



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 Basis and Setup

### Objective/Aim:

To understand the fundamental concepts of blockchain technology by learning how blocks are structured, how hashing secures block data, and to practically set up and hash your first block.

### Apparatus/Software Used:

- Personal Computer/ Laptop
- Code Editor like VS Code
- Node.js Install on your Computer/Laptop

### Theory/Concept:

A blockchain is a decentralized, distributed digital ledger that stores data in blocks linked using cryptographic hashes.

Each block contains:

Data: (e.g., transactions or messages)

Previous Hash: The hash of the previous block, linking it to the chain

Current Hash: The hash generated from the current block's data

Hashing your first block will help you understand how security, transparency, and trust are maintained in a blockchain through hashes.

A hash is a unique, fixed-size alphanumeric string generated from input data using a hash function.

## Procedure

Open the code editor like VS Code

Create a sample block containing:

Data: First Block Chain Block.

Previous Hash: 0 is the previous hash code.

Go to the Blockchain Goup in WhatsApp, Sir sending a link that is already created a block click the link and your blockchain is storing is here.

Before Mining the Hash it does not change their code, but after mining the hash has the hash code change their code and staring from 00000..... .

Store the Data in the Block and See the Hash Code.

## Observation Table:

This is For Block Mining:

Before Mining:

### Block

Block:	# 1
Nonce:	72608
Data:	I Am a Student of Centurion University of Technology and Management, and I am currently studying B.Tech 3rd Year in Blockchain Domain.
Hash:	d0f2a41c6db1a389b3b76ce606b61694ea146fcf9db3136ac14b9bf1178279a1
	<button>Mine</button>

After Mining(Or storing Data):

### Block

Block:	# 1
Nonce:	54197
Data:	I Am a Student of Centurion University of Technology and Management, and I am currently studying B.Tech 3rd Year in Blockchain Domain.
Hash:	0000b34ee66a33805e8f4Fc72Faede50dhfd299ee105312b6c531badaf80a9bf
	<button>Mine</button>

This is the Blocks of the Block Chain:

## Blockchain

Block: # 1

Nonce: 11316

Data:

Prev: 0000000000000000000000000000000000000000000000000000000000000000

Hash: 000015783b764259d382017d91a36d206d0600e2cbb3567748f

Mine

Block: # 2

Nonce: 35230

Data:

Prev: 000015783b764259d382017d91a36d206d0600e2cbb3567748f

Hash: 000012fa9b916eb9078f8d98a7864e697ae83ed54f5146bd844

Mine

## Blockchain

Block: # 3

Nonce: 12937

Data:

Prev: 000012fa9b916eb9078f8d98a7864e697ae83ed54f5146bd844

Hash: 0000b9015ce2a08b61216ba5a0778545bf4ddd7ceb7bbd85dd8

Mine

Block: # 4

Nonce: 35990

Data:

Prev: 0000b9015ce2a08b61216ba5a0778545bf4ddd7ceb7bbd85dd8

Hash: 0000ae8bbc96cf89c68be6e10a865cc47c6c48a9ebec3c6cad7

Mine

Block: # 5

Nonce: 56265

Data:

Prev: 0000ae8bbc96cf89c68be6e10a865cc47

Hash: 0000e4b9052fd8aae92a8fda42e2ea0f

Mine

Storing Data in the Blocks:

## Blockchain

Block: # 1

Nonce: 12349

Data: I am a good Boy

Prev: 0000000000000000000000000000000000000000000000000000000000000000

Hash: 0000a9a7c7d36ea15338fe1e1bd4ee5309b2ad5d151e1116592

Mine

Block: # 2

Nonce: 18980

Data: Asif is a Bad boy

Prev: 0000a9a7c7d36ea15338fe1e1bd4ee5309b2ad5d151e1116592

Hash: 0000468db5f3f5147c53f9db9b939bc3112a54fb7d48787545b

Mine

Block: # 3

Nonce: 12937

Data: Asif and me are in Blockchain Domain

Prev: 0000468db5f3f5147c53f9db9b939bc3

Hash: 755690d881aa1192896fe4f3a27effc5

Mine

Data Storing in the Blocks, then the block Links together:

Blockchain

Block	Prev	Hash
Block: # 2 Nonce: 18980 Data: Asif is a Bad boy Prev: 0000a9a7c7d36ea15338fe1e1bd4ee5309b2ad5d15e1116592 Hash: 0000468db5f3f5147c53f9db9b939bc3112a54fb7d48787545b	00000000 :1116592	
Block: # 3 Nonce: 12937 Data: Asif and me are in Blockchain Domain Prev: 0000468db5f3f5147c53f9db9b939bc3112a54fb7d48787545b Hash: 755690d881aa1192896fe4f3a27effc5d002470fe2971911642		
Block: # 4 Nonce: 35990 Data: Prev: 755690d881aa1192896fe4f3a27effc5d002470fe2971911642 Hash: 7ff44a44c1d13f76e6b824597cce10f4538129375440b42f8b3		

After Completing the Mining the hash code generate:

Blockchain

Block	Prev	Hash
Block: # 3 Nonce: 12937 Data: Asif and me are in Blockchain Domain Prev: 0000468db5f3f5147c53f9db9b939bc3112a54fb7d48787545b Hash: 755690d881aa1192896fe4f3a27effc5d002470fe2971911642	1116592 48787545b	
Block: # 4 Nonce: 35990 Data: Prev: 755690d881aa1192896fe4f3a27effc5d002470fe2971911642 Hash: 7ff44a44c1d13f76e6b824597cce10f4538129375440b42f8b3		
Block: # 5 Nonce: 56265 Data: Prev: 7ff44a44c1d13f76e6b824597cce10f4538129375440b42f8b3 Hash: 52687bba3a8a3596;		

Changing the Nonce:

Block: # 4	Block: # 4
Nonce: 334282	Nonce: 18894
Data:	Data:
Prev: 755690d881aa1192896fe4f3a27effc5d002470fe2971911642	Prev: 755690d881aa1192896fe4f3a27effc5d002470fe2971911642
Hash: 2fc582ef2048f7fadedf95f86ae2f229b17b08c69299681e5bbf	Hash: 00009866b5373f7342411fc4221e25d4365a197102a2dc1e0f0
Mine	Mine

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		
<b>Total</b>	<b>50</b>		

Signature of the Student:

Name :

Regn. No. :

Signature of the Faculty: