SKILL 3

[CS601] – Cryptography and Blockchain

Date – 01/02/2023 | *By* Aishwarya Suryakant Waghmare, PRN – 2001106059

Title :

SHA256 Implementation using the python code.

Skills/Competencies to be acquired :

- Making use of python code to implement the code.
- Making use of the logic of the SHA256 algorithm.

Time taken to complete the activity :

One Hour

Purpose of the activity :

To implement the SHA256 implementation algorithm by making use of the python code.

Steps performed in this activity :

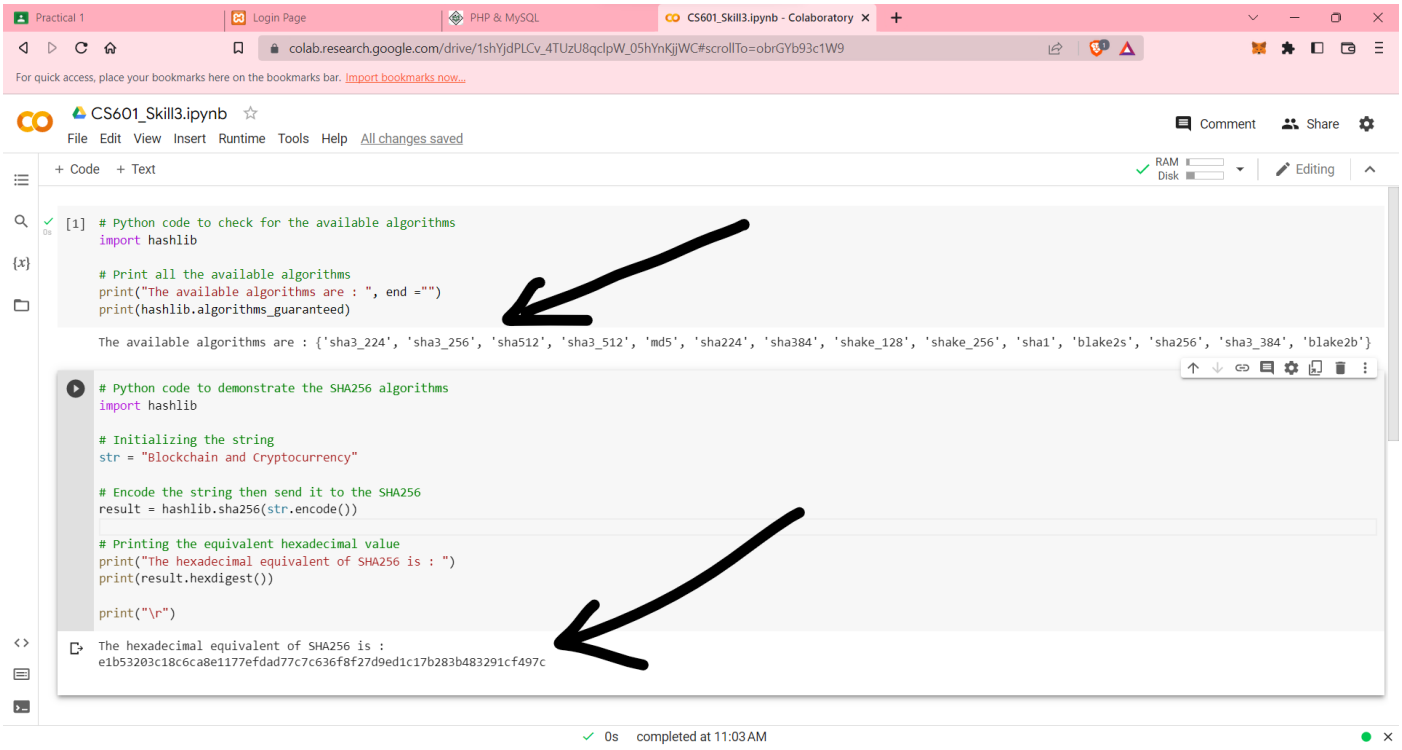
Code written for the SHA256 implementation is as follows :

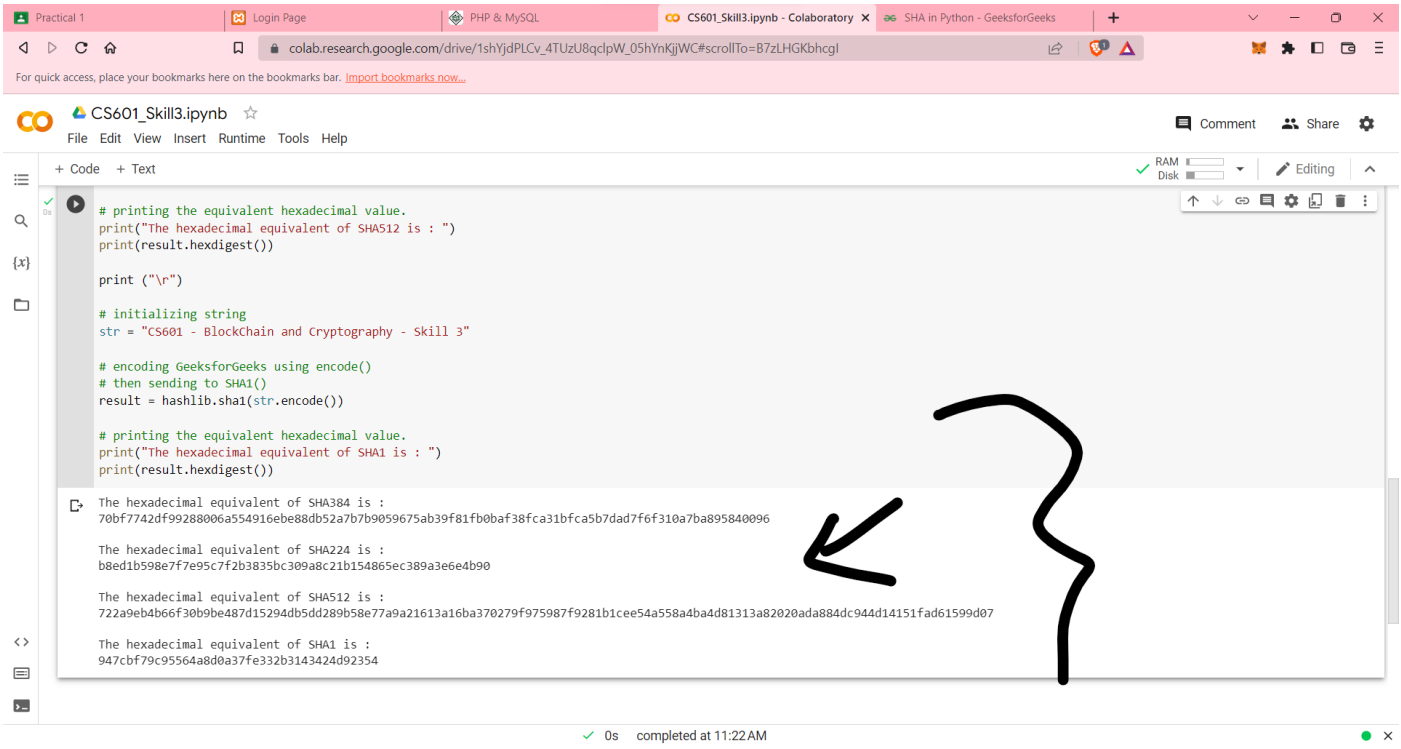
```
# Python code to check for the available algorithms
import hashlib

# Print all the available algorithms
print("The available algorithms are : ", end ="")
print(hashlib.algorithms_guaranteed)

# Python code to demonstrate the SHA256 algorithms
import hashlib

# Initializing the string
str = "Blockchain and Cryptocurrency"

# Encode the string then send it to the 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 = "Skill Assignment"

# 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 = "SHA256 Implementation"

# 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 = "Aishwarya Waghmare"

# 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 = "CS601 - BlockChain and Cryptography - Skill 3"

# 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())
```

Output/ Presentation prepared :





Resources/ tools used for the skill activity :

- Laptop
- Google Colab
- Lecture Notes
- E-References
- E-books.

Skills/ Competencies acquired and Result/ Conclusion :

Therefore, understood and implemented the SHA256 algorithm by making use of the python code.