

In [1]:

```
# MAC AUTHENTICATION CODE IN PYTHON
```

```
import hashlib, hmac, binascii
```

```
mac = hmac.new(b'key', b'some msg', hashlib.sha256).digest()
```

```
print(binascii.hexlify(mac))
```

```
b'32885b49c8a1009e6d66662f8462e7dd5df769a7b725d1d546574e6d5d6e76ad'
```

In [2]:

```
#SECURE HASH ALGORITHM
```

```
import hashlib
```

```
# initializing string
```

```
str = "Mohamed Amin"
```

```
# encoding GeeksforGeeks using encode()
```

```
# then sending to SHA256()
```

```
result = hashlib.sha256(str.encode())
```

```
# printing the equivalent hexadecimal value.
```

```
print("The hexadecimal equivalent of SHA256 is : ")
```

```
print(result.hexdigest())
```

```
print ("\r")
```

```
# initializing string
```

```
str = "Mohamed Amin"
```

```
# encoding GeeksforGeeks using encode()
```

```
# then sending to SHA384()
```

```
result = hashlib.sha384(str.encode())
```

```
# printing the equivalent hexadecimal value.
```

```
print("The hexadecimal equivalent of SHA384 is : ")
```

```
print(result.hexdigest())
```

```
print ("\r")
```

```
# initializing string
```

```
str = "Mohamed Amin"
```

```
# encoding GeeksforGeeks using encode()
```

```
# then sending to SHA224()
```

```
result = hashlib.sha224(str.encode())
```

```
# printing the equivalent hexadecimal value.
```

```
print("The hexadecimal equivalent of SHA224 is : ")
```

```
print(result.hexdigest())
```

```
print ("\r")
```

```
# initializing string
```

```
str = "Mohamed Amin"
```

```
# encoding GeeksforGeeks using encode()
```

```
# then sending to SHA512()
```

```
result = hashlib.sha512(str.encode())
```

```
# printing the equivalent hexadecimal value.
```

```
print("The hexadecimal equivalent of SHA512 is : ")
```

```
print(result.hexdigest())
```

```
print ("\r")
```

```
# initializing string
```

```
str = "Mohamed Amin"
```

```
# encoding GeeksforGeeks using encode()
# then sending to SHA1()
result = hashlib.sha1(str.encode())

# printing the equivalent hexadecimal value.
print("The hexadecimal equivalent of SHA1 is : ")
print(result.hexdigest())
```

The hexadecimal equivalent of SHA256 is :
132518bf532fda47c67a7320ee334c6c2ab808038fbdfcd93f0b3a971a2542d1

The hexadecimal equivalent of SHA384 is :
99d3b3207db822a8e43b90f3c15ac4389d6a96dde4c56bc817df828dd6ed0930aeb73e
ed71324c709da46d401eaa6c91

The hexadecimal equivalent of SHA224 is :
c0ab5bcb32efe2113bdf998634099ee81fff2e0bde80d0498c860731

The hexadecimal equivalent of SHA512 is :
fbcde751e0953a7d0e33fce5fcc66cb2d32e44a55cf75dfbc1bcffcf3e8db6d647cbec
95d4050bd91b044ea122dc5237bbbed7e0e33f1cad4f11662d21f76218b

The hexadecimal equivalent of SHA1 is :
7de9d1cf15c87156bc35b9ce1529bb3c3ab643b0

In []: