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 : Mine It – Basic Proof-of-Work Simulation

* Coding Phase: Pseudo Code / Flow Chart / Algorithm

ALGORITHM:

1.Start
2.Navigate to the Proof of Work Simulator on the Blockchain Academy site.
3.The tool displays four blocks: "#1" through "#4".
4. Block #1 is already mined: it includes a valid nonce and hash starting with the required prefix.
5.Click “Mine”on Block #2.
6.The simulator searches for a valid nonce such that the resulting hash meets the difficulty condition.
7.On success, the block turns green, indicating a valid block.
8.Repeat the mining process for Block #3 and Block #4.
9.Each block automatically inherits the previous block’s hash, demonstrating the chain linkage.
10.Manually modify the Data or Nonce in a mined block.
11Observe that the block changes color to red, and all following blocks also turn red indicating a broken chain.
12.End

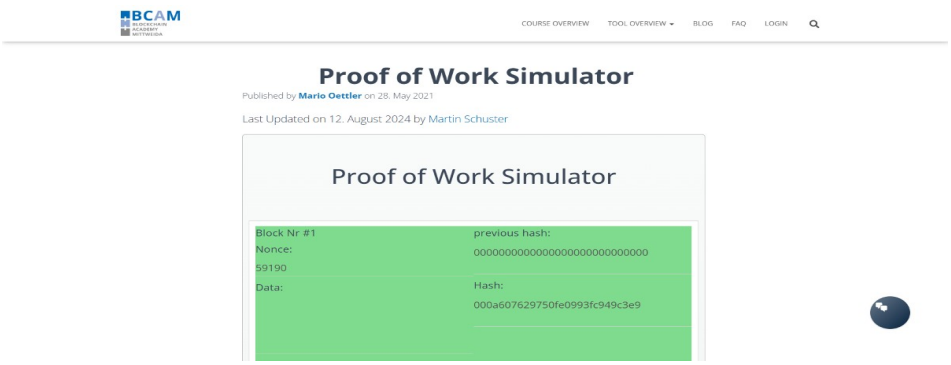
* Software used

1.https://blockchain-academy.hs-mittweida.de/2021/05/proof-of-work-simulator/ (Blockchain academy)

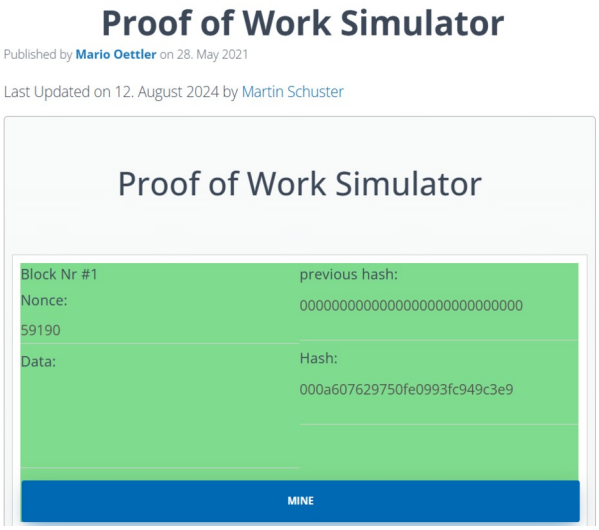
*As applicable according to the experiment.
Two sheets per experiment (10-20) to be used.

* Testing Phase: Compilation of Code (error detection)

Access the Simulator



Observe the Default State

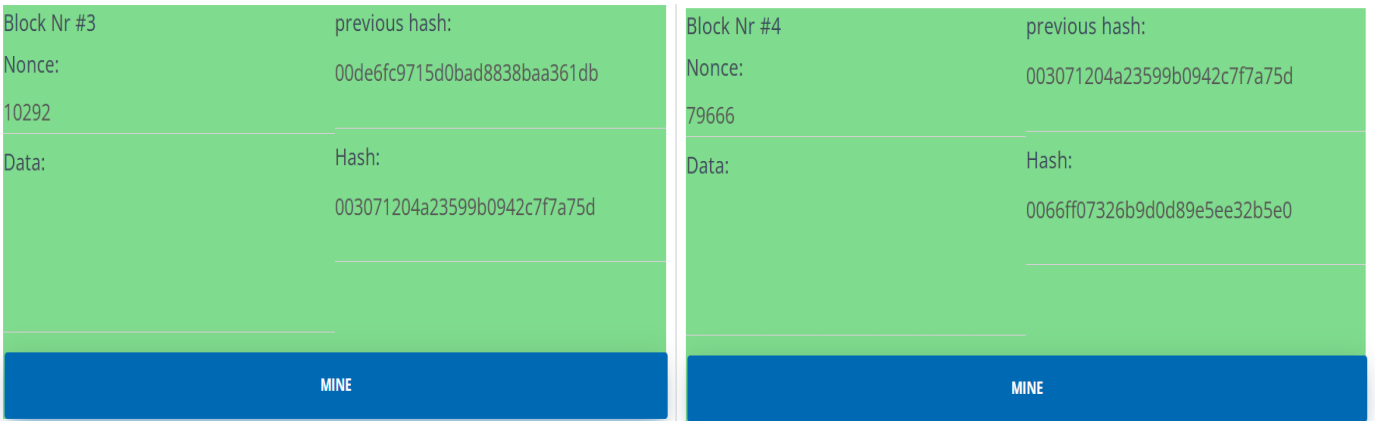


Mine the Next Block

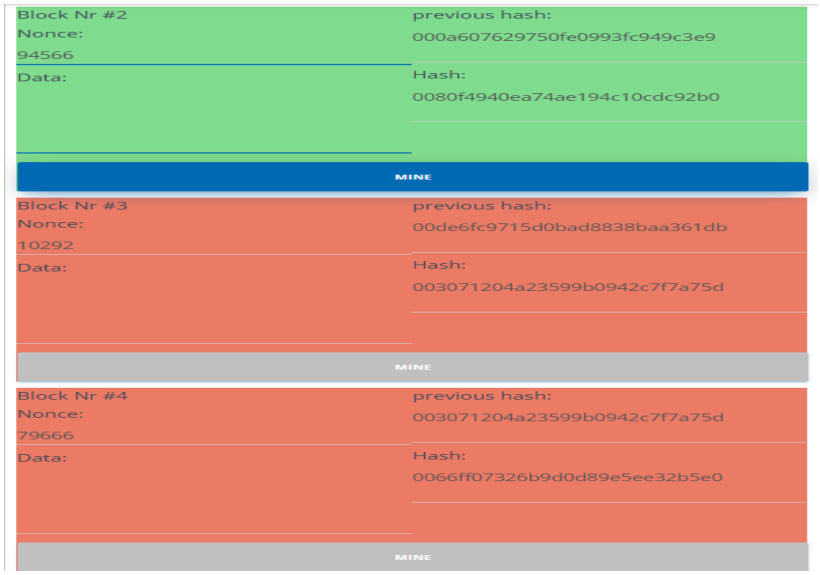
*As applicable according to the experiment.
Two sheets per experiment (10-20) to be used.

* Implementation Phase: Final Output (no error)

Continue Mining Subsequent Blocks



Experiment with Tampering



* Observations

1. To understand the basic working of the Proof-of-Work consensus mechanism by simulating the mining process.
2. To demonstrate how changing block data affects the integrity of the entire 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 :

Signature of the Faculty:

Regn. No. :

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