Centurion University
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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

Objective/Aim:

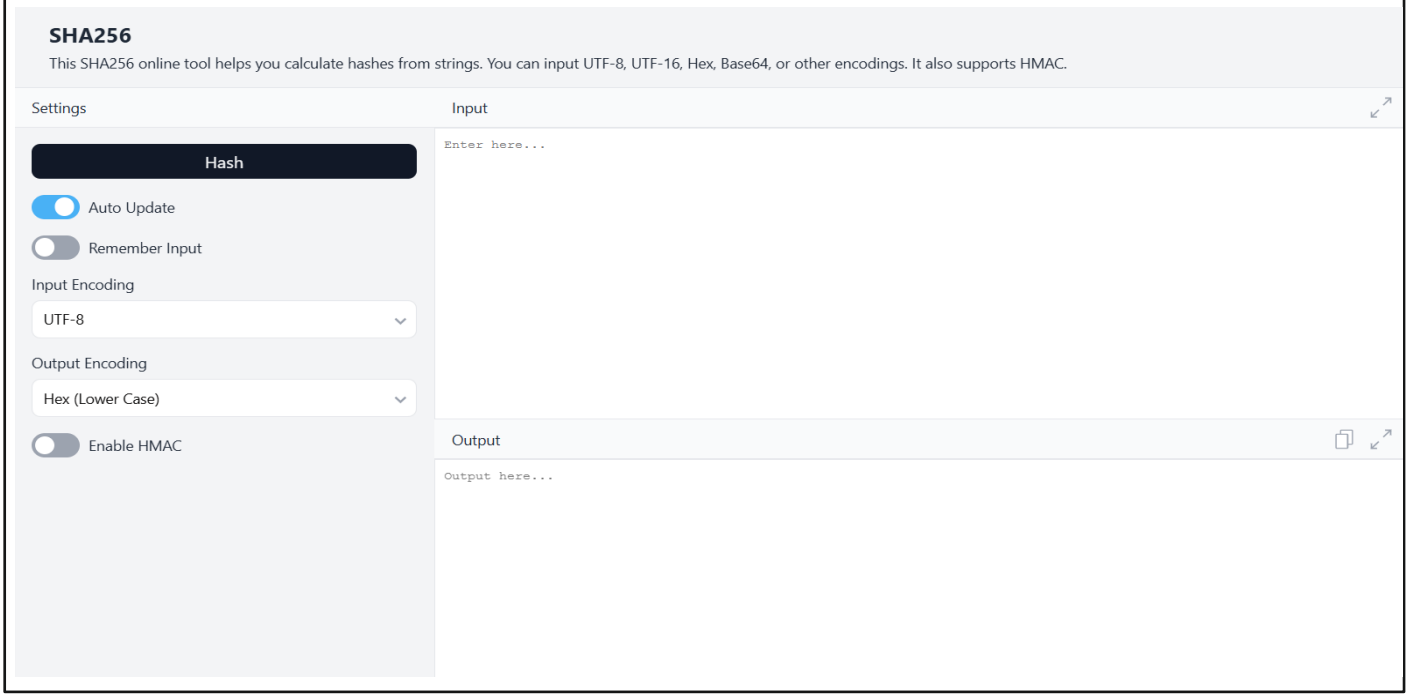
- To understand the working of the **SHA-256 hashing algorithm**.
- To observe how the same input always produces the same hash and even a small change in input creates a completely different hash.

Apparatus/Software Used:

- Laptop/PC
- Brave browser
- Online SHA-256 hashing tool (e.g., https://emn178.github.io/online-tools/sha256.html)
- Text editor for input testing

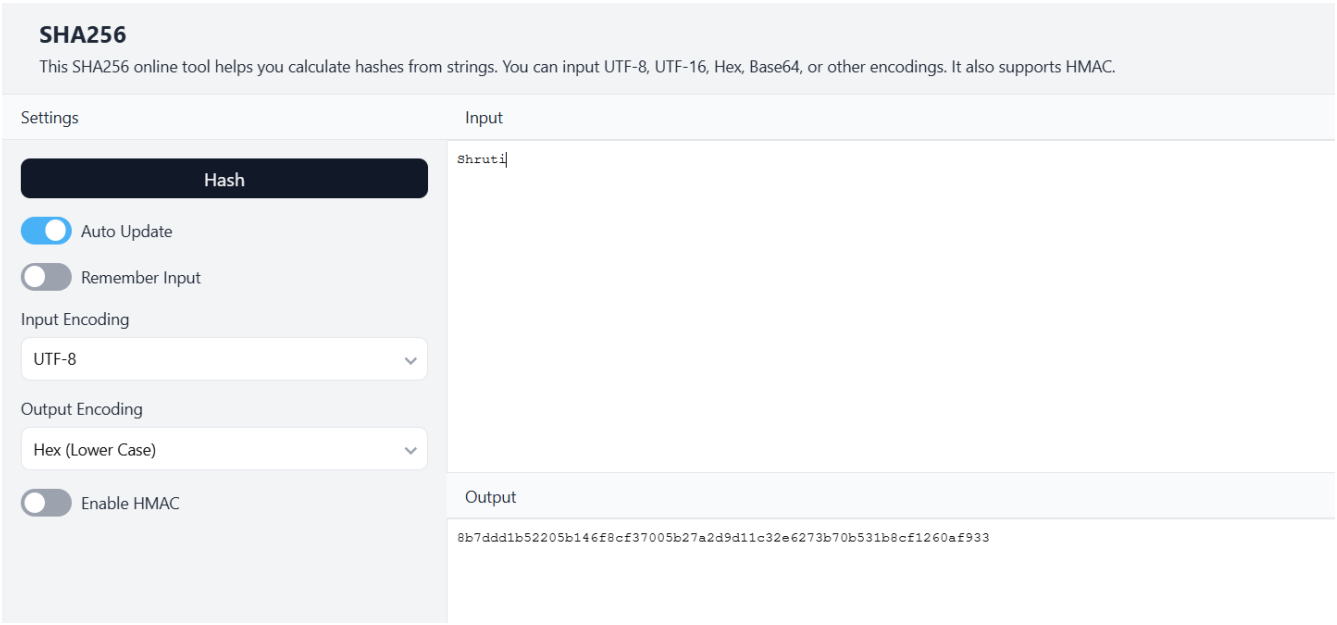
Procedure:

1. Open an online SHA-256 hashing tool.

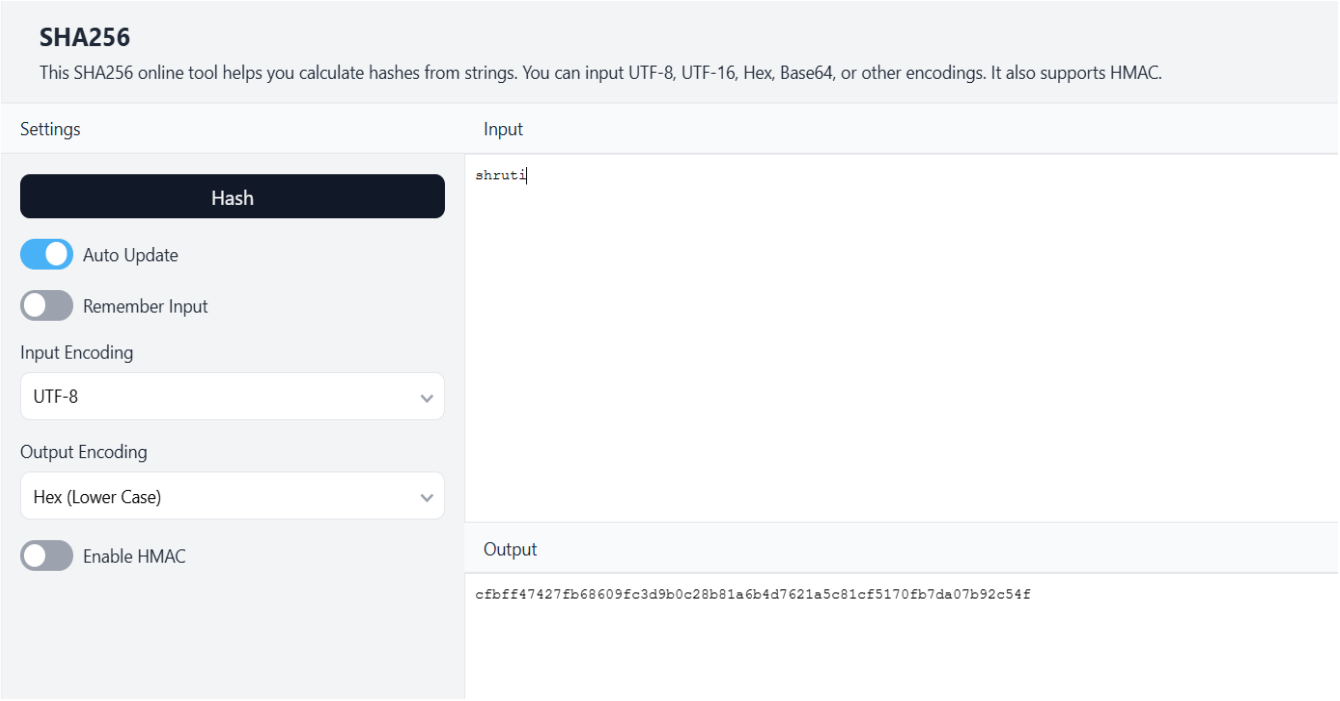


Procedure:

2.Now enter a sample text, e.g. Shruti, it will generate a SHA-256 hash of that text.



3. If we change a simple letter or any thing in the input section it will create a new hash of that changed string , this is because of the avalanche effect.



Observation:

- SHA-256 produces a **unique fixed-length hash** for any input.
- Even a **tiny change** in input creates a totally different hash (avalanche effect).
- It ensures **data integrity, security, and immutability** in blockchain systems.

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 :

Signature of the Faculty:

Regn. No. :

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