



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities...*

School: Campus:

Academic Year: Subject Name: Subject Code:

Semester: Program: Branch: Specialization:

Date:

Applied and Action Learning

(Learning by Doing and Discovery)

Name of the Experiment : SHA-256 in Action – Cryptographic Hashing

* Coding Phase: Pseudo Code / Flow Chart / Algorithm

ALGORITHM:

- 1.Start
- 2.Open brave browser and search for any SHA-256 online tool link
- 3.Type your message in the input box.
- 4.Tool will automatically generate hash for your message.
- 5.Observe the generated 256-bit hash
- 6.Change the input slightly and observe the change in the hash
- 7.End

* Software used

- 1.Brave browser
- 2.SHA-256 online tool link
<https://emn178.github.io/online-tools/sha256.html>

* Implementation Phase: Final Output (no error)

Search for any SHA-256 online tool link in your brave browser. This tool helps generate SHA-256 hashes instantly.

Type your message in the input box provided on the webpage.

Now the tool will process the input and will automatically generate a SHA-256 hash.

Now do some modifications in the input and observe that a small change in the input can cause a drastic change in the hash.

* Implementation Phase: Final Output (no error)

Changes done for better output

Settings

Hash

☒ Auto Update

☒ Remember Input

Input Encoding

UTF-8

Output Encoding

Hex (Lower Case)

☒ Enable HMAC

HMAC ^

Encoding

UTF-8

 Key

Now try by changing the output encoding from hex(lower case) to hex(upper case), now the hash generated will be in in upper case.

SHA256

This SHA256 online tool helps you calculate hashes from strings. You can input UTF-8, UTF-16, Hex, Base64, or other encodings. It also supports HMAC.

Settings

Hash

☒ Auto Update

☒ Remember Input

Input Encoding

UTF-8

Output Encoding

Hex (Upper Case)

☒ Enable HMAC

HMAC ^

Encoding

UTF-8

 Key

Input

Dibya

Output

6449A4897EB6A265C252128EFF35FAD9DE3A5F56E1B3C0B33972D504ADCA210C

* Implementation Phase: Final Output (no error)

Applied and Action Learning

If we want some privacy then we have to enable HMAC and write a key to keep the hash secure.

SHA256

This SHA256 online tool helps you calculate hashes from strings. You can input UTF-8, UTF-16, Hex, Base64, or other encodings. It also supports HMAC.

Settings

Hash

☒ Auto Update

☒ Remember Input

Input Encoding

UTF-8

Output Encoding

Hex (Upper Case)

☒ Enable HMAC

HMAC

Encoding

UTF-8

Key

Chiky

Input

Dibyadisha Sahoo

Output

0CE1D7EE59A8F24AA415226FFFCF90C9F10BB7728512F142B6ECD6FFD5653F82

* Observations

- 1.The SHA-256 hashing process successfully generated a fixed 256-bit hash output for any given input, ensuring data integrity.
- 2.Even a small change in the input drastically altered the hash value, demonstrating the avalanche effect.

ASSESSMENT

Rubrics	Full Mark	Marks Obtained	Remarks
Concept	10		
Planning and Execution/ Practical Simulation/ Programming	10		
Result and Interpretation	10		
Record of Applied and Action Learning	10		
Viva	10		
Total	50		

Signature of the Student:

Name :

Regn. No. :

Signature of the Faculty:

Page No.....

*** As applicable according to the experiment.
Two sheets per experiment (10-20) to be used.**