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**

  ↓
- Input Message

  ↓
- Preprocess (Padding and Splitting into Blocks)

  ↓
- Initialize Hash Values

  ↓
- Process Each Block with SHA-256 Rounds

  ↓
- Combine Final Hash Values

  ↓
- Output 256-bit Hash

  ↓
- **End**

Apparatus/Software Used:

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

Testing Phase:

Test case1:

Input :-hii...I am Pragnya Pralipta

Hase: 588dfbad6bcdcbd75a6bd431dd216f688943a15b0ff683a5ff3211a5e6c15d80

Test case 2:

Input : Hellow...I am Pragnya Pralipta

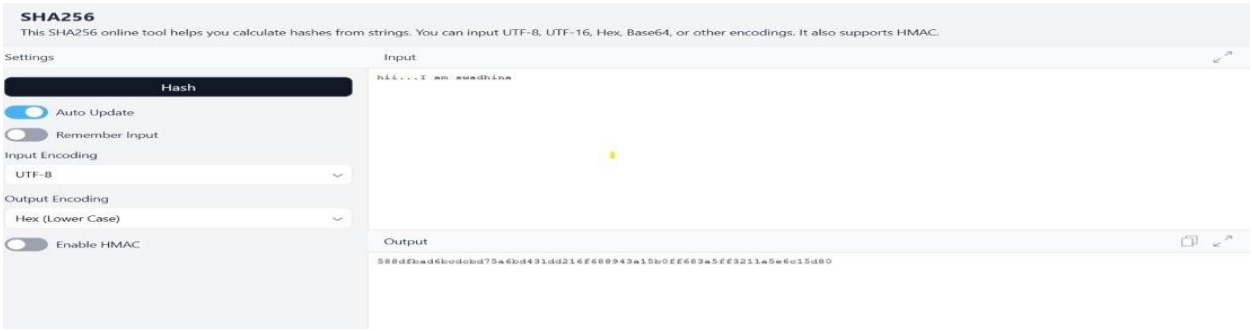
Hase : 099e9929306037759df60ab76d97762aabd28f3a7d3871557631837200fb2d44

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

- Each input text produces a unique 256-bit hash value.
- Even a single character change in the input causes a completely different hash.
- Identical inputs always generate the same hash value.
- The hashing process is one-way — original data cannot be retrieved from the hash.

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.