

Write Up of The Secret Image.

Author : Samarth
Kamble.

CTF:VishwaCTF'23
Challenge Name : The Secret Image
Category : Cryptography
Level : Hard

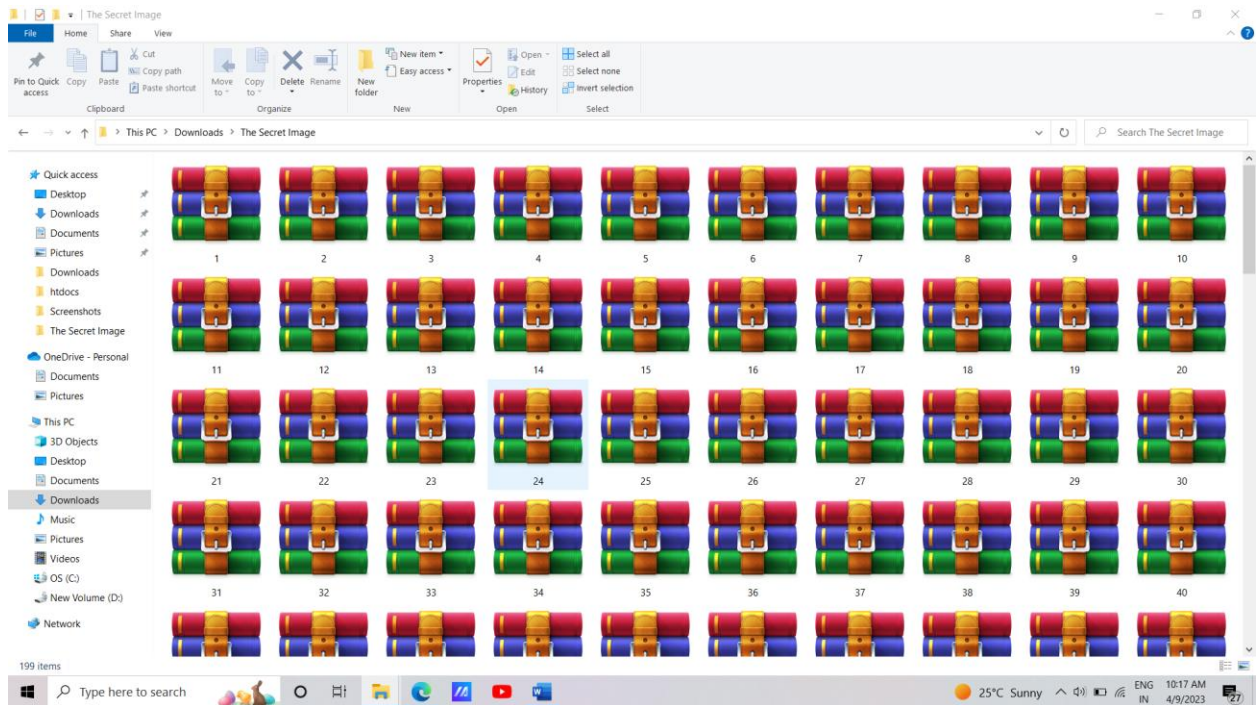
Description : To complete the challenge, you will need to carefully analyze each Folder and decode it this can be done only by visualizing things Password = VishwaCTF .

Steps To Solve Challenge :

Are you ready to test your cryptography skills? We have created a visual cryptography challenge that will put your abilities to the test. The challenge contains 200 folders, each containing an image with a hidden ASCII value. Your goal is to use your knowledge of cryptography to find the hidden flag. To complete the challenge, you will need to carefully analyze each image and decode the hidden ASCII value. The flag is a string of characters, so you will need to decode each folder's hidden value and assemble them in the correct order to reveal the flag.

1. Download the challenge file (TheSecretImage.7z).
2. To extract the file use the password given in description.

3. After extracting the folder you will see there are 200 zip folders now the challenge begins



4. Extract the 1.z using same password (VishwaCTF) and in this folder there are 2 images (layer-1 and layer-2 now here you have to use your cryptography skills .
5. Using visual cryptography technique have to extract the result.png for that you have to write a simple python script .

```
import numpy as np  
from PIL import Image
```

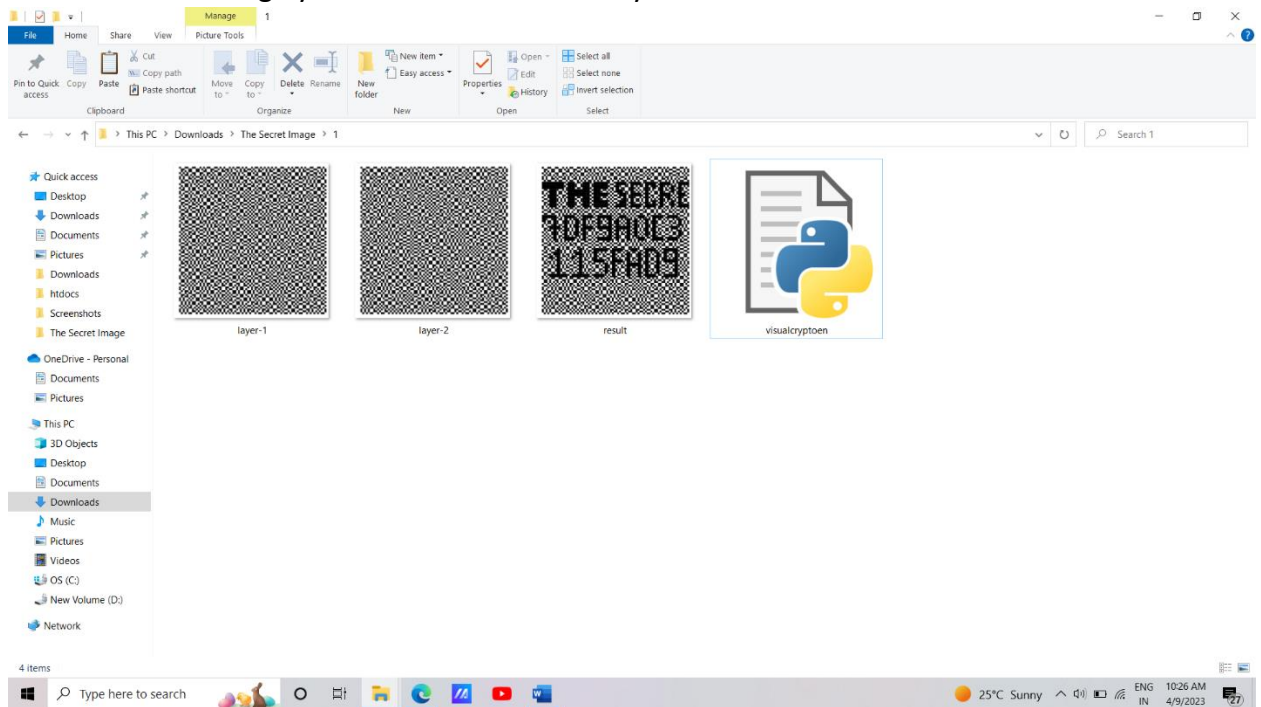
```
im1 = Image.open("layer-1.png")  
im2 = Image.open("layer-2.png")
```

```
im1np = np.array(im1)  
im2np = np.array(im2)
```

```
result = im2np + im1np
```

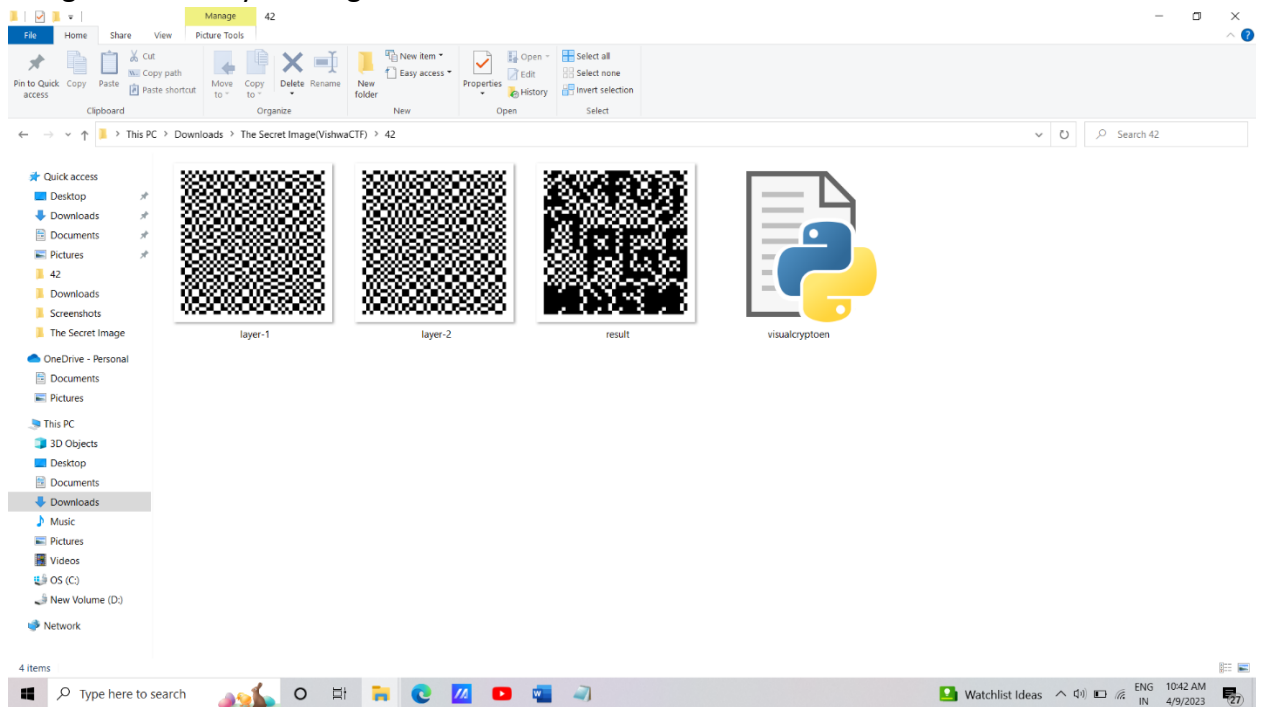
```
Image.fromarray(result).save('result.png')
```

6. Now you see result.png in folder 1, Now extract the password written in that result.png in in first result image you can see The Secret Key is : 7DF9AOC3115FAD9 .

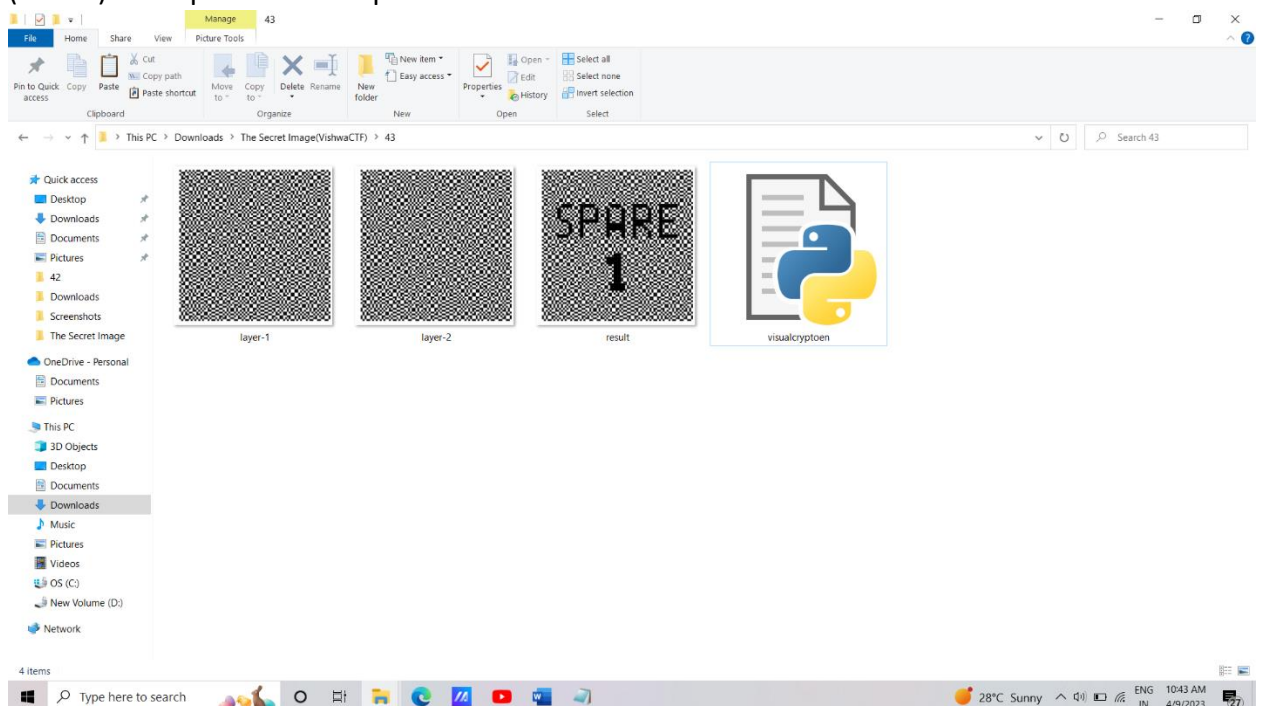


7. Now using the The Secret Key you have to unlock 2.z and this process is continue till 200th folder .
8. But to make this challenge fun full and Hard we added some SPARE image as well as some Hash images .

9. You will get your first hash on 42th folder (lvfujnPGS) and now you have to decrypt it using ROT 13 and you will get VishwaCTF.



10. 43rd folder is a rabbit loop for players here is your first SPARE and you have to use (SPARE) as an password to open next folder.



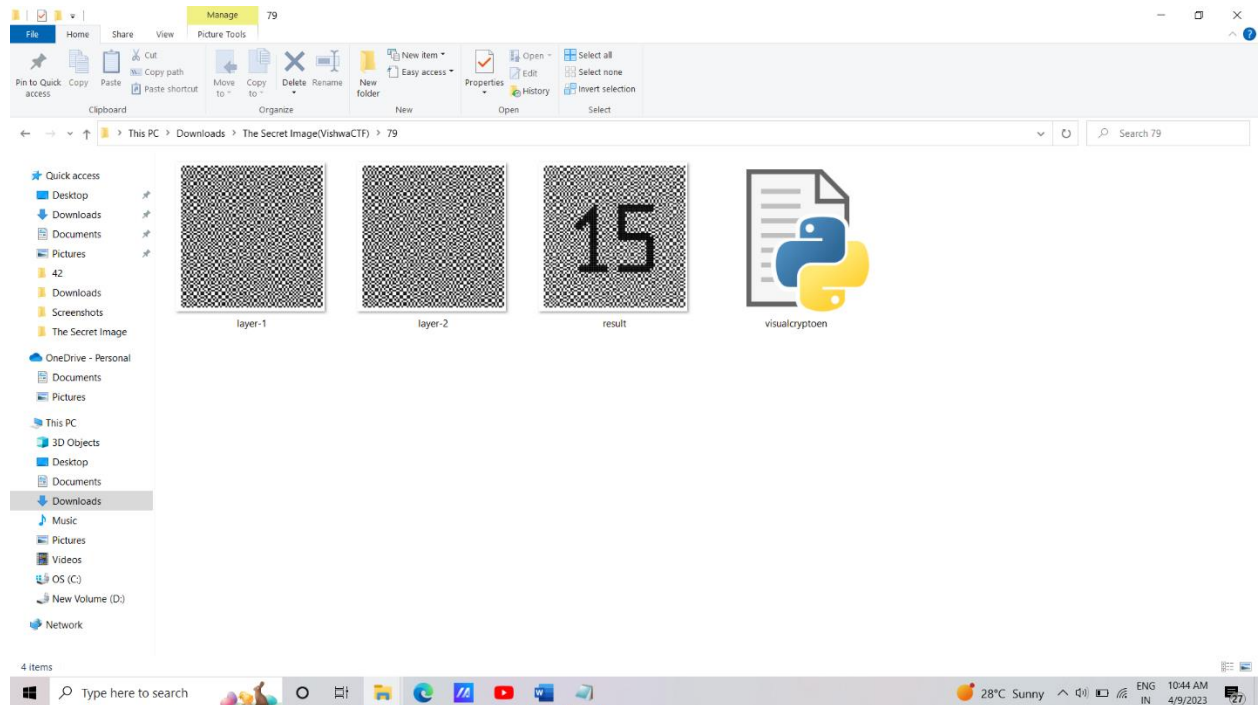
11.

12. The Hash Folders : 42,55,67

The Spare folders : 43,58,68

13. and in between the all folders the flag is hidden in ASCII folders so we numbered it as sequence .

14. So, you get first asci in 79th folder and to and now to open next folder that is 80 you have to use hash you got in 42,55 and 67 th folder that is (lvfujnPGS). And this process is till 122 folder .



15. The last asci is in 121th folder and now you have to join the all asci numbers as per sequence .

16. The ASCII sequence is (118 105 115 117 97 108_99 114 121 112_110 111 116_106 48 107 101) and now you have check it in ASCII table and after arranging it you will get your flag.

17. Flag : VishwaCTF{visualcryptnotj0ke}