**Project Proposal: Library Management System**

**1. Project Overview**

Develop a Tkinter-based GUI application for a Library Management System where users can borrow books and an admin can manage borrowing records. The project will be divided into multiple modules, each handling different aspects of the system.

**2. Team Distribution**

* **Person 1: Main Integration & Control Flow**
  + **File:** main.py
  + **Responsibilities:** Integrate all modules, manage the overall control flow, and serve as the entry point of the application.
* **Person 2: Core Logic**
  + **File:** book.py (or equivalent)
  + **Responsibilities:** Manage the core logic for book borrowing and returning.
  + **Class:** Book
* **Person 3: UI Components**
  + **File:** ui.py
  + **Responsibilities:** Create and manage the Tkinter-based UI components.
  + **Class:** UIComponents
* **Person 4: File Handling**
  + **File:** file\_manager.py
  + **Responsibilities:** Handle file input/output using CSV for storing and retrieving data.
  + **Class:** BorrowingHistoryManager

**3. Basic Requirements**

* **At Least 3 Classes in Different Modules:**
  + main.py: Integrates other classes and manages control flow.
  + book.py: Manages the core logic for book borrowing and returning.
  + ui.py: Handles Tkinter-based UI components.
  + file\_manager.py: Manages file input/output using CSV.
* **Tkinter-based GUI:**
  + Main Page to provide a selection screen to enter as a borrower/admin
  + Admin page to have features like Book Returned, Add new book, Update Book status, View Book Status and View all Borrowers
  + Borrower page to have features like Borrow, Return, Renew, Search using title/ISBN/author
* **File Handling Using CSV:**
  + Store all data in CSV format with appropriate headers.
  + Include error handling for file operations.
* **User-Friendliness:**
  + Ensure the application is user-friendly and intuitive.
  + Implement basic error handling and validation.
* **Main Entry Point:**
  + main.py serves as the entry point, importing necessary modules and managing interactions.

**4. Detailed Requirements**

* **File:**
  + Store borrowing records in a CSV file with columns like “Book ID”, “Book Title”, “Borrower”, and “Borrow Date”.
  + Update the file when books are borrowed or returned.

**5. Example Modules & Classes**

* **Book Module:**
  + **Class:** Book
  + **Responsibilities:** Status of each book (borrower/ in library/ damaged)
* **UI Module:**
  + **Class:** UIComponents
  + **Responsibilities:** Create and manage the Tkinter interface.
* **File Handling Module:**
  + **Class:** BorrowingHistoryManager
  + **Responsibilities:** Manage the reading/writing of borrowing history to/from a CSV