CSU22013/CSU33013: Group 33
Requirements Document
Blockchain publishing system

Propylon

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Here is an example of how to make images work in LaTeX

Figure 1: Example of the passion fruit flower

The flower as shown in figure 1 is a beautiful flower.

1 Introduction

1.1 Overview and Success Criteria

Validation of information on the internet has gotten harder and harder with time. The internet is filled with misinformation, untrustworthy history and suspicious sources. The need for a way of validating information found on the internet in a way that is trustworthy has become ever so important in our day and age.

This is where Blockchain comes in, it will provide an effective way of validating history, current information and prevent tampering with information in the internet.

The Blockchain will work with solving these problems and the website itself will give a user friendly experience to the user, showing them visually, previous versions of information they seek as well as giving a visual indicator of validity and that tampering for certain did not occur, so that the user can be certain of its validity.

1.2 Scope

The following items are in scope for this project:

- The system must be able to validate the authenticity of information that is on the blockchain.
- The system must prevent tampering of information.
- The system must allow users to visually see the following:
  - Authenticity of information.
  - Previous history versions of that information.
  - If information has been tampered with.
- The system can support a pre-existing blockchain or a new one.
- The system can be built on pre-existing open source CMS such as WordPress or a personal website.
- The system allows for documents to be viewed publically.

The following items are out of scope for this project:

- The system does not need to support mobile devices, desktop is sufficient.
- The system does not need to support multiple information methods of showing something to a user, a blog will suffice.
- The system focuses on the blockchain aspect and so, a website that allows users to login and register and creating passwords and login, is out of the scope. A simple login that demonstrates the blockchain capability is sufficient.

1.3 Objectives and Success Criteria

After completing the project, a successful project will have the following criteria:

- The system will allow a user to enter the website.
- The system will show a list of documents a user can click on.
- The system will provide the user with information such as history, authenticity, and if it has been tampered with.
- The system will have a simple GUI for the user to have an enjoyable experience.
- The system will provide all information that is accessible to any user that wishes to see it.
- The system's information will be blog posts.
- The system will prevent tampering of information.

1.4 Definitions and Abbreviations

- **UI**: User Interface; How a user interacts with a computer
- **GUI**: Graphical User Interface; A form of UI that allows the user to interact with the computer through the use of graphics.
- **Blockchain**: Interlinked blocks that contain cryptographic hashes of the previous blocks, timestamps, and transaction data.
- **Genesis block**: The start of a blockchain, it does not have a hash to point to a previous block.
- **Crypto**: Anything related to mathematical cryptography for use of secure communication.

1.5 References

- https://www.educba.com/what-is-gui
- https://en.wikipedia.org/wiki/Cryptography
- https://www.youtube.com/watch?v=wHTcrmhskto
- https://www.youtube.com/watch?v=bBC-nXj3Ng4
- https://www.youtube.com/watch?v=SSo_EIwHSd4
- https://propylon.com/platform-architecture
- www.citizensinformation.ie

2 Current System

Our client, Propylon, does not currently use blockchain technology in their current system. However, they do use specialised software which acts almost like a blockchain. There are currently many blockchains already in existence which would be suited to our project such as the Ethereum blockchain and the Polygon blockchain.

Using an existing blockchain such as the Polygon blockchain has many benefits. These include:

- Secure and reliable
- Relatively cheap transaction fees
- Established documentation for developers
- Developers can work on their test net for free

Alternatively, our team could make our own blockchain. However, this would require much more effort as secure blockchains are often difficult to develop and also cost resources to maintain.

3 Proposed System

3.1 Overview

A web-based application for authoring and publishing content (e.g a blog) onto a blockchain with current and past versions of the content persisting on the blockchain.

The application should:

- Allow users of the system to see the current version of the content.
- Validate the authenticity of the content by comparing it to a version stored on the blockchain.
- View previous versions of content published to the blockchain.
- Provide a verifiable audit trail of the blockchain for all versions of content to prove that content hasn't been tampered with, changed, or otherwise modified externally

3.2 Functional Requirements

The main requirement for this project is to create a program that allows the user to publish documents to a blockchain to be validated.
Using a blockchain, our program should be able to:

- Show the audit trail of the document, ie. show the history of changes made, and the individuals who made them.
- Store all previous versions of the document, so users can view past versions that have been uploaded.
- Check and validate the document, ie. check whether the stated authors and editors actually wrote the content they're credited for.
- Display these documents publicly. For example, legal legislations and regulations proposed by the government.

3.3 Non-functional Requirements

We aim for our programme to:

- Have a security authentication system ie. login and password.
- Have fast performance.
- Have a user interface that is easy to navigate.

3.4 System Prototype (Models)

3.4.1 User Interface Mockups

3.4.2 Use Cases (including text narratives)

3.4.3 Object Model

3.4.4 Dynamic Model