

LEARNING OUTCOME:

1. Examine the computing issues of blockchain design and developments (C4, PLO2)
2. Demonstrate the capability of developing blockchain solution with available platform and toolset (A3, PLO6)

ASSIGNMENT REQUIREMENT:

In today's digital age, secure and reliable data storage is paramount. Traditional databases, often controlled by centralized entities, face vulnerabilities to breaches and manipulation. Blockchain technology emerges as a groundbreaking solution, offering a decentralized and tamper-proof method for record-keeping. Therefore, your team are requiring analysing **One** of the following industries, figure out it's niche problem and design a Decentralized Application to tackle that problem.

- 1) Finance
- 2) Real Estate
- 3) Manufacturing
- 4) Gaming
- 5) Art

In your analysis, you are required to perform the following tasks.

1) Part 1: Proposal document

- Review the business use case in one of the industries above covering the background including the operations and practices for handling data.
- Propose a solution model whereby the data can be securely stored and chained in a blockchain manner by leveraging the features of Blockchain.
- As such, you are required to prepare a proposal of a selected industry (anyone from the list above) with Blockchain integration.

Deliverables:

Your report should include the following, but not limited to, 1) the selected industry and its business use case; 2) background information; 3) importance of the issue; 4) data analysis; 5) analysis solution model; 6) benefits; 7) conclusion; 8) reference.

Deadline:

The deliverable (proposal document) is to be uploaded to Moodle on or before the due date specified in Moodle.

2) Part 2: Solution Implementation

- Build a real-world Decentralized Application (Dapp)

2.1 Knowledge/Presentation

- Able to build frontend using Nextjs, ReactJs.
- Able to link frontend to the local database (E.g mysql, postgres etc.)
- Able deploy the solidity smart contract to Hardhat Node (local blockchain)
- Able to link frontend to solidity smart contract.

2.2 Development Stack

- Visual Studio Code
- Node.js
- Hardhat
- Next.js (App)
- Solidity

2.3 Submission

- Documentation
 - Format: .md
 - Explain how to setup your system
 - Explain system features
- Code
 - Frontend
 - Hardhat

ASSIGNMENT TYPE:

Group assignment (3 - 4 students)

MARKING CRITERIA:

Criteria	Marks
Part 1:	
<u>Continuous assessment:</u>	
<i>Proposal</i>	10%
<ul style="list-style-type: none"> Review the business sectors/industries or use cases and identify the Blockchain solution possible integrating to the business sector 	
<i>Report of findings</i>	10%
<ul style="list-style-type: none"> Detail of findings Analysis of the selected business sector to integrate the Blockchain as a solution to their business data (approx 2000 words). Blockchain solution design and architecture benefiting the business data and operations can be produced. 	
SUBTOTAL	20%

Part 2:	
<u>Final assessment: Blockchain solution model and its implementation</u>	
<i>Solution development (with code snippets)</i>	
<ul style="list-style-type: none"> Front End + Database 	20%
<ul style="list-style-type: none"> Solidity 	20%
SUBTOTAL	40%
TOTAL:	60%

GRADING CRITERIA**MARKING KEY****A+ = Distinction**

Superior achievement in assignment,
outstanding quality; complete in every way.

A = Distinction

Very high achievement in all objectives,
excellent quality assignment.

B+ = Credit

Very good/High achievement in most objectives,
high quality assignment.

B = Credit

Good/High achievement in most objectives,
shows some of the qualities but lacks
comprehensiveness nevertheless quality assignment.

C = Pass

Satisfactory/competent achievement in most objectives,
all essential points covered plus some of the minor ones.

F = Marginal Fail / Fail

Unsatisfactory, Improvement essential/poor achievement;
poor quality assignment, some essential objectives not covered.

EQUIVALENT MARKS**A+ = 80-100****A = 75-79****B+ = 70-74****B = 65-69****C/C+/C- = 50-64****D/F+/F/F- = below 49**