PRACTICAL-5

AIM:

The transmission of information needs to be secure over the communication channel and the data has to be confidential. Study and implement the practical approach for Steganography.

-Using DOS commands

-Using OpenPuff Tool

THEORY:

- The word Steganography is derived from two Greek words- '**stegos**' meaning '**to cover**' and '**grayfia**', meaning '**writing**', thus translating to 'covered writing', or 'hidden writing'

- Steganography is a method of hiding secret data, by embedding it into an audio, video, image, or text file.

- The use of steganography can be combined with encryption as an extra step for hiding or protecting data

ADVANTAGES:

- Difficult to detect
- Can be applied differently in digital image, audio and video file

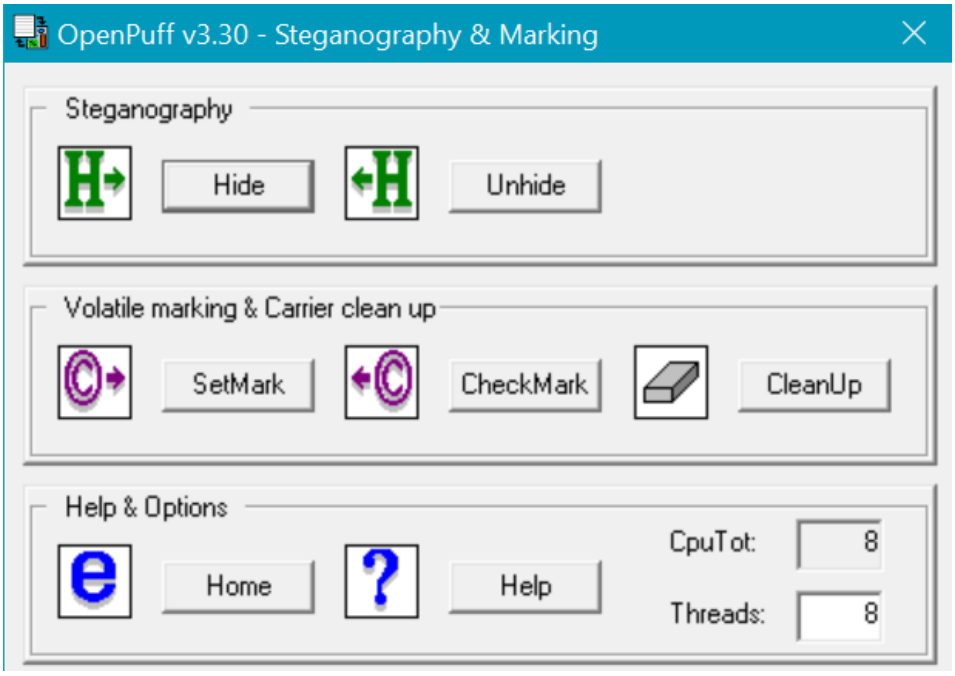
DISADVANTAGES:

- File Size becomes large,

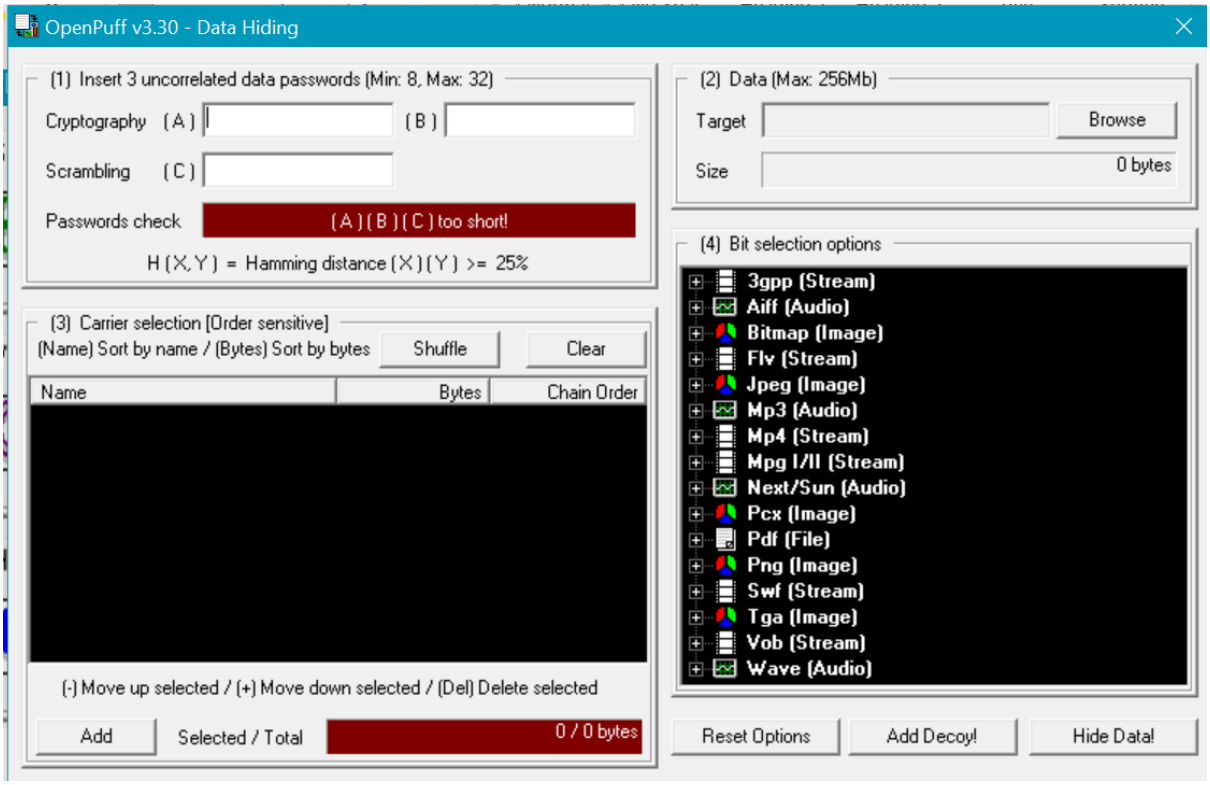
OPENPUFF:

- OpenPuff is a prevailing data hiding application made easy, safe and free that allows you to hide data into encrypted files in order to send it to other users

- This application aims to protect both secret messages and the persons who are exchanging messages.

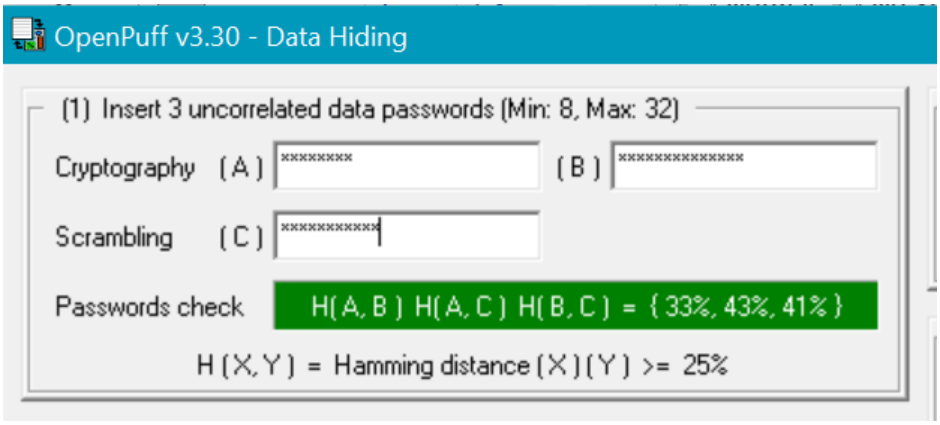


MAIN SCREEN OF OPENPUFF



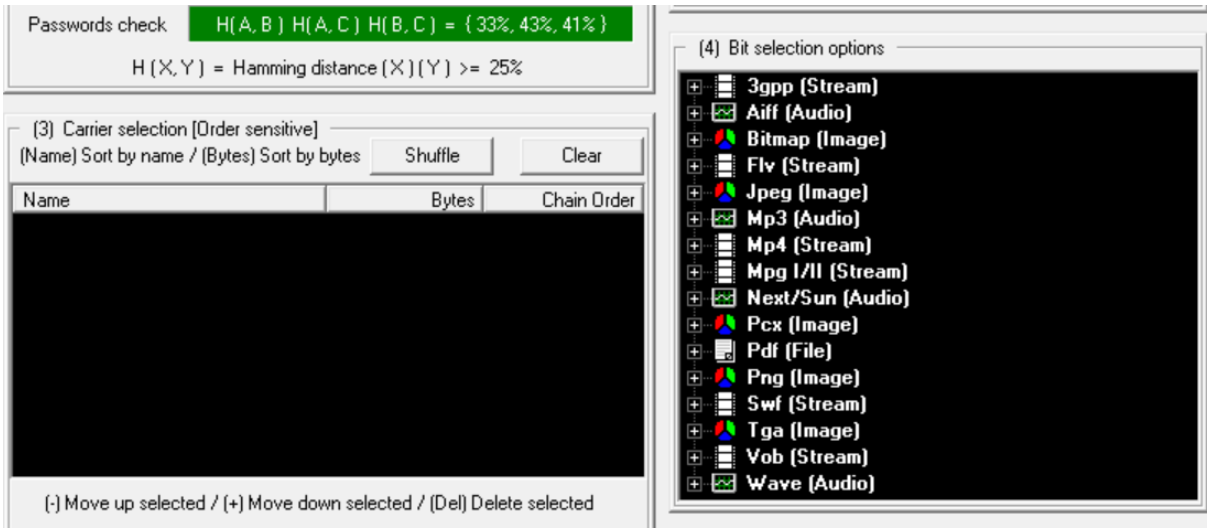
DATA HIDING SECTION

- Firstly, in section-1, insert 3 uncorrelated passwords.
- Password check panel will turn to green if Hamming Distance(X)(Y) is greater than 25%.



- Password panel turns green, which indicates that 3 passwords are uncorrelated

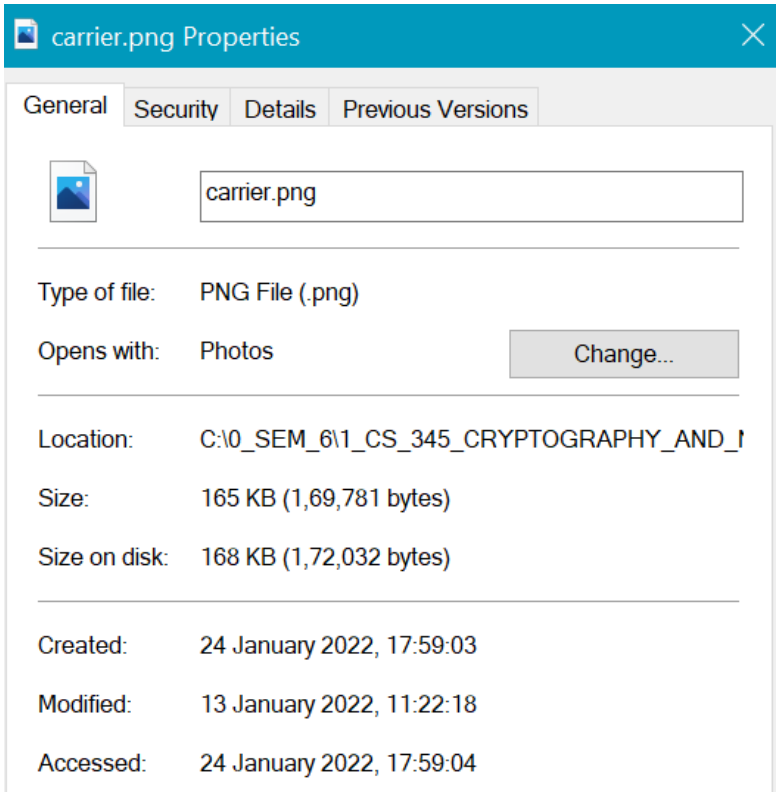
- In Section-2, you will need to upload the data that is to be hidden.



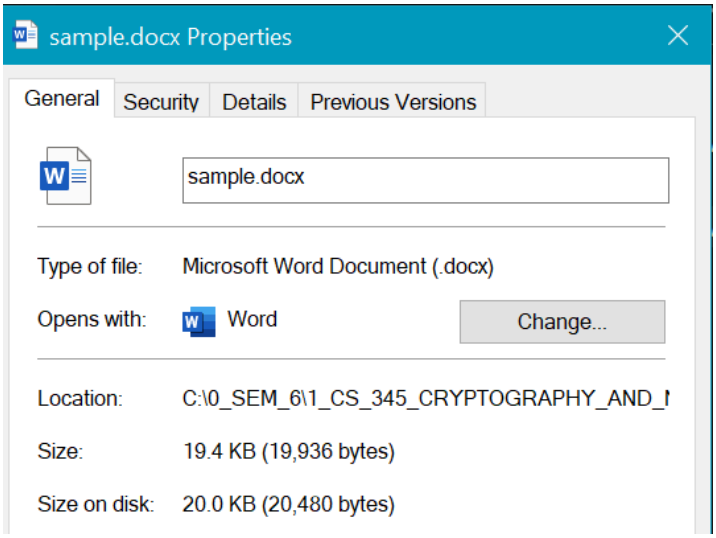
- In Section-3 and 4, you need to select and upload the carrier in which the message will be hidden.

DATA HIDING:

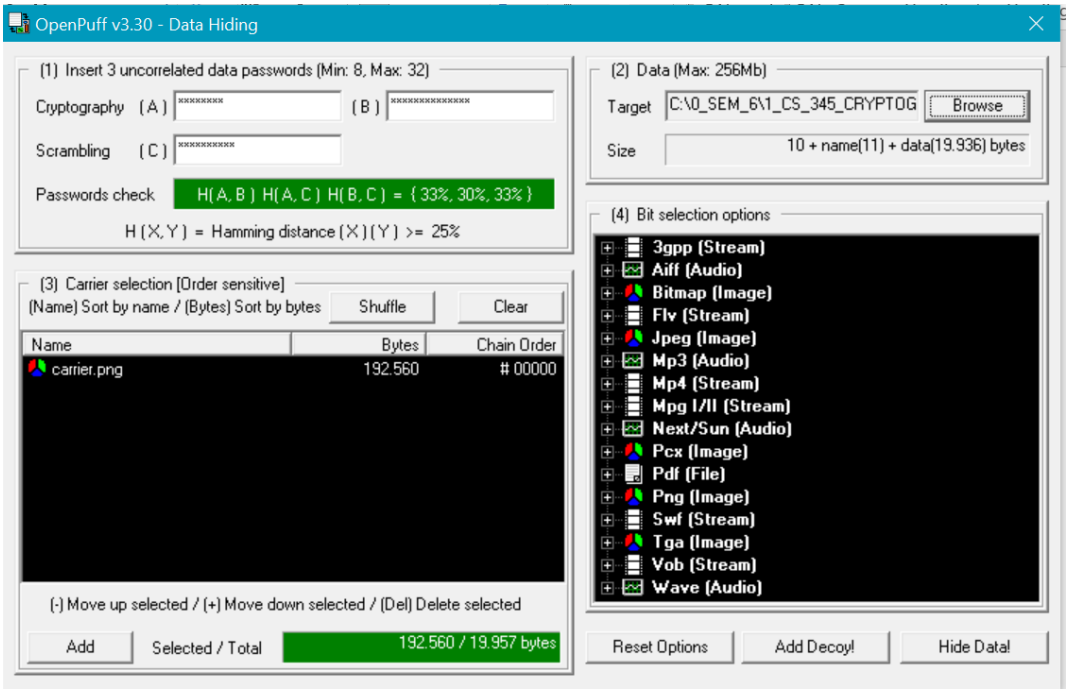
- We will hide a word file named sample.docx with the carrier of the format .png named carrier.png.



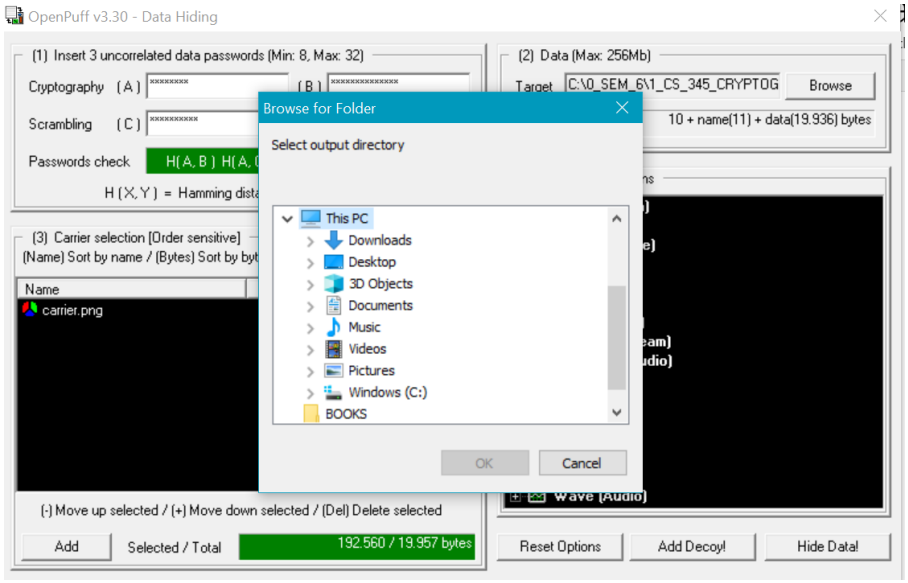
SIZE OF CARRIER.PNG



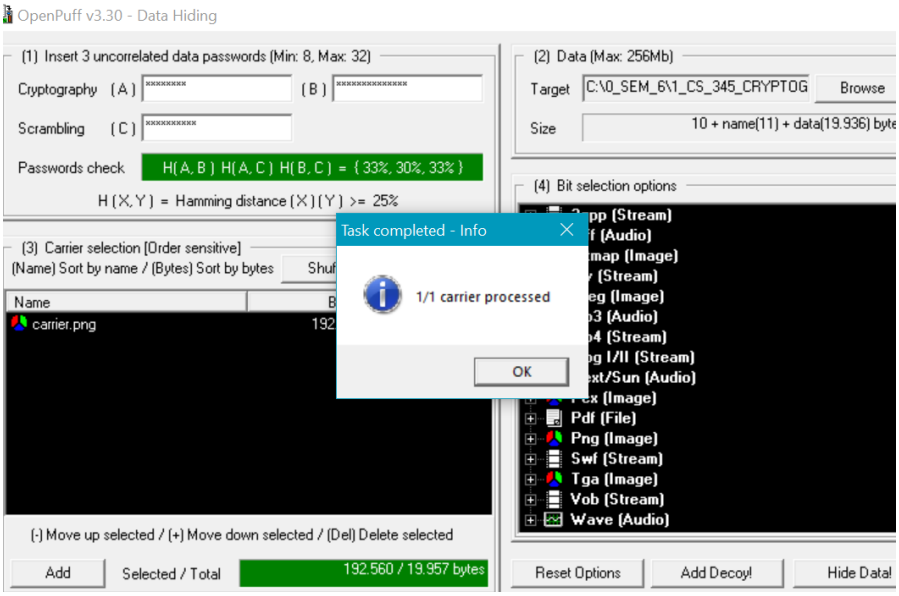
SIZE OF SAMPLE.DOCX



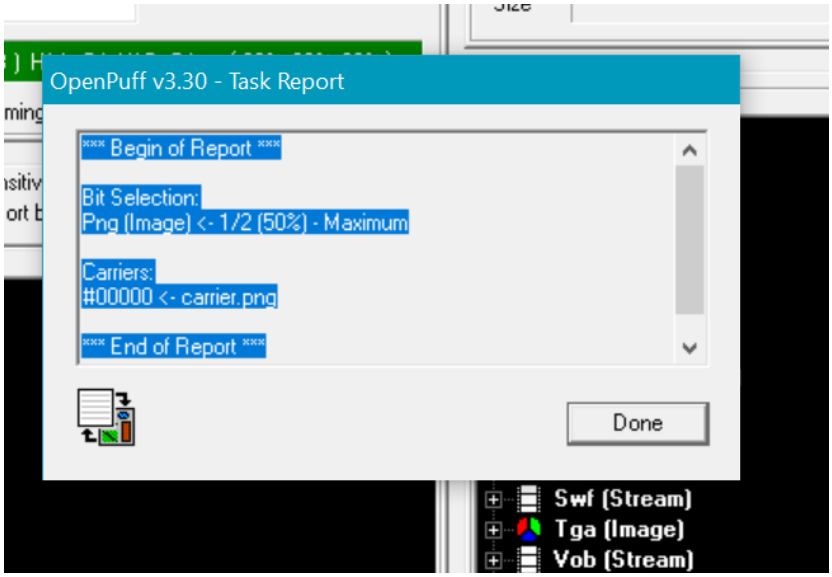
- As you can see in the above image, the carrier.png is uploaded in the Carrier Selection panel and sample.docx is uploaded in the Data Selection panel.
- We have used PNG image as carrier.



- If no error occurs, then, destination selection window will be prompted

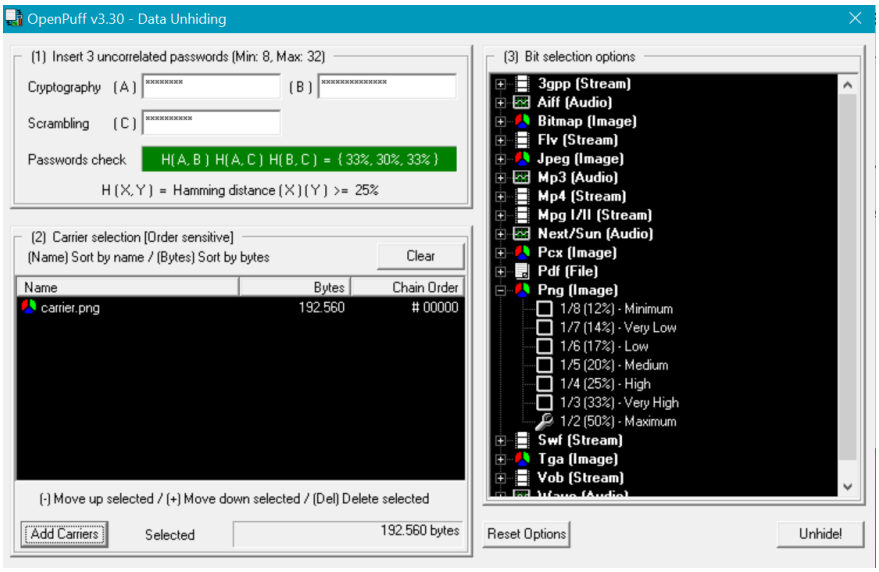


- Upon success, message will be displayed.

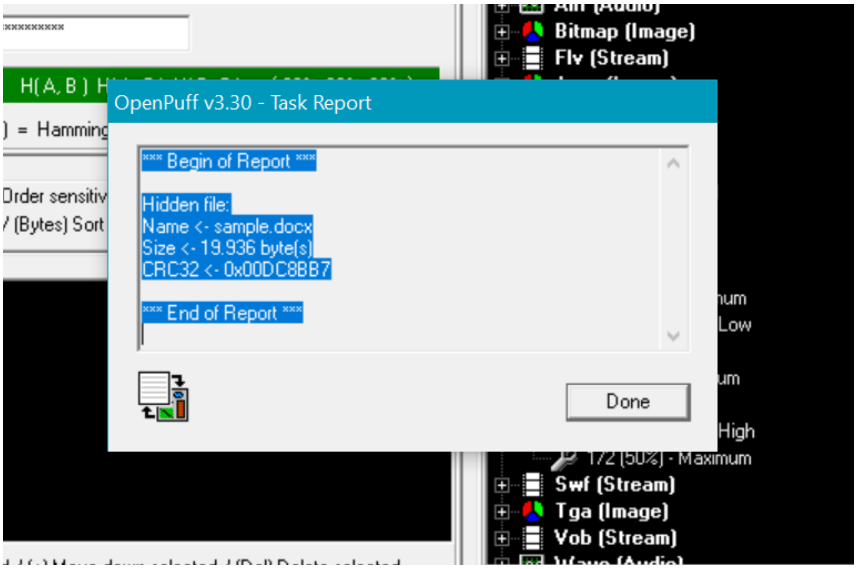


DATA UNHIDING:

- For data unhiding, we need to use the same passwords in the same order.
- All the other steps are same, we just need to unhide the image.



- In the unhiding section, we just need to enter the correct 3 passwords and upload the carrier that we intend to unhide.



- Unhiding successful

USING CMD:

- Open command prompt
- Enter the directory where you have your files.

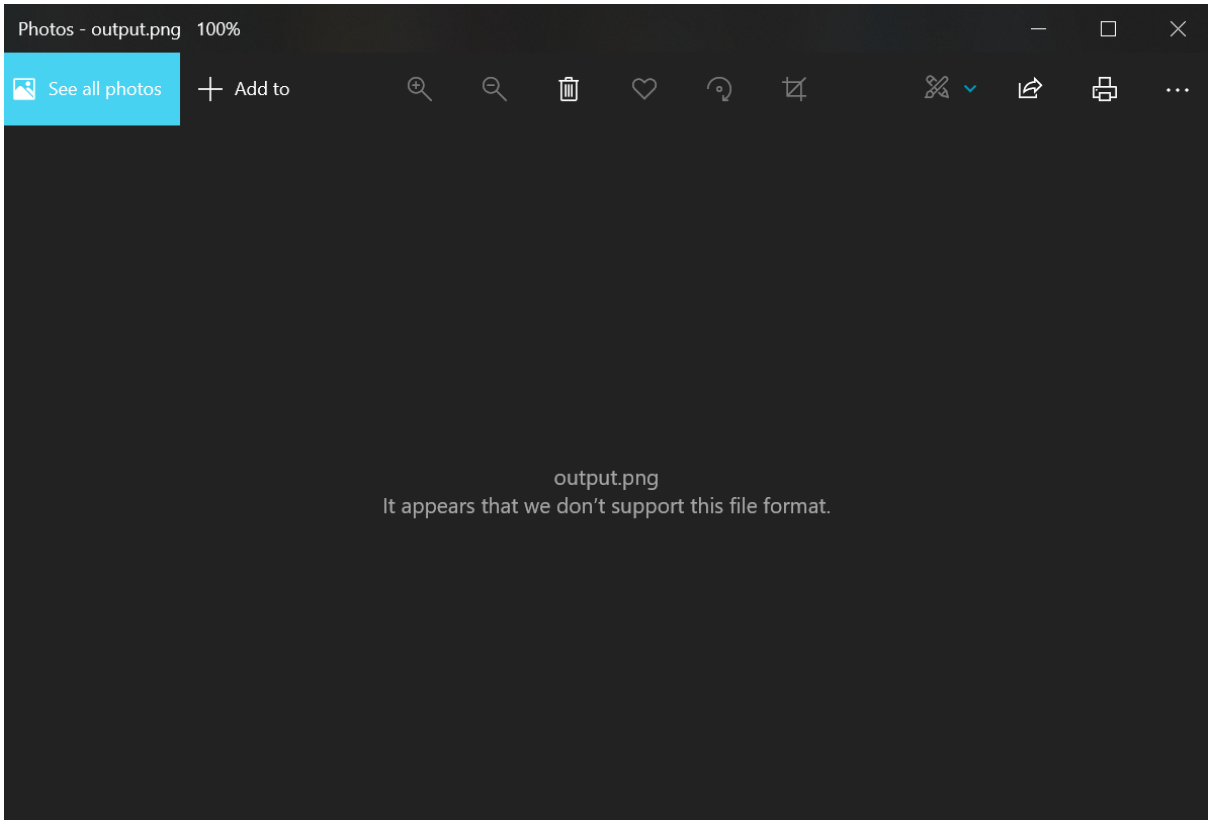
```
Microsoft Windows [Version 10.0.19043.1466]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Parth Patel>cd C:\0_SEM_6\1_CS_345_CRYPTOGRAPHY_AND_NETWORK_SECURITY\1_PRACTICALS\CRNS_PRACTICAL_5

C:\0_SEM_6\1_CS_345_CRYPTOGRAPHY_AND_NETWORK_SECURITY\1_PRACTICALS\CRNS_PRACTICAL_5>
```

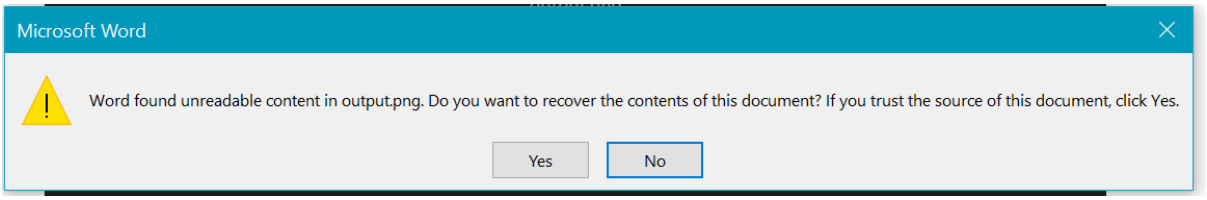
- Enter the following command to get the file with hidden data

```
C:\0_SEM_6\1_CS_345_CRYPTOGRAPHY_AND_NETWORK_SECURITY\1_PRACTICALS\CRNS_PRACTICAL_5>copy /b sample.docx + carrier.png output.png
sample.docx
carrier.png
        1 file(s) copied.
```



- On opening the output.png file, error is shown because it appears to be a .png file but in reality has the hidden text.

- To unhide the data, we just need to open the file with notepad or notepad++ or word



- Message displayed and upon clicking yes, you will get the real data.

CONCLUSION:

By performing the above practical, I learned about the basics of Steganography and how to do data hiding and data unhiding using OPENPUFF and CMD.