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**
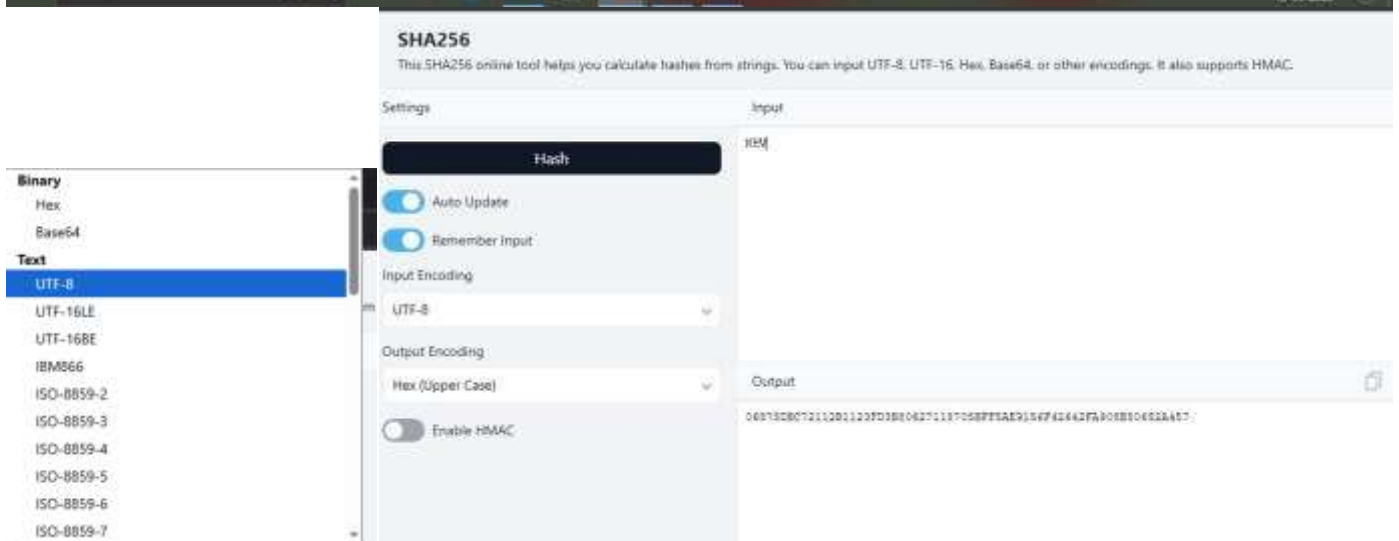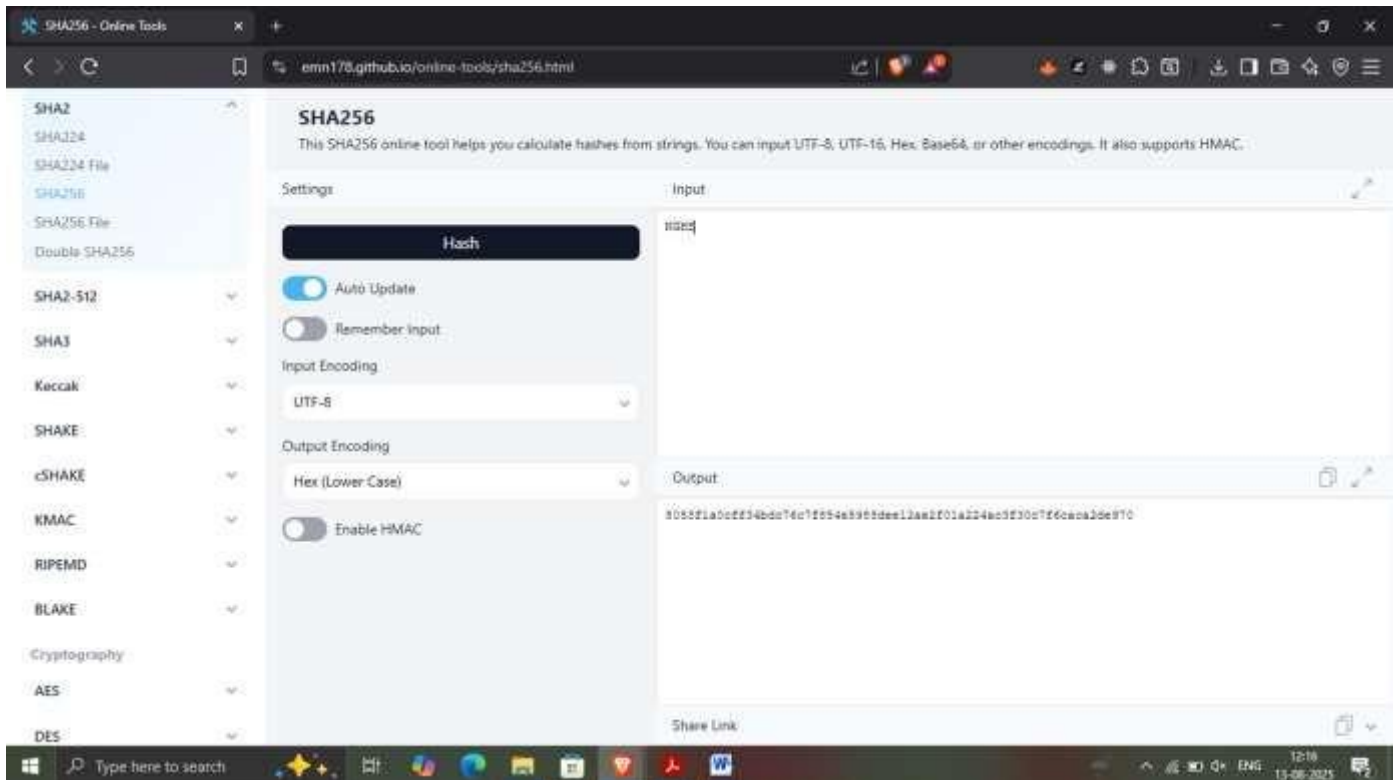
* Coding Phase: Pseudo Code / Flow Chart / Algorithm

☐ Enter any desired text or message in the input box.

☐ The tool automatically generates the corresponding SHA-256 hash.

☐ View the resulting 256-bit (64-character) hexadecimal hash output.

☐ Slightly modify the input and observe the drastic change in the hash (avalanche effect).

☐ Recognize that the hash is unique to the input and cannot be reversed.

* Software used

1. Web Browser ‒ Brave
2. Online Tool ‒ SHA-256 Hash Generator : https://emn178.github.io/online-tools/sha256.html

* Implementation Phase: Final Output (no error)

☐ **Input Data**: Type or paste your string into the **Input** box.

☐ **Configure Settings**:

☐ **Input Encoding**: Keep it as **UTF-8** unless you know your data is in a different format.
☐ **Output Encoding**: Select **Hex (Lower Case)** or **Hex (Upper Case)**.

☐ **View Output**: The **SHA256 hash** will appear automatically in the **Output** box.

* Page No.........
according to the experiment.
per experiment (10-20) to be used.

* Implementation Phase: Final Output (no error)

*
according to the experiment.
per experiment (10-20) to be used.

*Observations:

☐ Each input consistently produced a unique, fixed-length SHA-256 hash.

☐ Minor input changes caused significant differences in the hash (avalanche effect).

☐ The tool supports various input/output encodings and allows HMAC for additional security.

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. :

*   Page No............
according to the experiment.
per experiment (10-20) to be used.