CCINFOM - S13
GROUP 5

DATABASE APPLICATION PROPOSAL — "Local Library Database"

~ Section 1.0 Group Composition

Leader: ALMIN, Wesner III C.

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~ Section 2.0 Why is this Database System important to be developed?

Developing a database system ensures data consistency, security, and efficient access across branches. It allows patrons/staff to track book availability, manage employee records, and audit inventory. Unlike spreadsheets, a database handles large volumes of data more accurately and reduces errors. It also minimizes manual effort to save time and improve processing speed as different records are related. In addition, this system is essential for maintaining data integrity, especially across multiple branches.

~ Section 3.0 Records Management

Records	**Fields & Description**	**Group Member Assignment**
Book_Details	isbn title price author_last_name author_first_name ● Includes details of a specific book such as its pertinent information: ISBN, author's name, etc.	Valdez

Book_Inventory	inventory_id isbn branch_id acquistion_id ● Each record represents each book copy in a library's branch	Valdez
Patrons	ptron_id last_name first_name age gender (ENUM: 'M', 'F') phone_no email ● Each record represents a patron. Includes a patron's details, which consist of their full name, age, gender, phone number, and email.	Almin
Employees	employee_id last_name first_name age phone_no email job_id hire_date full_address branch_id ● Each record represents a single employee in a given branch. Includes an employee's details, which consist of the date they joined the branch, their role, etc.	Cariaga
Branches	branch_id full_address phone_no ● Each record represents a single branch and holds its address and phone number. Additionally, includes viewing of	Borja

	branch-specific information.	

~ Section 4.0 Transactions

Transaction Performed	**Description**	**Group Member Assignment**
Borrowing_History //Deals with borrowing and returning (Central table for the overdue and returning of books)	A patron borrows books from the library for a set period. borrow_id date_borrowed date_due date_returned borrow_status ENUM('B', 'O', ' R', 'L') book_id patron_id clerk_id status ENUM('A','C') // Active, Cancelled As a transaction, it will involve the following data operations: a. Ensure the patron has no overdue books (Borrow_status = Overdue/Lost) and has not exceeded the 3-book borrowing limit before creating a new transaction. b. Insert a new entry in the Borrowing_History table, including the necessary information. c. For returning, update the Borrowing_History table with the Date_returned, change Borrow_status to "Returned," and reflect the returned book's availability in the Books_Inventory table. d. Identify overdue books,	Cariaga

	update Borrow_status to "Overdue," record fines in the Borrowing_Fines table, and restrict borrowing for patrons with unpaid fines.	
Book_Rating	A patron gives a rating towards a book they have borrowed in the library. rating_id rating_score rating_date rating_comment borrow_id status ENUM('A','C') // Active, Cancelled As a transaction, it will involve the following data operations: a. Ensure the user has previously borrowed the book by checking the Borrowing_History table for a completed transaction for the specified Book_id and Patron_id. b. Insert a new entry into the Book_Rating table, including rating_score, rating_comment, and rating_date for reviews. c. Update the Book_Rating entry's status field ('A' for active) to indicate it is valid and linked to a legitimate borrowing history.	Almin
Book Acquisitions	A library branch adds books to its inventory through a purchase. acquisition_id acquisition_date acquisition_price supplier_name copies_acquired archivist_id isbn branch_delivered	Borja

	status ENUM('A','C') As a transaction, it will involve the following data operations: a. Insert a new record into the Book_Acquisitions table, including the necessary fields. b. Update the Books_Inventory table to reflect the newly acquired copies by filling the book_inventory and adding a new entry to book details for new books. c. Mark the acquisition record as active (Status = 'A') in the system for proper tracking and to indicate the books are ready for circulation.	
Borrowing_Fines	Penalties are charged to patrons for overdue or lost books. fine_id fine_amount payment_date borrow_id clerk_id status ENUM('A','C') // Active, Cancelled For Fines as a transaction, it will involve the following data operations: a. For overdue books (Borrow_status = 'Overdue'), calculate the fine by multiplying the number of overdue days by the static rate (e.g., ₱50/day). Add this fine to the Borrowing_Fines table. b. If the book is marked as "Lost" in the Borrowing_History table, calculate the fine as (30 days * ₱50) + replacement fee. Insert	Valdez

	this total amount into the Borrowing_Fines table. c. Add the calculated fine to the patron's outstanding balance in the Patrons table and mark their borrowing privileges as restricted. d. Ensure the status	

~ Section 5.0 Reports to be Generated

Report Generated	**Description**	**Group Member Assignment**
Most Borrowed Book (book with the most number of transactions) Report for a given month in 2 years	What were the most borrowed books in the given month. a. Combine data from all branches to identify borrowing transactions for the specified month. b. Count the number of times each book (Book_id) appears in the borrowing transactions (Borrowing_History table) for the given month. c. Identify and record the book that has the highest count of transactions during the specified month.	Almin
Newly Acquired Books (acquired books within a specified branch) Report for a given month in 2 years	What are the newest acquired books in the given month. a. Filter the Book_Acquisitions table to select records for the specified branch (Branch_id) and the specified month and year. b. Identify books where the acquisition date (Date_acquired) falls within the given month.	Borja

	c. Record the details of these books, including titles, authors, and acquisition dates, as newly acquired items for the specified branch.	
Patron Activity (total customer transactions - borrowed, no. of books overdue, fines, average days to return) Report per customer for a given month in 2 years	What are all the transactions of patrons in the given month. a. Query the Borrowing_History and Borrowing_Fines table for transactions by the patrons during the specified month and year. b. Display the total books borrowed, number of overdue transactions, total fines, and average return days for the patron within the specified month.	Cariaga
Book Rating (total overview of book ratings submitted by patrons – average rating of each book, total number of ratings) Report per branch for a given month in 2 years	What was the performance of the branch in the given month. a. Query the Book_Rating table for ratings submitted within the specified time frame. Ensure that only ratings are considered where the patron has borrowed the book (check Borrowing_History to ensure the patron has borrowed the rated book). b. For each book, calculate the average rating by averaging the score values from the Book_Rating table. Count the number of ratings submitted for each book during the time period. c. Sort by highest to lowest average rating.	Valdez

Four (4) reports should be generated, combining and aggregating data from at least two records. Each report must be assigned to each group member. Imperatively, reports always have a time dimension (e.g., Report per Month and Year, Report per Year, Report per Day) that will be asked from the user before the report is generated. Reports are different from listings. Data for listing are operating on records managed, and data for Reports are extracted from transactions.

Example: Sales Report (total and average sales amount) per day, for a given Year and Month, assigned to group member 3
Customer Engagement (number and total amount of sales transactions) Report per customer for a given Year and Month, assigned to group member 4