



SCHOOL OF INFORMATION  
TECHNOLOGY

### ITS120L- Application Development and Emerging Technologies (Laboratory)

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Project Title	BookHive: AI-Powered Library Assistant with Smart Recommendations and Secure Inventory Management
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Client (Organization Name, Department)	Doña Matilde Memorial Elementary School's Reading Hub
Team Lead	Angela Mariel D. Torres

#### Project Requirement

Libraries and community reading hubs are vital for promoting literacy, but many still rely on manual processes for borrowing and returns. This leads to **delayed updates, misplaced records, overdue books, and limited access outside library hours**. Readers are often unsure if a book is available, while librarians struggle with tracking inventory and generating reports.

At Doña Matilde Memorial Elementary School, these challenges directly affect literacy programs and student access to resources.

BookHive is a **web-based reading hub system** that integrates **AI and cybersecurity** to modernize library management.

#### AI Features

- **AI Chatbot with NLP:** Students can interact naturally with the system to check availability, borrowing status, or account details. If a book is unavailable, the chatbot suggests alternatives or recommends where it can be found (e.g., nearby partner libraries or bookstores).
- **AI Book Recommendation System**

- Provides personalized book suggestions based on **borrowing history, age group, interests, and preferred genres**.
  - Encourages students to explore new titles, discover similar books they might enjoy, and develop diverse reading habits.
- **Automated Inventory Tracking:** Real-time updates on availability and borrowing history.

### Cybersecurity Features

- **Role-Based Access Control (RBAC):** Limits access by user role (students vs. admins).
- **Data Encryption:** Secures personal and borrowing information.

### Benefits

- **For Students/Readers:** Real-time book availability, personalized recommendations, 24/7 access, and helpful alternatives when books are unavailable.
- **For Teachers/Librarians/Admins:** Simplified inventory tracking, overdue monitoring, secure records, and insights into reading behavior.