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 Experiement: Mine It -Basic Proof-of-Work Simulation

Coding Phase: Pseudo Code/Flow Chart/Algorithm

- 1. Start
- 2. Open **Proof-of-Work Simulator** in browser.
- 3. Observe the first block is already mined and valid.
- 4. Change data or nonce in any block \rightarrow block becomes invalid.
- 5. Click "Mine" → simulator searches nonce until hash meets difficulty condition.
- 6. Block becomes valid when correct nonce is found.
- 7. If any earlier block changes, all later blocks become invalid.
- 8. Re-mine invalid blocks sequentially to restore the chain.
- 9. **End**

Apparatus/Software Used:

- Computer or Laptop
- Web Browser (Chrome / Firefox)
- Internet Connection
- Proof-of-Work Simulator Website

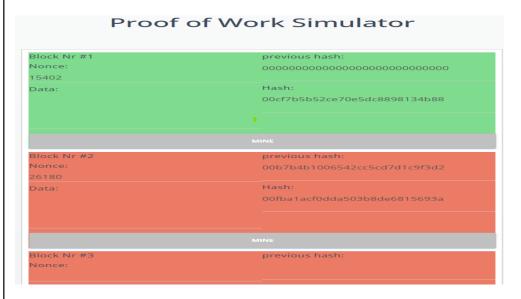
Testing Phase:

- Test 1: Modify block data \rightarrow Hash changes \rightarrow Block turns red.
- Test 2: Mine block \rightarrow Valid nonce found \rightarrow Block turns green.
- **Test 3:** Change earlier block \rightarrow All later blocks turn red.
- Test 4: Re-mine all invalid blocks → All blocks turn green again.

Implementation Phase: Final Output (no error)

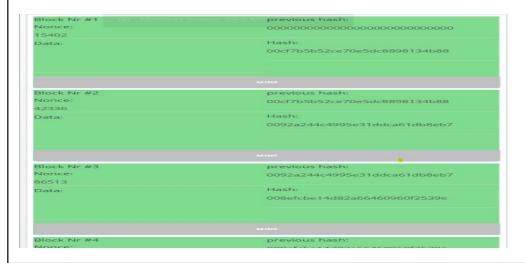
Before mining:

- Some blocks turned red because data was changed.
- Hashes did not meet the difficulty requirement.



After mining:

- Clicked **Mine** on each invalid block.
- Found correct nonce for each block.
- All blocks turned **green** (valid) and the chain had no errors.



Observations

- Proof-of-Work requires iterative hash calculation until difficulty is met.
 Changing data invalidates current and all dependent blocks.
- Re-mining restores validity but is computationally intensive.
- Blockchain integrity relies on cryptographic linkage between blocks.

ASSESSMENT

Rubrics	Full Mark	Marks Obtained	Remarks
Concept	10		
Planning and Execution/	10		
Practical Simulation/ Programming			
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.