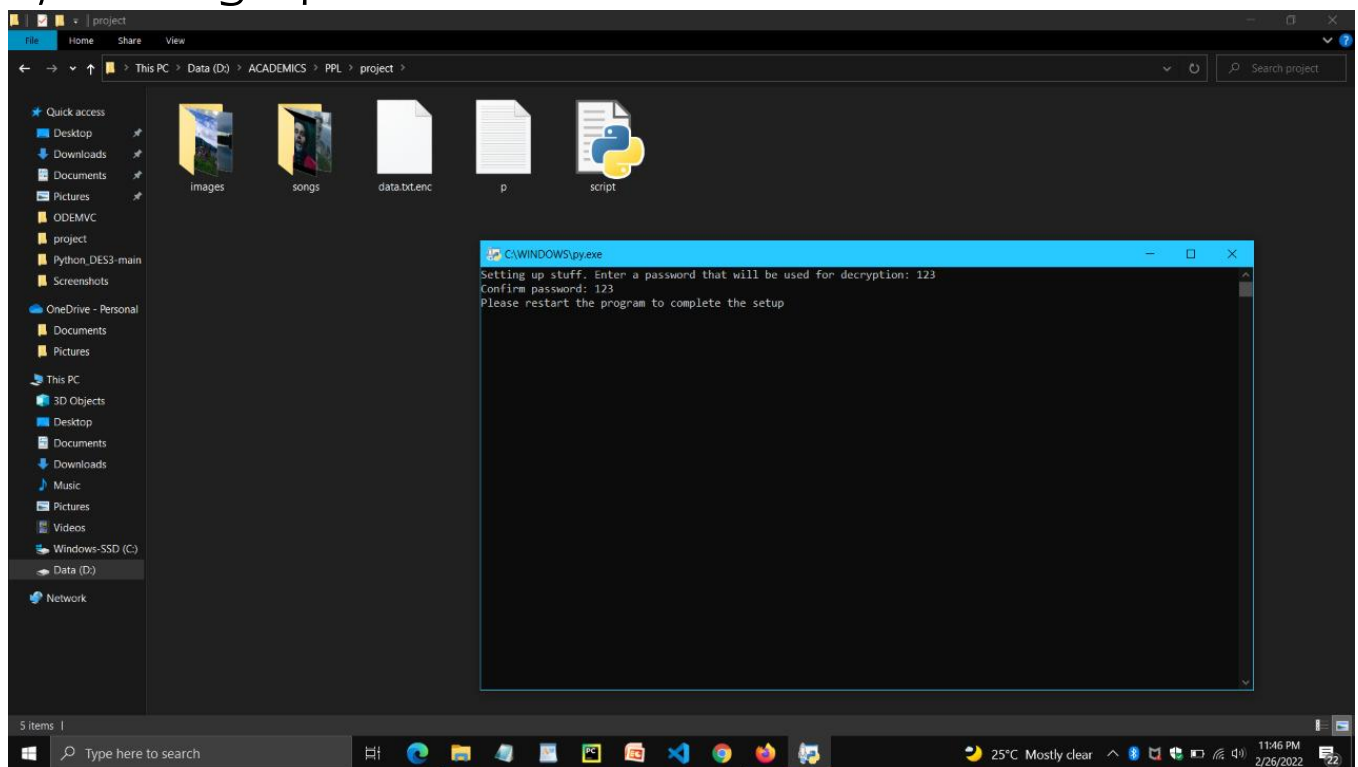We can also encrypt as well as decrypt all the files using a single command from the output window.

The last option in the output window is of exiting which will eventually stop the execution of the code.
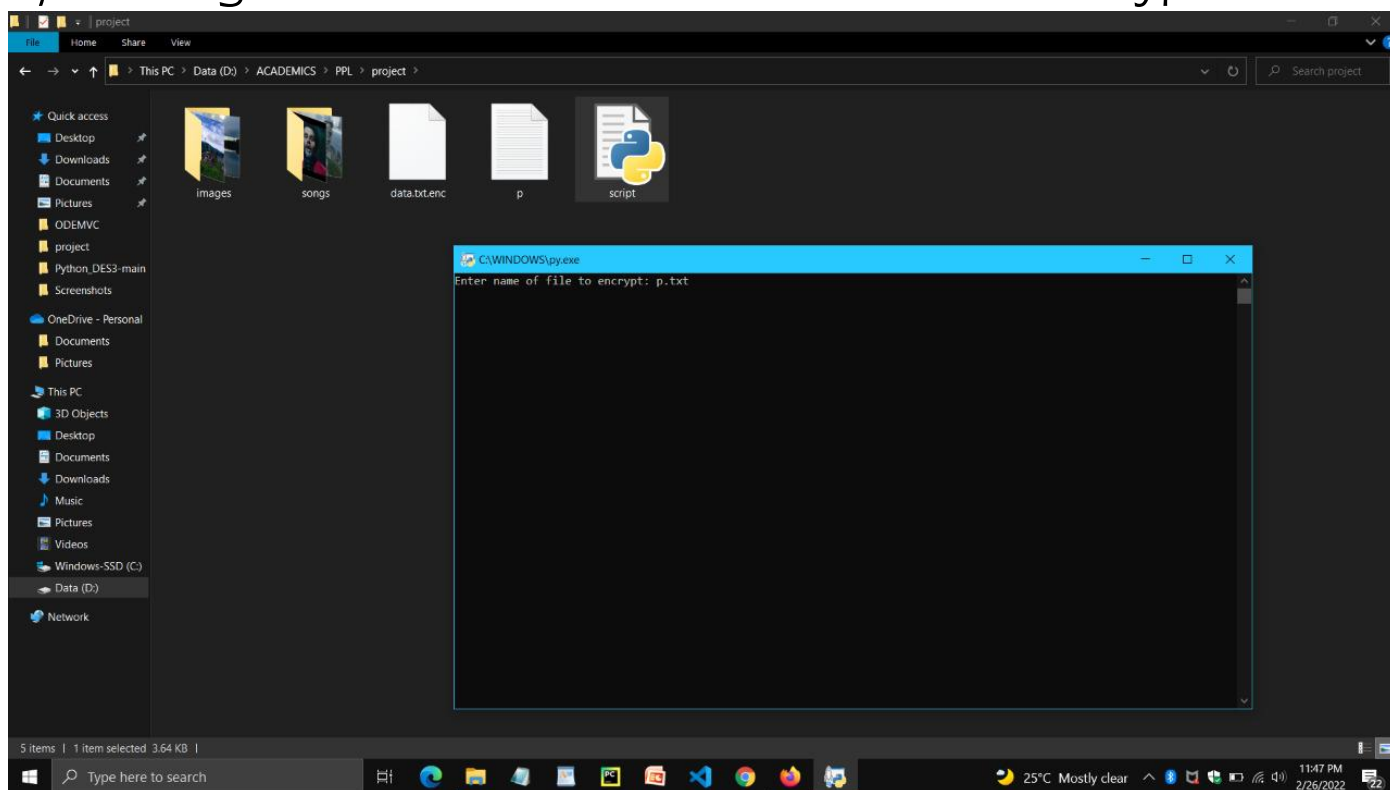
Screenshots of the Project ➡

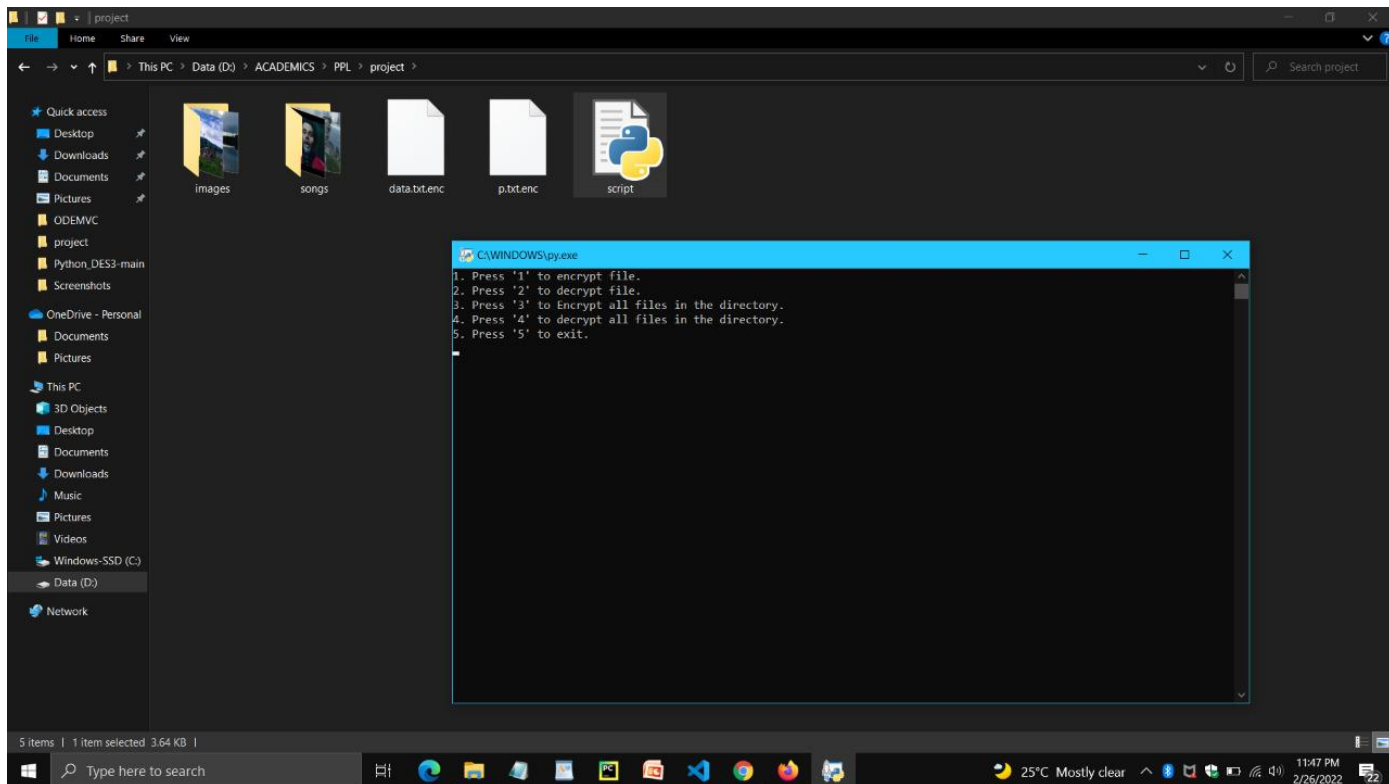## 1) Files which are to be encrypted…
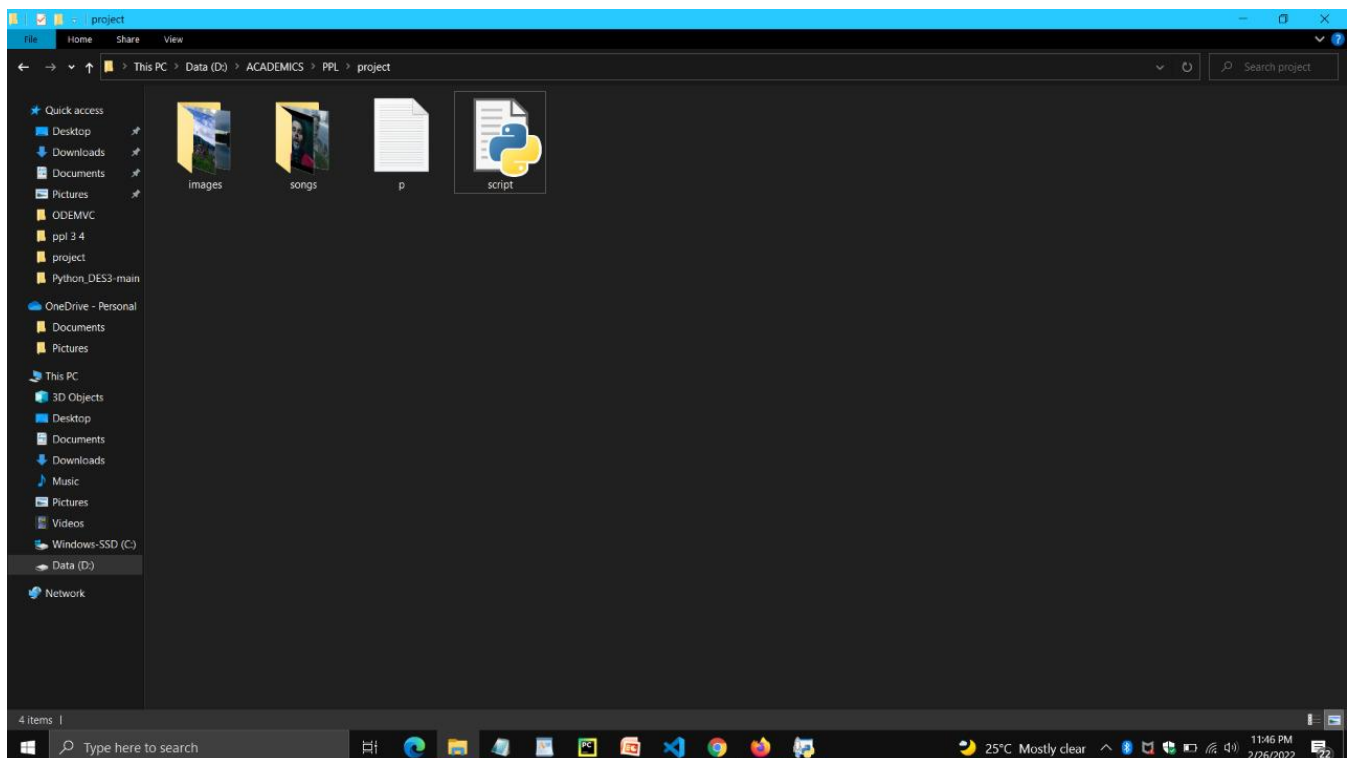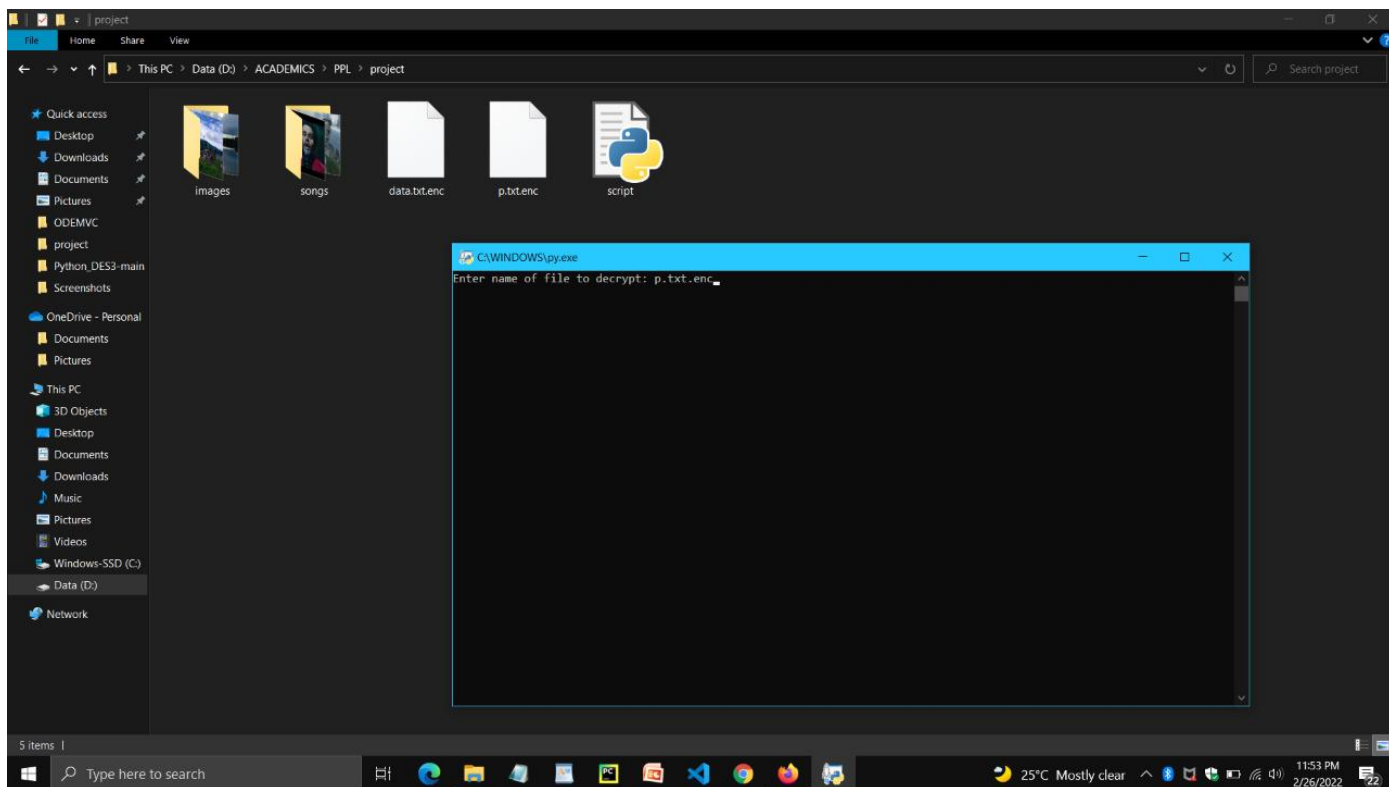
2) Creating a password file data.txt.enc

3) Entering the name of file which we want to encrypt

4) Files encrypted successfully

5) Decrypting the files

6) File decrypted successfully