



Department of Computer Engineering

Software Engineering

Project Report

Decentralized Document Management System

Students:

ID	Name & Surname
2000001920	ALIN BITMANI

Functional Requirements:

- **Upload and Save:** Users can easily upload and save different documents.
- **Keep Track of Changes:** The system records changes made to documents over time.
- **Control Access:** Users can decide who can see, edit, and delete documents.
- **Find Documents Quickly:** Users can easily search and find specific documents.
- **Secure Login:** Users can safely log in without needing a central authority.
- **Work on Any Device:** The system works on computers, phones, and tablets.
- **Protect Documents:** All documents are kept safe through encryption.
- **Track Actions:** The system keeps a record of all document actions.
- **Use Blockchain Technology:** Utilize blockchain to ensure document integrity.
- **Handle Growth:** The system can grow and handle more documents and users.

Non-Functional Requirements:

Safety: The system must be safe from hackers and unauthorized access.

Reliability: It should work well without breaking down often.

Speed: The system should be fast, even when many people are using it.

Easy to Use: It should be simple for people to use and understand.

Accessibility: Everyone, including people with disabilities, should be able to use it easily.

Following Rules: It should follow all the laws and rules about keeping data safe.

Work with Other Systems: It should work well with other programs and devices.

Backup Plan: There should be a plan to save data in case something goes wrong.

Grow as Needed: The system should be able to handle more users and documents as it grows.

Easy to Take Care Of: It should be easy to fix and update the system when needed.

Product Backlog:

PRODUCT BACKLOG						
ID	AS A ...	I WANT TO ...	SO THAT ...	PRIORITY	SPRINT	STATUS
1	Developer	Design User Interface	user can upload Documents , view them and edit them (Delete?). Maybe the same as the CATS interface.	High	4	Not Started
2	Developer	Research	I understand Blockchain tech and the helpfulness it will provide to the Project	High	1	Done
3	Developer	Have Multi language support	Users can use the interface in multiple languages (English/Turkish)	Low	0	Not Started
4	Developer	Deal with immutability (DLTs)	In a traditional blockchain solution data is Immutable which means it can not be deleted.	High	0	Not Started
5	Developer	Encryption	the files are secure and privacy is maintained	High	0	Not Started
6	Developer	Have Authentication support	the students can access the files using the same authentication as CATS.	Medium	0	Not Started
7	Developer	Have a Search method	having many files won't be a hassle to the users	Low	0	Not Started
8	Developer	Test the solution	we have a better idea on how to proceed	Medium	0	Not Started
9	Developer	Optimize and improve	we can deliver the best experience possible	Low	0	Not Started
10	Developer	Familiarize ourselves with Sakai Codebase	we can effectively integrate the project with CATS	Low	0	Not Started
11	Developer	Have Version Control	We can view and track Document Changes	Medium	0	Not Started
12	Developer	Have a Decentralized Storage solution	Upload and Download Documents on a Blockchain System	Medium	0	Not Started
TOTAL					5	

Project Modules

Based on the product backlog provided earlier, here's a breakdown of project modules for the decentralized document management system:

1. User Interface Module:

- Design User interface: This aligns with the requirement of allowing users to upload, view, and potentially edit documents.

2. Blockchain Integration Module:

- By integrating blockchain technology, this module enables the system to achieve key features such as data immutability, decentralization, and secure document storage.

3. Document Management Module:

- Handles the CRUD (Create, Read, Update, Delete) operations for documents. Provides functionality for creating, viewing, editing, and deleting documents stored on the decentralized network. Although the functionality of this module is encompassed within other modules like User Interface, Blockchain Integration, and Encryption and Security, document management is considered a core functionality of the system.

4. Version Control Module:

- This module is responsible for managing document versioning and revision history. It enables users to track changes made to documents over time, revert to previous versions .

5. Search and Retrieval Module:

- Facilitates efficient search and retrieval of documents. Supports searching based on keywords, metadata, and content.

6. Multi-language Support Module:

- Have Multi-language support: This fulfills the requirement of supporting multiple languages for user interaction.

7. Immutability and Data Security Module:

- Encryption: Ensures file security and privacy, aligning with the requirement for maintaining privacy and security of documents.

8. User Authentication with CATS Module:

- Have Authentication support: Integrating with CATS authentication system to ensure secure access for users.

9. Testing and Optimization Module:

- Test the solution: Required for ensuring the system functions as expected and is optimized for performance.

10. Integration with existing Codebase Module

- Familiarize ourselves with Sakai Codebase: Necessary for effective integration with CATS and aligning with existing systems.