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

- Start the program or open the hash tool
- Input a string or message
- Use the SHA-256 algorithm to convert the message into a hash
- Display the hash
- Change the input message slightly
- Hash again and compare with the previous hash
- End

Apparatus/Software Used:

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

Testing Phase:

Test case1:

Input :- abinash here

Hex : d85813d9a17ef02ab72467fe5007b55b79c8ecd5fe9b2f5229eb8c17c2ef35c5

Test case 2:

Input : Gudu is Great

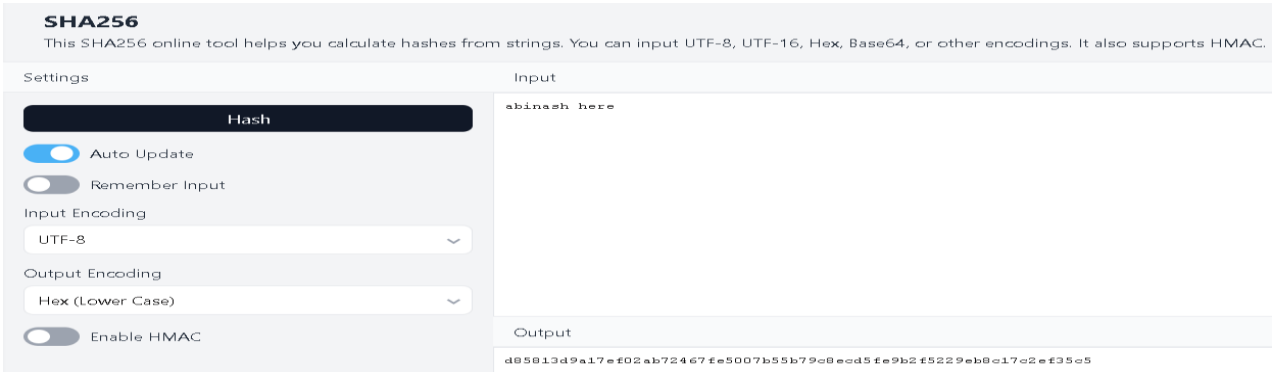
Hex : 34332ee91752b1433b6b1ef2a96b5b4458994c715ad7bfdc649756d80ff9ff26

Implementation Phase: Final Output (no error)

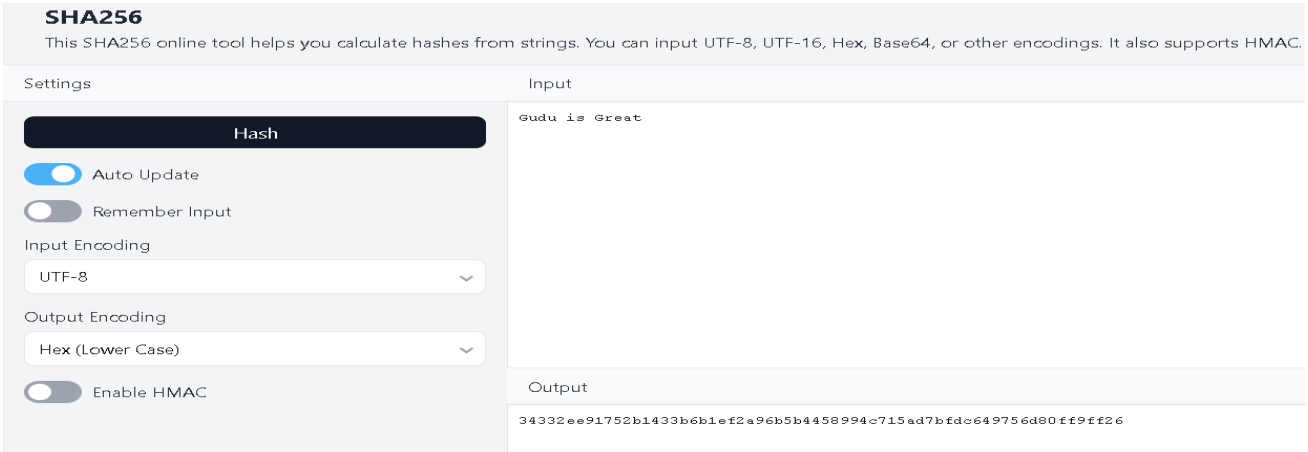
Using Online Tool

• 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 always gives a **fixed 64-character** hash.
- A **minor change** in input gives a **completely different** output.
- It is a **one-way function** — original data **can't be reversed**.
- Commonly used in **blockchains**, **digital signatures**, **file verification**, and **password storage**.
- **Highly secure**, fast, and deterministic

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.