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 Experiement : SHA-256 in Action – Cryptographic Hashing

Coding Phase : Pseudo Code/Flow Chart/Algorithm

- Begin program execution
- Prompt user for a text input
- Apply SHA-256 hash function to the input
- Output the resulting hash value
- Modify the original input slightly (e.g., add a space or change a character)
- Reapply SHA-256 to the new message
- Show the new hash and highlight the difference
- Terminate the program

Apparatus/Software Used:

- Online SHA-256 Tool
- Brave browser
- Internet Connection

Testing Phase:

Test case1:

Input :- suchismita

Hex : 2b1eb9b440bb8a30d41bc257e534581a9edd5aa194e6529cddab56051f

Test case 2:

Input : sneha

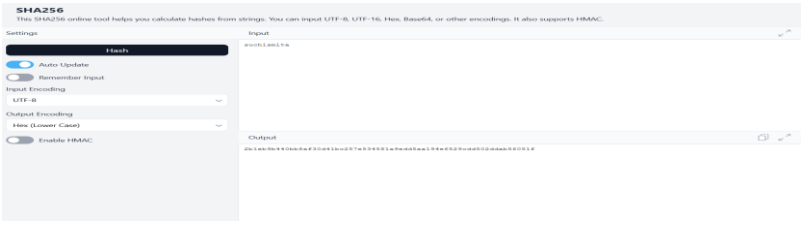
Hex : d743dbca8fb5f00186bf3d8a678d686c27ba4f5a7014e55404a6ac9886bee937

Implementation Phase: Final Output (no error):

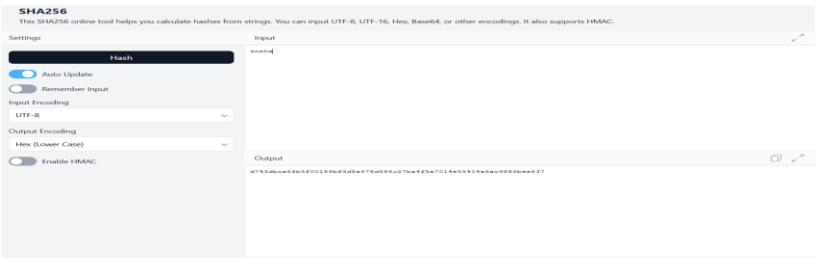
Using Online Tool

• Open SHA-256 Tool: https://emn178.github.io/online-tools/sha256.html
• Type any message
• Output hash is shown immediately

Test case 1:



Test case 2:



Observations:

- SHA-256 turns any message into a long fixed code made of letters and numbers.
- Changing even one letter in the message creates a completely different code
- . You can't turn the code back into the original message – it's one-way
- The same message always gives the same hash code every time.
- It's used to keep data safe in passwords, digital files, and blockchain

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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:

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