

Secure File Sharing System

Internship Title:

Secure File Sharing System using Python Flask framework, AES 256 GCM Encryption and HTML.

Prepared by: VIJAY S R

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Programme: Future Interns/ Cyber security

Platform Used :-

Python (latest version for windows 10)

Visual Studio Code (VS Code)

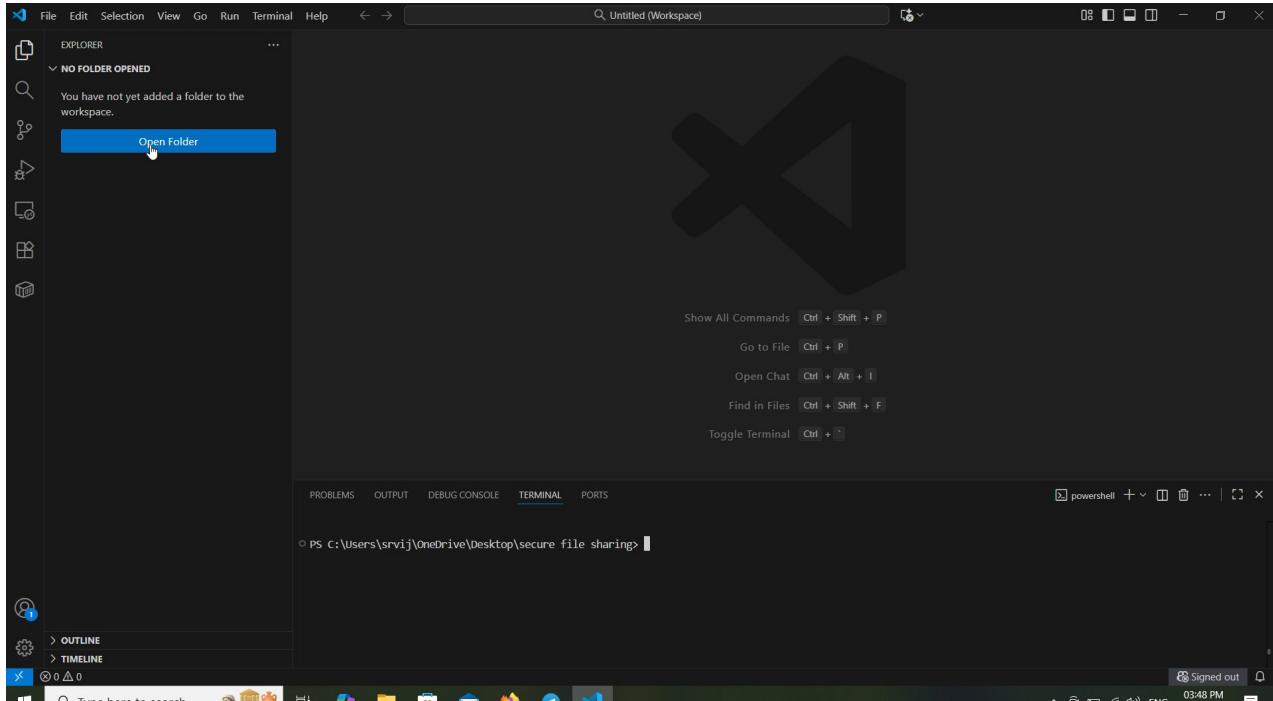
Setup Steps:

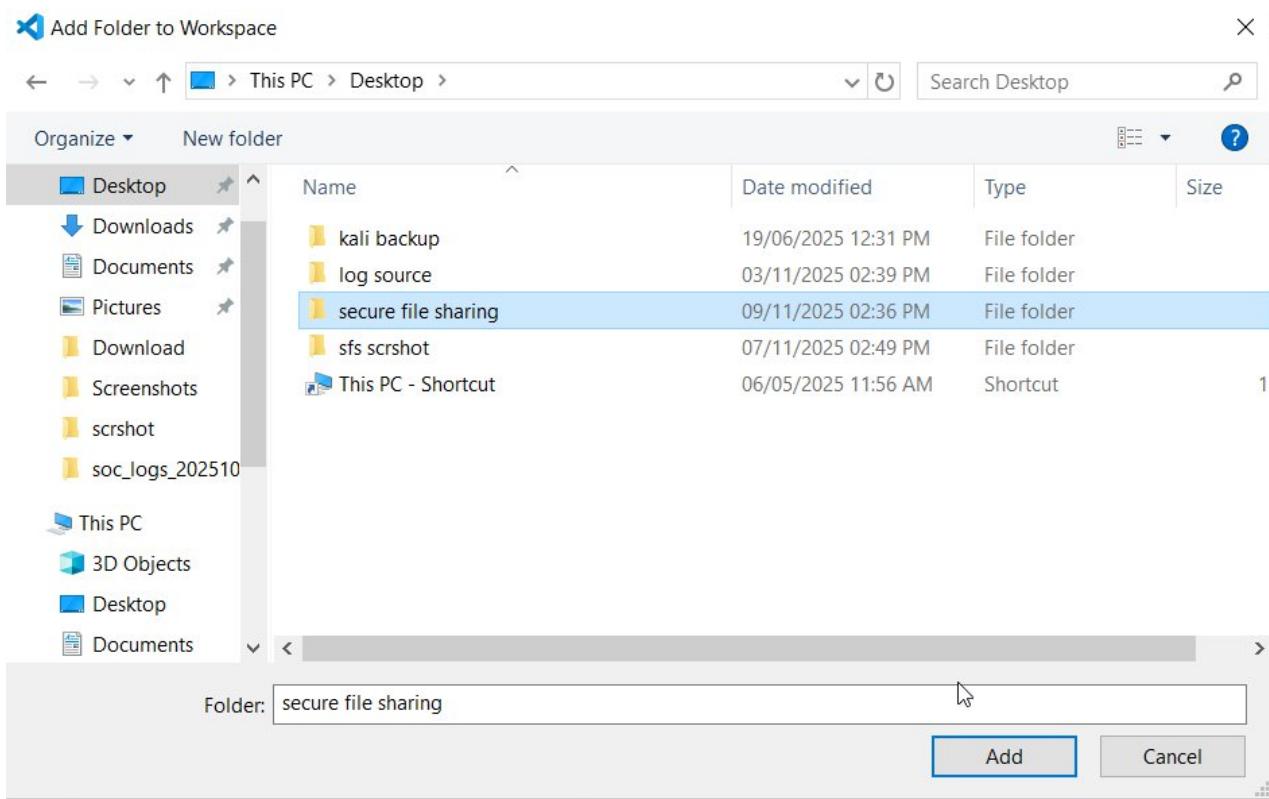
We are going to do this project using windows 10 pro...First you should install python and VS Code into your system. Next go and download my secure file sharing system resource from below link

https://github.com/srvijaycybersec-hue/FUTURE_CS_03.git

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After download, you should open your VS Code tool, choose open folder option, choose the downloaded secure file sharing system folder.





Then it will shows some files like app.py, encryption_utils.py and templates folder, files.html and upload.html etc...

Don't do any modification, deletion on that files. Open VS Code terminal and type the following command

```
$key = -join ((1..32) | ForEach-Object { "{0:X2}" -f (Get-Random -Maximum 256) })
```

\$key



```
PS C:\Users\srwij\OneDrive\Desktop\secure file sharing> $key = -join ((1..32) |ForEach-Object { "{0:X2}" -f (Get-Random -Maximum 256) })
>> $key
```

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If you use linux OS, use the following command

python - <<'PY'

```
import os, sys
```

```
print(os.urandom(32).hex())
```

PY

It will generate a 256 bit (32 digit) encryption key. Copy that key in somewhere and type the following command in VS Code terminal.

```
setx FILE_ENCRYPTION_KEY "paste_your_32_hex_key_here"
```

```
setx FLASK_SECRET "random_flask_secret_here"
```

Replace the 32 digit encryption key into the double quotes of the command.

```
PS C:\Users\srwij\OneDrive\Desktop\secure file sharing> $key = -join ((1..32) | ForEach-Object { "{0:X2}" -f (Get-Random -Maximum 256) })
● >> $key
34F15B1E1A1C1D1E1F1G1H1I1J1K1L1M1N1O1P1Q1R1S1T1U1V1W1X1Y1Z1
○ PS C:\Users\srwij\OneDrive\Desktop\secure file sharing> setx FILE_ENCRYPTION_KEY "34F15B1E1A1C1D1E1F1G1H1I1J1K1L1M1N1O1P1Q1R1S1T1U1V1W1X1Y1Z1"
○ PS C:\Users\srwij\OneDrive\Desktop\secure file sharing> setx FLASK_SECRET "random_flask_secret_here"
```

If you use linux setting up the key using following command

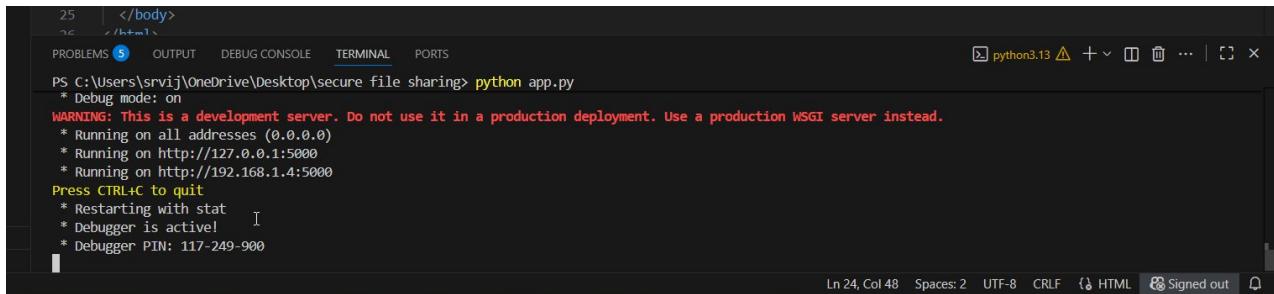
```
export FILE_ENCRYPTION_KEY="paste your 64 hex key here"
```

```
export FLASK_SECRET="random flask secret here"
```

We are successfully generated and set the encryption key with VS Code terminal. This is temporary only. Each and everytime we should generate and set the key.

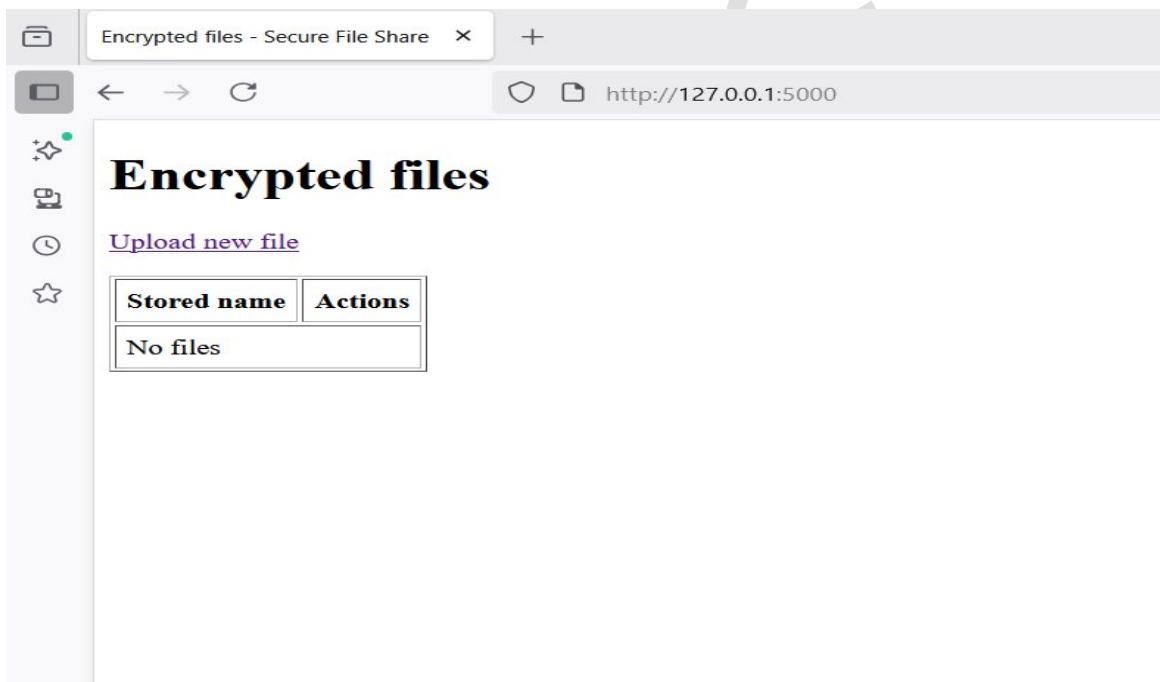
Next step is run the app.py file with following command

python app.py



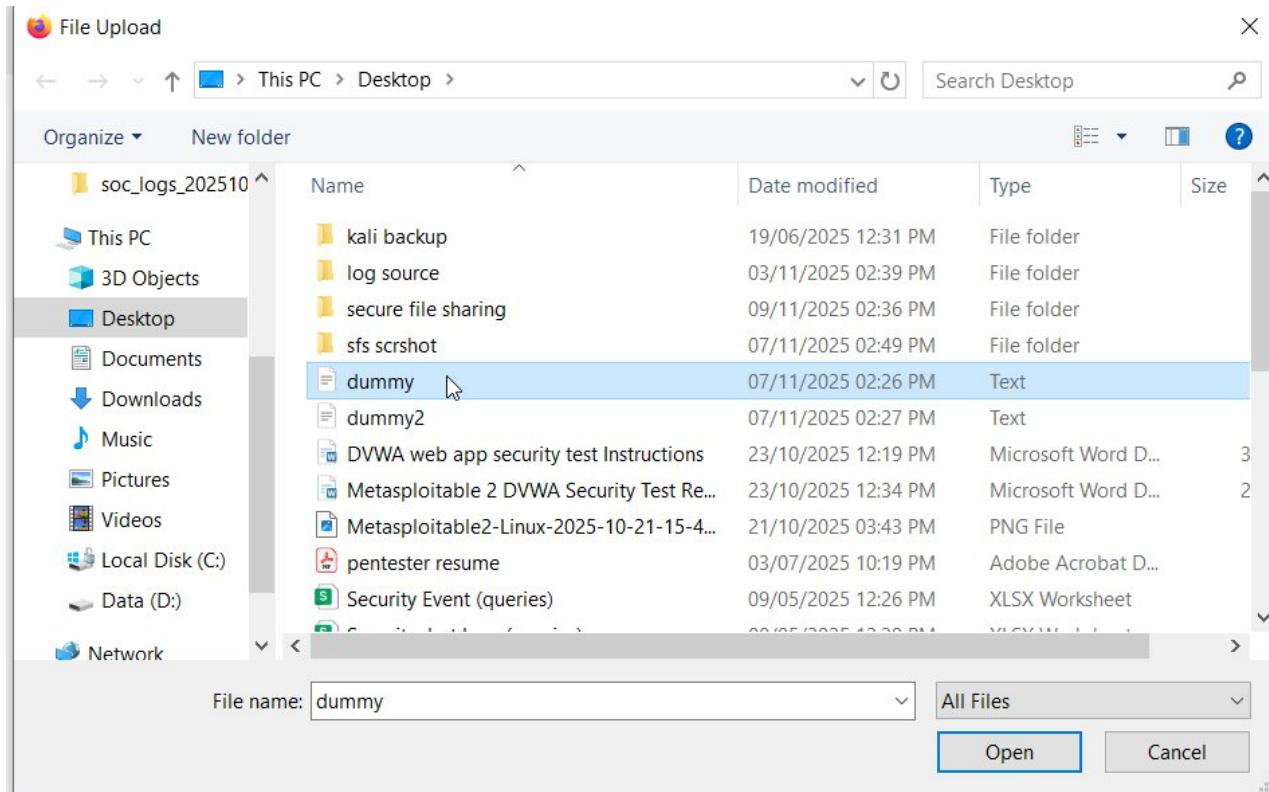
```
25 | </body>
PS C:\Users\srviij\OneDrive\Desktop\secure file sharing> python app.py
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://192.168.1.4:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 117-249-900
```

Now app.py run as a local web service for secure file sharing system. Go to your browser and type <http://localhost:5000> or <http://127.0.0.1:5000>



Page will display like this and click Upload new file option. Upload any file like documents, PDF, jpg etc...

I am going to show a dummy.txt file upload.



A screenshot of a web browser window titled "Upload - Secure File Share". The address bar shows "http://127.0.0.1:5000/upload". The main content area has a heading "Upload a file (will be encrypted)". Below it are two buttons: "Browse..." (with "dummy.txt" selected) and "Upload & Encrypt". There is also a link "Back to files". On the far left, there is a sidebar with icons for file operations like upload, download, and search.

After select the file, click Upload & Encrypt option on the webpage.

Encrypted files

- success: Uploaded and encrypted as [235c4b8701a1e2f0.enc](#)

[Upload new file](#)

Stored name	Actions
235c4b8701a1e2f0.enc	Download (decrypt) Delete

That uploaded file encrypted and encrypted name shows there. We could check that file in our encrypted_store folder in our VS Code project.

The file is not displayed in the text editor because it is either binary or uses an unsupported text encoding.

Open Anyway

```
PS C:\Users\srvij\OneDrive\Desktop\secure file sharing> python app.py
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 117-249-900
127.0.0.1 - [09/Nov/2025 15:55:39] "GET / HTTP/1.1" 200 -
127.0.0.1 - [09/Nov/2025 15:55:58] "GET /upload HTTP/1.1" 200 -
127.0.0.1 - [09/Nov/2025 15:58:40] "POST /upload HTTP/1.1" 302 -
127.0.0.1 - [09/Nov/2025 15:58:40] "GET / HTTP/1.1" 200 -
```

Our uploaded file encrypted and stored successfully. Next download that file with decryption. Just click Download option on the webpage

The screenshot shows a web browser window titled "Encrypted files - Secure File Share". The URL is "http://127.0.0.1:5000". The page displays a table of encrypted files:

Stored name	Actions
235c4b8701a1e2f0.enc	Download (decrypt) Delete

A message at the top says: "success: Uploaded and encrypted as 235c4b8701a1e2f0.enc". A download notification is shown in the top right corner: "dummy(1).txt Completed — 53 bytes". Below it is a link "Show all downloads".

Below the browser window is a "Received Files" dialog box from a file manager. It shows a file named "dummy(1).txt" located at "C:\Users\srvij\Downloads". There is an "Open" button.

After click download option, file automatically decrypt and download on your webpage.