



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities...*

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 Experiment : Hash Your First Block – Blockchain Basics and Setup

* Coding Phase: Pseudo Code / Flow Chart / Algorithm

ALGORITHM:

- 1.Start
- 2.Search for blockchain simulator on brave browser
- 3.Enter the block details like data in block 1 where the nonce is auto-generated after mining
- 4.After entering the data, click the mine button
5. The simulator repeatedly changed the nonce until it found a hash starting with a required pattern
6. Observe the output this hash is a unique fingerprint of the block's data, block number, nonce, and other metadata.
7. Changing any part of the data resulted in a completely different hash, proving the avalanche effect of hashing.
- 8.End

* Software used

Brave browser

* Testing Phase: Compilation of Code (error detection)

Open blockchain simulator

Experiment by changing any part of data

Blockchain

Block: # 2

Nonce: 121990

Data: Blockchain

Prev: 000015273c5420198ee9fe3cc88dbacf9e4fd5e4f97bdf9b903

Hash: 0000e5bb4c2023817933682381a5f6f8f8d8f33bceff340b477

Mine

Block: # 3

Nonce: 51565

Data: Ethereum

Prev: 0000e5bb4c2023817933682381a5f6f8f8d8f33bceff340b477

Hash: 00000f3a4f6bac40c71e5ab20fb5e5fb0f3aa2cf049f576de66

Mine

* Implementation Phase: Final Output (no error)

Applied and Action Learning

Enter block details and mine till last block

Blockchain

Block: # 1

Nonce: 11316

Data: Blockchain

Prev: 00

Hash: 1e6669c4a8d12626085cc260619a1ad52ccf43c80b3d689d2e8

Mine

Block: # 2

Nonce: 35230

Data: Bitcoin

Prev: 1e6669c4a8d12626085cc260619a1ad52ccf43c80b3d689d2e8

Hash: a41f74ee1b79bcde0148542fde2059f92eb1b653b01b2daa98e

Mine

Blockchain

Block: # 3

Nonce: 12937

Data: Ethereum

Prev: a41f74ee1b79bcde0148542fde2059f92eb1b653b01b2daa98e

Hash: 4382efe3ad6f815645838ed36690ef01a8d359f38dd482b930

Mine

Block: # 4

Nonce: 35990

Data: Solidity

Prev: 4382efe3ad6f815645838ed36690ef01a8d359f38dd482b930

Hash: 3a0e3c4415c7fc6cac22fc554dca1390f2e2912348de4f3b44e

Mine

Block: # 5

Nonce: 56265

Data: Rust

Prev: 3a0e3c4415c7fc6cac22fc554dca1390f2e2912348de4f3b44e

Hash: a66afa3beb7c702f59efd8568e1a9b0838dd8613ede18e78bc4

Mine

* Observations

- 1.The hash changes drastically even with a small change in data.
- 2.Mining is essentially trial and error to find a nonce that produces a valid hash.
- 3.This process ensures data integrity and prevents tampering in blockchain.

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:

Page No.....

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