Project Proposal: Comprehensive Used Book Sale Exchange Solution

Group Number and members

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Declaration

We hereby declare that the project proposal submitted for evaluation of course module IT3162 leading to the award of a Bachelor of Science in Information Technology is entirely our own work, and the contents taken from the work of others have been cited and acknowledged within the text. This proposal has not been submitted for any degree at this University or any other institution.

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1 Introduction

1.1 Introduction

This project aims to explore the usage of blockchain based technology in developing a secure, decentralized, and transparent used book sale exchange solution. The market currently contains a number of used book sale exchange solutions, but they rely on individual databases of books, which are often not large enough to be useful to the end user, and are not updated frequently enough by the owners. The Ethereum blockchain provides a decentralized solution to this problem, where the books are stored in a decentralized manner, and the ownership of the books is tracked using smart contracts. This solution will also be integrated with an AI model that will allow the end user to discover books that they may be interested in.

1.2 Objectives

1. To create a user-friendly platform for listing and discovering used books for sale or exchange.
   (a) Implement advanced search and recommendation algorithms to help discover books on their preferences, location etc.
   (b) Encourage both individual users and bookstores to use the platform regularly.
2. To implement blockchain technology for secure and transparent transactions.
   (a) Explore blockchain platforms (e.g., Ethereum, Hyperledger) and enhance security and tranceparency.
   (b) Implement blockchain for ensuring data integrity
3. To develop AI models for personalized book recommendations and efficient book searches.
   (a) Implement collaborative filtering algorithms.
4. To provide a centralized hub for users to manage their book transactions and interactions.
   (a) Create user profiles with transaction history.
   (b) Incorporate a messaging system for user interactions.
5. To offer accessibility and scalability, enabling users to access the platform from various devices.
6. Enhance geographic Targeting
   (a) location based services to provide users with accurate book listings in their vicinity
7. Encourage Book Exchanges
   (a) Foster sense of cost effective book sharing
   (b) Facilitate fair trade terms

1.3 Benefits of this research

1. Using technologies like blockchain and decentralized data stores enhances user control, privacy, and security. There's less reliance on a centralized entity, reducing the risk of data breaches and ensuring trust in the system.
2. Blockchain's encryption and decentralization features provide robust security for user data, reducing the risk of hacking or unauthorized access.
3. You can use smart contracts to automate book exchanges, ensuring trust between parties and reducing the need for intermediaries.
4. Transactions and book ownership records are stored on the blockchain, making them tamper-resistant and ensuring the provenance of books.

5. Affordability: Users can access books at a lower cost compared to buying new ones, promoting affordability and accessibility to a broader audience.
6. By extending the life cycle of books, the platform promotes sustainability by reducing the environmental impact associated with book production.
7. Access to rare books: Users can find rare and out-of-print books, fostering a sense of excitement and discovery among book enthusiasts.
8. AI algorithms can recommend books based on users' preferences and reading history, making it easier to discover new books tailored to individual interests.
9. The platform can build a community of book lovers who share and exchange their passion for reading, connecting people with similar interests and encouraging knowledge sharing.
10. Students, researchers, and lifelong learners can find affordable textbooks and references, making the platform a valuable educational resource.
11. Users can access literature from different cultures and regions, promoting cultural exchange and fostering diversity.
12. Open Access to Information: The platform aligns with open access principles, making knowledge and literature available without restrictive barriers.
13. Local book exchange: The platform can facilitate both local book exchanges, connecting users with different geographic locations.
14. The continuous supply of reading materials encourages lifelong learning, benefiting users of all ages.
15. Students, professionals, and researchers can access books relevant to their studies and careers.
16. Users take control of their reading choices and preferences, fostering a sense of ownership and responsibility within the community.

2 Background

2.1 Background

2.2 Review on Existing Systems

We have conducted a comprehensive evaluation of the existing used books exchange websites. Those websites are aiming to provide a detailed overview of their features, performance, and user experience. This review serves as a foundation for our proposal to enhance and optimize the system to meet the evolving needs of our users. The mostly existing systems are focused on E-commerce or Cataloging, with limited emphasis on a comprehensive bookshop management system.

Common observations of some existing systems are as follows:

- User interfaces vary in terms of simplicity and complexity.
- Integration with book databases and APIs is common for data retrieval and management.

Here's an overview of some of the globally existing websites:

2.2.1 Amazon

Amazon is a popular online Web-App that offers both new and used books for sale through third-party sellers. Users can find a wide selection of used books in various conditions. It offers a vast collection of books and a user-friendly interface. This system has several subcategories that the books are classified by department, format, author, promotions, prizes, languages, etc. The user rating and book description part of amazon.com are one of the best features, as it allows users to make an informed decision before purchasing

a book. However, the disadvantages of this website are, 1. E-commerce focus 2. Limited transparency 3.lack of personalization 4. High transaction cost

2.2.2 Goodreads

Goodreads primarily serves as a social platform for readers, also some users may offer books for trade or giveaway in discussion forums. This includes details about authors, publication information, and user-generated content. The site allows users to set and track reading goals for the year, which is a great feature for people who like to challenge themselves to read more. It allows users to create virtual bookshelves, rate books, and connect with other readers. However, disadvantages of this are, 1. Limited transaction capabilities 2. Incomplete listings 3. Complex selling process

2.2.3 AbeBooks

AbeBooks is a well-established online marketplace for books, including new, used, rare, and out-of-print versions of books. Many independent sellers and bookstores list their inventory on AbeBooks, which means you can find books that may not be available on mainstream platforms. This website's interface is user-friendly, and sellers on AbeBooks typically provide detailed descriptions of the book's condition, edition, etc., as well as international shipping options. This helps buyers make informed decisions. The website consists of rare or antique books, often including first editions and signed copies. Disadvantages of using this are, 1. Limited free listings 2. Commercial nature

Here's an overview of some of the locally existing websites:

2.2.4 Bookberry.lk

Bookberry is an online website that offers to sell used books online. Even though not overly famous across Sri Lanka gives the facility to bank deposit or cash on delivery option for buyers. Disadvantages are that it doesn't contain a large collection of books and user interfaces are not friendly.

2.2.5 UsedBooks.lk

UsedBooks.lk is an online marketplace for books where you can find used and rare books used by independent traders around Sri Lanka for sale. Website contains detailed descriptions on the book's condition and photos uploaded by the seller. They also have various categories of books but the drawback is that since the books aren't categorized correctly the buyer finds trouble in sorting through the catelog looking for the book he wants. Registration process is fairly easy which creates oppotunities for fake sellers. Another notable disadvantage is that even though books have been used the prices are overly high which may discourage lot of buyers.

2.2.6 bookswap.lk

BookSwap.lk is free online platform for exchange used books or sell books free online. You can buy second hand books, text books or used books by institutions. Even though they have put up an extensive collection of books the website is still completed as they haven't specified a payment method. Platform encourages to meet the buyer personally rather than online transactions which might not be appealing for some customers.

3 Materials and Methods

4 Expected Results

4.1 User Authentication and Authorization

- Users can log in and sign up using a username, password, and email or via Facebook.
- Bookshops can register by providing the following information:

- Shop name
- Contact information (Address, Phone Number, Email Address)
- Owner/manager information (Name, Contact Number, Email Address)
- Hours of operation
- Shop description
- Shop policies (Terms and Conditions, Return Policy)
- Inventory quantity
- Social media links
- Website URL

4.2 Book Listing

- Users and bookshops can list books manually or by using barcode.

4.3 Search and Filter

- Use Title, Author, Genre/Category, ISBN, Condition, Price Range, Location/Distance, Language as filters for better search.

4.4 Book Details

- Users can click on the book picture to view all the details relevant to the book.

4.5 User Profiles

- User profiles show user-purchased books (only visible to the profile owner) and the user's basic details.
- Bookshop profiles show all the details of the shop that buyers should know.

4.6 Notifications

- If a user adds a book to their favorite list, it notifies the book owner or bookshop.
- If the book is not available to the user, the system will notify the user if the book is listed within one week.

4.7 Transactions and Payments

[Description of transactions and payments features goes here.]

5 Technology Stack

5.1 Front-end

[Description of front-end technologies goes here.]

5.2 Backend

[Description of backend technologies goes here.]

5.3 Database

[Description of the database technology goes here.]

5.4 External APIs

[Description of external APIs used goes here.]

5.5 Hosting and Deployment

[Description of hosting and deployment goes here.]

5.6 Security

[Description of security measures goes here.]

6 Security

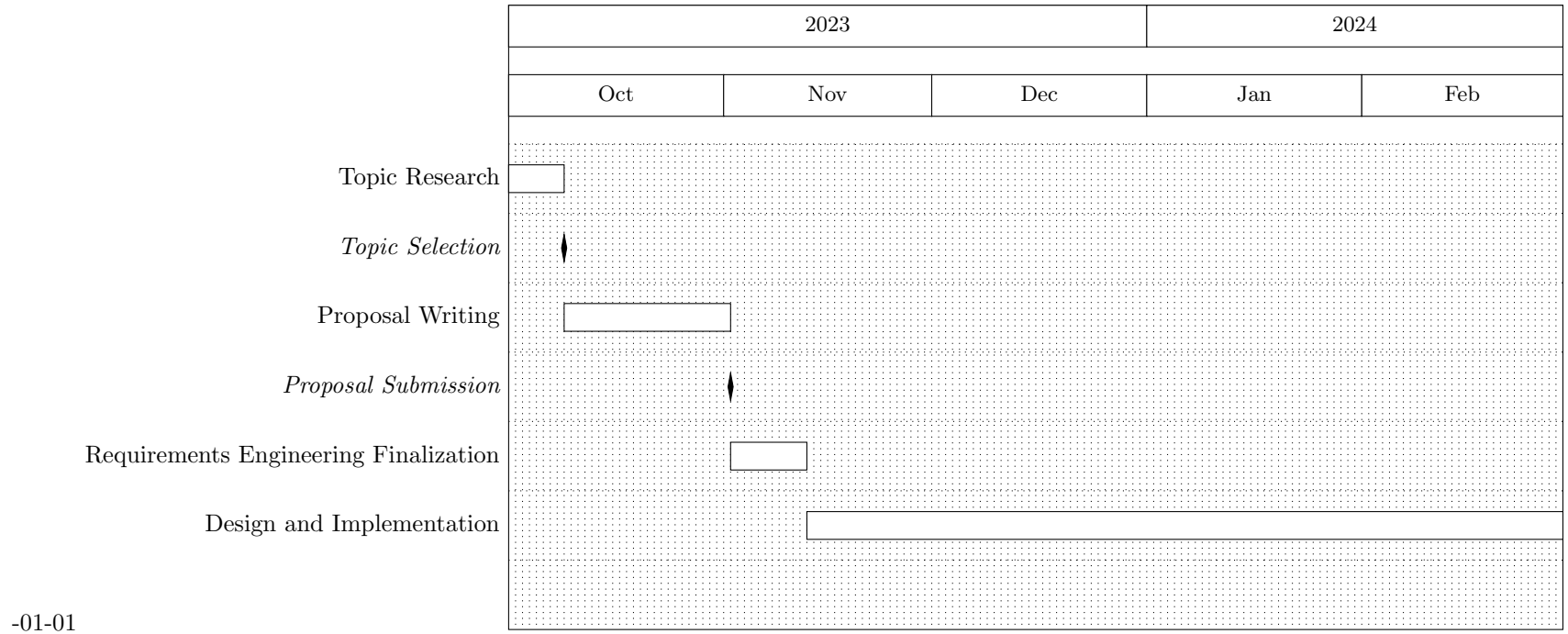
6.1 Data Encryption

- Encrypt and store users' and sellers' sensitive data.

6.2 Authentication

- Use two-factor authentication for logging in.

7 Timeline of the Research


2023
2024
Oct
Nov
Dec
Jan
Feb
Topic Research
Topic Selection
Proposal Writing
Proposal Submission
Requirements Engineering Finalization
Design and Implementation

-01-01

8 References