

ASSIGNMENT NO: 05

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Problem Statement:

Write a program for identifying tampering in either image or voice data. Use big data as input.

Objectives:

1. To study hash functions.

Theory:

SHA, (Secure Hash Algorithms) are set of cryptographic hash functions defined by the language to

be used for various applications such as password security etc. Some variants of it are supported by

Python in the “hashlib” library.

The available algorithms are : sha256, sha384, sha224, sha512, sha1, md5. To proceed with, let's first discuss the functions going to be used in this article.

Functions associated:

- encode() : Converts the string into bytes to be acceptable by hash function.
- hexdigest() : Returns the encoded data in hexadecimal format.

Code:

```
import hashlib
```

```
from PIL import Image
```

```
def compareImage(filename1,filename2):  
    md5hash = hashlib.md5(filename1)  
    image1 = md5hash.hexdigest()
```

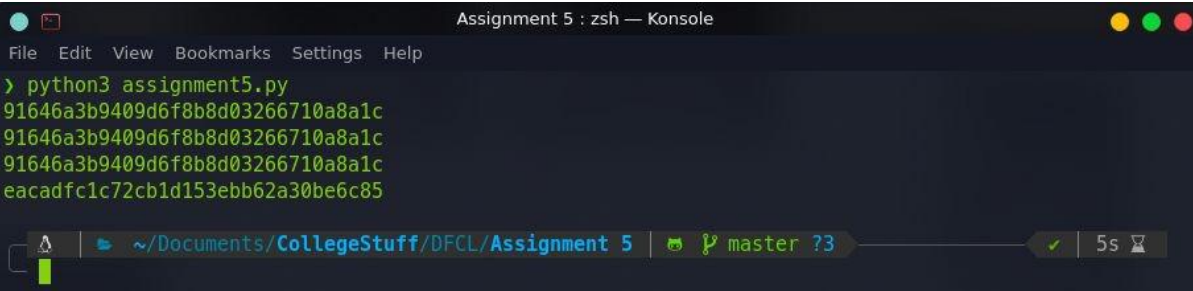
```
md5hash = hashlib.md5(filename2)
image2 = md5hash.hexdigest()
```

```
if(image1 == image2):  
    print(image1)  
    print(image2)  
    return ("Image Not Tampered")  
else:  
    print(image1)  
    print(image2)  
    return("Image is Tampered")
```

```
filename1=Image.open(r'1st.png').tobytes()  
filename2=Image.open(r'1st_tamp.png').tobytes()  
compareImage(filename1,filename2)
```

```
filename1=Image.open(r'1st.png').tobytes()  
filename3=Image.open(r'1st_tamp2.png').tobytes()  
compareImage(filename1,filename3)
```

Output:



```
Assignment 5 : zsh — Konsole  
File Edit View Bookmarks Settings Help  
> python3 assignment5.py  
91646a3b9409d6f8b8d03266710a8a1c  
91646a3b9409d6f8b8d03266710a8a1c  
91646a3b9409d6f8b8d03266710a8a1c  
eacadfc1c72cb1d153ebb62a30be6c85  
~/Documents/CollegeStuff/DFCL/Assignment 5 | master ?3 | 5s
```

Platform: Ubuntu 20.04

Programming Language Used: Python.

Conclusion: Hence, learned to use the hashlib library and check data tampering through it.