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# Capstone Project Title Proposal

## Capstone 1

### S.Y 2025-2026

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**Developing a Centralized Research Digital Library for Students at Cebu Technological University Daanbantayan Campus**

**Significance of the Study**

One of the core functions of an academic institution is to generate, disseminate, and preserve knowledge for future use (Masawe et al., 2024). However, the lack of a centralized repository at Cebu Technological University (CTU) Daanbantayan Campus leads to scattered research outputs, limited accessibility, and difficulties in managing academic resources (Bradley, 2021). Without a structured system, students and faculty face challenges in locating previous research, and the absence of proper security measures increases the risk of unauthorized distribution and loss of valuable academic work.

This study proposes the development of a Centralized Research Digital Library to address these challenges by providing a structured, secure, and efficient platform for storing and accessing digitized research materials. The system will incorporate user authentication, role-based access, document viewing, search functionalities, and approval mechanisms to ensure content credibility and security. Additionally, analytics and feedback systems will support continuous improvement and enhance research utilization.

The implementation of this digital library will benefit various stakeholders, including:

**Higher Education Institutions** – Serves as a reference model for universities aiming to establish secure and structured digital research repositories.

**Library and Academic Departments** – Facilitates efficient organization, preservation, and distribution of academic research materials.





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**Faculty and Staff** – Provides a secure platform for accessing and reviewing research materials, supporting academic work and research initiatives.

**Researchers** – Provides insights into the design and implementation of institutional repositories, particularly for research storage and dissemination.

**Students** – Enhances academic performance and engagement by offering easy access to relevant research materials.

**Local Government Units (LGUs) and the Community** – Enables access to research that supports policy-making, community development, and local initiatives.

By implementing the Centralized Research Digital Library, CTU Daanbantayan Campus aims to bridge research accessibility gaps, enhance data integrity, prevent unauthorized distribution, and foster a research-oriented academic culture. This initiative contributes to the digital transformation of higher education while ensuring sustainable academic knowledge-sharing for both the university and the broader community.





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**Scope and Limitations of the Study**

This study focuses on developing a Centralized Research Digital Library for Cebu Technological University (CTU) Daanbantayan Campus, providing a secure, structured, and accessible platform for storing and managing digitized research materials. These materials include theses, dissertations, faculty research papers, institutional studies, and conference proceedings.

The system will feature user authentication, role-based access control, document viewing, advanced search functionalities, content approval mechanisms, and usage analytics to improve research accessibility and security. The primary users of the system will be students, faculty, and staff, while administrators, including library personnel, will oversee content approvals and user access management. A selected group of users will participate in the system's testing and evaluation.

The study will be conducted over one academic year, covering system development, testing, and pilot implementation before full deployment. It will focus on digital library development, research repository management, authentication and access control, and academic content security. However, it will not include plagiarism detection, automated citation tools, or integration with external research funding databases.

The study is limited to CTU Daanbantayan Campus, but the system may serve as a reference model for other institutions. Potential challenges include the availability of digitized research materials, varying levels of user adoption, and dependence on stable internet infrastructure (Masawe et al., 2024). Despite these limitations, the system aims to enhance research accessibility, strengthen knowledge management, and promote a research-driven academic culture at CTU and within the broader academic and local community.





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**UniThrift: A Campus-Centric Online Marketplace for Sustainable Goods at Cebu  
Technological University Daanbantayan Campus**

**Significance of the Study**

The development of UniThrift: A Campus-Centric Online Marketplace for Sustainable Goods at Cebu Technological University (CTU) Daanbantayan Campus addresses the growing problem of financial constraints, waste accumulation, and the lack of a secure and organized platform for second-hand transactions within the campus. Many students and faculty members struggle with the high cost of essential academic and personal items, while unused goods often go to waste due to the absence of a structured resale system. Additionally, unregulated peer-to-peer selling through social media or informal exchanges poses risks such as fraud, price manipulation, and safety concerns.

UniThrift offers a secure, exclusive, and structured digital marketplace where students, faculty, and staff can buy and sell verified second-hand items, promoting affordability and waste reduction. The platform enforces strict seller verification through university credentials and school ID authentication to prevent fraudulent transactions. Allowed products include textbooks, uniforms, laboratory equipment, laptops, electronics, beauty and grooming items (e.g., makeup for Hospitality Management students), and other school-related supplies. This aligns with global efforts to promote sustainable consumption by extending the lifecycle of products and reducing environmental waste (Zhi, 2021; Giri et al., 2022).

Additionally, UniThrift serves as an academic and entrepreneurial resource by providing insights into sustainable commerce and responsible consumer behavior. Revenue generated from small transaction fees or optional promotional listings will be managed by the Supreme





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Student Government (SSG) or a designated university organization, ensuring proper maintenance and continuous platform improvement.

This study is expected to benefit multiple stakeholders:

**Sustainable Development Advocates** – Contributes to waste reduction and responsible resource utilization within the campus.

**University Administration** – Supports institutional sustainability initiatives while ensuring a safe and regulated trading environment.

**Library and Campus Organizations** – Helps students and faculty acquire affordable learning materials and essential items.

**Students, Faculty, and Staff** – Provides a cost-effective and convenient way to buy and sell essential goods.

**Local and Student Entrepreneurs** – Creates economic opportunities by enabling responsible trade within the university community.

By leveraging technology to establish a secure and exclusive marketplace, UniThrift transforms how students and faculty engage in sustainable commerce, making affordability and environmental responsibility more accessible within academic institutions.





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**Scope and Limitations of the Study**

This study focuses on the design, development, and implementation of UniThrift: A Campus-Centric Online Marketplace for Sustainable Goods at CTU Daanbantayan Campus. The platform is designed to facilitate the exchange of verified second-hand items such as textbooks, uniforms, laboratory equipment, laptops, electronics, makeup for Hospitality Management students, and other school-related supplies in a secure and exclusive digital environment. By requiring user verification through university credentials and school IDs, the platform ensures that only CTU students, faculty, and staff can participate, preventing unauthorized transactions and fraudulent sales.

Revenue generated from small transaction fees or premium listing features will be managed by the Supreme Student Government (SSG) or another designated organization, ensuring proper maintenance, monitoring, and platform sustainability. The study will be conducted over one academic semester, focusing on platform adoption, user engagement, and its impact on sustainable consumption. Topics covered include campus-based e-commerce, sustainable consumer behavior, trust in online transactions, and user experience in digital marketplaces.

The marketplace will have strict policies regarding prohibited items, which include illegal substances, weapons, counterfeit goods, unapproved food items, and personal hygiene products (e.g., used makeup, toiletries). Additionally, sellers must comply with pricing guidelines to prevent overpricing and fraudulent transactions.

Despite its potential, the study has some limitations. The effectiveness of UniThrift depends on user adoption, which may be influenced by students' familiarity with online marketplaces and willingness to participate. The availability of second-hand items also determines the platform's





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success—low listings may reduce engagement. Additionally, while the study provides a model for sustainable commerce within universities, it does not examine broader economic and cultural factors influencing consumer behavior outside the campus.

However, despite these limitations, UniThrift serves as a scalable framework that can be adapted by other educational institutions, integrating sustainable and cost-effective e-commerce solutions to support both academic and environmental goals.





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**Enhancing Campus Clinic Operations with an Integrated Medicine Inventory System at  
Cebu Technological University Daanbantayan Campus**

**Significance of the Study**

The Cebu Technological University (CTU) Daanbantayan Campus Clinic currently faces challenges in manual medicine inventory tracking and inefficient record-keeping, leading to issues such as medicine shortages, overstocking, expiration of unused medicines, and difficulties in monitoring student health needs. These inefficiencies can delay essential healthcare services, compromise medicine availability, and prevent clinic staff from making data-driven decisions for effective health management.

To address these problems, this study proposes the development of an Integrated Medicine Inventory System that will streamline inventory management, automate restocking alerts, monitor medicine expiration, and analyze student health trends. By eliminating traditional manual inventory tracking, the system will enhance efficiency, prevent medicine wastage, and ensure that essential medical supplies are always available when needed.

Studies such as Abu Zwaida et al. (2021) have shown that automated drug tracking systems reduce medicine shortages and optimize resource allocation, while Buclatin (2019) highlights the inefficiencies of manual tracking in rural health centers, emphasizing the need for digital process control systems in healthcare. By integrating these concepts, the system will provide real-time tracking of medicine stock levels, automated restocking notifications, and detailed reports on frequently used and rarely used medicines, allowing for better resource planning and budget allocation.





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In addition to inventory management, the system will include an analytics feature for student health trends. When students require medical attention, they will fill out a digital consultation form, which the clinic administrator will review and approve before scheduling treatment or providing medication. This process ensures accurate record-keeping and structured patient management. By analyzing these consultation records, the clinic can identify recurring health issues, detect illness patterns across different student groups, and implement preventive health measures, ultimately contributing to better student welfare.

This study is expected to benefit the following stakeholders:

**Healthcare and Educational Institutions** – Serves as a reference model for integrating digital inventory tracking and student health analytics in campus healthcare services, improving efficiency and resource management.

**University Administration** – Strengthens healthcare service management by ensuring medicine availability, supporting data-driven decision-making, and enhancing the clinic's operational efficiency.

**Researcher** – Provide insights into the development, implementation, and impact of digital inventory and student health monitoring systems in healthcare settings, serving as a reference for future improvements.

**Clinic Staff (Nurses and Medical Personnel)** – Reduces manual workload through automated inventory tracking, real-time stock alerts, digital patient documentation, and medicine expiry monitoring, allowing staff to focus more on patient care.

**Students** – Ensures that medicines are always available when needed while enabling better health monitoring and preventive care measures, ultimately improving student well-being.





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By implementing this Integrated Medicine Inventory System, CTU Daanbantayan Campus aims to minimize medicine wastage, optimize inventory management, and enhance patient care through data-driven healthcare solutions. This initiative supports the modernization of campus clinics and serves as a scalable model for digital healthcare management in educational institutions.





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**Scope and Limitations of the Study**

This study focuses on the design, development, and implementation of an Integrated Medicine Inventory System for Cebu Technological University (CTU) Daanbantayan Campus Clinic. The system is designed to automate inventory tracking, monitor medicine expiration, send restocking alerts, and generate analytical reports on medicine usage. It also features a structured student consultation process, where the clinic administrator sends a form to students, students fill it up, and the admin approves it before scheduling medical attention or dispensing medicine.

The system will be tested over one academic year, covering system development, user training, testing, and pilot implementation before full deployment. The study will focus on digital inventory management, medicine stock monitoring, student consultation tracking, and health trend analysis. However, it does not include diagnosis automation, treatment recommendations, integration with external healthcare systems, or pharmacy-level prescription services.

Potential challenges include system adoption by clinic staff, availability of updated student health records, and dependency on stable internet infrastructure. Despite these limitations, the system aims to enhance clinic efficiency, reduce medicine wastage, and promote data-driven decision-making in student healthcare management at CTU Daanbantayan Campus.





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**Project Design / Development Plan**

The Centralized Research Digital Library for CTU Daanbantayan Campus will consist of the following major modules:

1. Research Material Upload and Storage – Faculty members and approved researchers can upload research materials, ensuring proper categorization by subject, author, and publication date. Student uploads will require admin approval to maintain content quality.
2. Search and Retrieval Functionality – Users can search for materials using keywords, author names, and research categories. Abstracts will be visible to all users, while full access is restricted based on user roles.
3. User Access Controls and Permissions – Role-based access will be implemented, ensuring that students can only view abstracts, faculty can upload and access full documents, and admins can manage user accounts and approve uploads.
4. Built-In Document Viewer – A secure, browser-based viewer will enable faculty and administrators to read full documents without downloading them, preventing unauthorized distribution.
5. Analytics and Reporting – Admins can track system usage, monitor popular research topics, and generate reports on user engagement and uploaded materials.
6. Notification System – Users will receive updates on new uploads, approvals, and comments, improving engagement and interaction.
7. User Feedback and Rating System – Users can rate and provide feedback on research materials, helping to highlight high-quality resources.





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**Software Specification**

**Functional Requirements:**

- User Registration and Login – Secure authentication system with role-based access.
- Research Material Upload and Categorization – Faculty and approved researchers can upload files with metadata for organization.
- Search and Retrieval Tools – Users can search and filter research materials efficiently.
- Role-Based Access Controls – Ensures appropriate permissions for students, faculty, and administrators.
- Built-In Document Viewer – Enables secure access to full research documents for approved users.

**Nonfunctional Requirements:**

- Secure Data Storage – Ensures encrypted and protected research materials.
- Scalability – Designed to accommodate future expansion and integration with new features.
- Mobile and Web Compatibility – The system will be accessible on both desktop and mobile devices for greater usability.





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**Hardware Specification**

- Servers – Required for hosting the digital library and managing user requests efficiently.
- Computers and Mobile Devices – Students and faculty members will access the system via desktops, laptops, and mobile phones.

**Software Technologies Use**

- Hyper Text Markup Language (HTML)
- Cascading Style Sheet (CSS)
- JavaScript
- Structured Query Language (SQL)
- XAMPP

**Backup Storage** – A data backup system will be implemented to prevent loss of research materials and ensure system reliability





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**Project Design / Development Plan**

Major/important modules to implement:

- User Authentication & Verification – Integration with university credentials to ensure that only students, faculty, and staff can access the platform.
- Item Listing & Management – Allows users to post, edit, and categorize items for sale, including descriptions, conditions, and prices.
- Search and Filtering System – Enables users to easily find items using keywords, categories, price range, and item condition.
- Transaction & Payment Processing – Supports secure cashless payments through digital wallets or campus-approved payment systems.
- Ratings and Reviews – Provides a trust-building mechanism where buyers and sellers can rate transactions and leave feedback.
- Admin Dashboard & Moderation Tools – Allows administrators to monitor activity, enforce marketplace policies, and handle disputes.

**Software Specification**

Functional Requirements:

- User registration and login system linked to university credentials.
- Item listing, editing, and removal features for sellers.
- Search, filter, and sorting tools for buyers.





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- Secure transaction handling, including payment integration.
  - Ratings and feedback system for user interactions.
  - Notification system for updates, inquiries, and purchase confirmations.

**Nonfunctional Requirements:**

- User-friendly interface for seamless navigation.
- Secure data storage for user profiles and transaction history.
- Scalability to accommodate increasing users and transactions.
- Mobile-friendly design for accessibility across devices.

**Hardware Specification**

- Web server or cloud-based hosting for system deployment.
- Computers and mobile devices for admin and user access.

**Software Technologies Use**

- Hyper Text Markup Language (HTML)
- Cascading Style Sheet (CSS)
- JavaScript
- Structured Query Language (SQL)
- XAMPP

Data storage infrastructure for managing item listings and user interactions.





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**Project Design / Development Plan**

The system will be designed to enhance medicine inventory management and emergency response coordination at the CTU Daanbantayan Campus Clinic. The following key modules will be implemented:

- Real-Time Medicine Inventory Tracking – Ensures up-to-date stock levels for all medicines.
- Automated Restocking Alerts – Notifies clinic staff when stock levels fall below a predefined threshold.
- Expiry Date Monitoring and Alerts – Prevents the use of expired medicines by sending timely notifications.
- Usage Analytics and Reporting – Tracks medicine consumption trends and generates reports for better decision-making.
- User-Friendly Dashboard and Mobile Accessibility – Provides an intuitive interface for managing inventory and responding to alerts.
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**Software Specification**

**Functional Requirements:**

- Medicine Inventory Tracking and Updates – Enables clinic staff to monitor stock levels and record medicine usage.
- Automated Restocking Alerts and Notifications – Sends notifications when medicine stock is low or approaching expiration.





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- Usage Analytics and Reporting Tools – Generates reports on medicine consumption, restocking trends, and emergency requests.
  - User Registration and Role-Based Access Control – Ensures secure access for authorized clinic staff only.

#### **Nonfunctional Requirements:**

- Secure Data Storage – Protects inventory records and sensitive clinic data.
- Compatibility with Mobile and Web Platforms – Ensures accessibility from computers and mobile devices.
- Scalability – Allows future expansion to accommodate additional features and users.

#### **Hardware Specification**

- Computers and Mobile Devices – Used by clinic staff to access and manage the system.
- Servers for Hosting the System – Ensures reliable performance and data security.
- Backup Storage – Prevents data loss and ensures continuity of clinic operations.

#### **Software Technologies Use**

- Hyper Text Markup Language (HTML)
- Cascading Style Sheet (CSS)
- JavaScript
- Structured Query Language (SQL)
- XAMPP





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**Thank You Respected Panelist!**

**Group 3**

