

Library Management System

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HONOR CODE

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or that I contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code

Task 1

Query 1:

Add an extra column 'Late' to the Book_Loan table. Values will be 0-for non-late returns, and 1-for late returns. Then update the 'Late' column with '1' for all records that they have a return date later than the due date and with '0' for those were returned on time

```
ALTER TABLE BOOK_LOANS  
ADD COLUMN LATE INT DEFAULT 0;
```

```
UPDATE BOOK_LOANS  
SET LATE =  
CASE WHEN Returned_date IS NULL OR Returned_date > due_date THEN 1  
ELSE 0 END;
```

```
sqlite> UPDATE BOOK_LOANS  
...> SET LATE =  
...> CASE WHEN Returned_date IS NULL OR Returned_date > due_date THEN 1  
...> ELSE 0 END;  
sqlite> SELECT *  
...> FROM BOOK_LOANS;  
1|1|123456|2022-01-01|2022-02-01|2022-02-01|0  
2|1|789012|2022-01-02|2022-02-02|NULL|1  
3|2|345678|2022-01-03|2022-02-03|NULL|1  
4|3|901234|2022-01-04|2022-02-04|2022-02-04|0  
5|1|567890|2022-01-05|2022-02-05|2022-02-09|1  
6|2|234567|2022-01-06|2022-02-06|2022-02-10|1  
7|2|890123|2022-01-07|2022-02-07|2022-03-08|1  
8|3|456789|2022-01-08|2022-02-08|2022-03-10|1  
9|1|111111|2022-01-09|2022-02-09|2022-02-06|0  
10|2|222222|2022-01-10|2022-02-10|2022-02-07|0  
11|1|333333|2022-03-01|2022-03-08|2022-03-08|0  
12|3|444444|2022-03-03|2022-03-10|2022-03-10|0  
13|3|555555|2022-02-03|2022-03-03|2022-02-18|0  
14|1|565656|2022-01-14|2022-02-14|2022-03-31|1  
15|3|676767|2022-01-15|2022-02-15|2022-02-21|1  
16|2|787878|2022-03-05|2022-03-12|2022-03-24|1  
17|3|989898|2022-03-23|2022-03-30|2022-03-30|0  
18|3|121212|2022-01-18|2022-02-18|2022-02-18|0  
19|1|232323|2022-03-24|2022-03-31|2022-03-31|0  
20|3|343434|2022-01-21|2022-02-21|2022-02-21|0  
21|3|454545|2022-01-24|2022-02-24|2022-02-24|0
```

Query 2:

Add an extra column 'LateFee' to the Library_Branch table, decide late fee per day for each branch and update that column.

```
ALTER TABLE LIBRARY_BRANCH  
ADD COLUMN LateFee DECIMAL(10,2);
```

```
UPDATE LIBRARY_BRANCH  
SET LateFee = CASE  
WHEN BRANCH_ID = 1 THEN 1.25  
WHEN BRANCH_ID = 2 THEN 1.50  
WHEN BRANCH_ID = 3 THEN 1.75  
WHEN BRANCH_ID = 4 THEN 2.00  
WHEN BRANCH_ID = 5 THEN 2.25  
ELSE 0.0 END;
```

```
sqlite> UPDATE LIBRARY_BRANCH  
...> SET LateFee = CASE  
...> WHEN BRANCH_ID = 1 THEN 1.25  
...> WHEN BRANCH_ID = 2 THEN 1.50  
...> WHEN BRANCH_ID = 3 THEN 1.75  
...> WHEN BRANCH_ID = 4 THEN 2.00  
...> WHEN BRANCH_ID = 5 THEN 2.25  
...> ELSE 0.0 END;  
sqlite> SELECT *  
...> FROM LIBRARY_BRANCH  
...> ;  
1|Main Branch|123 Main St, New York, NY 10003|1.25  
2|West Branch|456 West St, Arizona, AR 70622|1.5  
3|East Branch|789 East St, New Jersey, NY 32032|1.75  
4|North Branch|456 NW, Irving, TX 76101|2  
5|UTA Branch|123 Cooper St, Arlington TX 76101|2.25
```

Query 3:

Create a view vBookLoanInfo that retrieves all information per book loan.

```
CREATE VIEW vBookLoanInfo AS
SELECT
    BL.Card_no,
    BOR.Name AS Borrower_Name,
    BL.Date_out,
    BL.Due_date,
    BL.Returned_date,
    CAST((JULIANDAY(COALESCE(BL.Returned_date, CURRENT_DATE)) -
JULIANDAY(BL.Date_out)) AS INTEGER) AS TotalDays,
    B.Title AS Book_Title,
    CASE WHEN BL.Returned_date > BL.Due_date THEN
        CAST((JULIANDAY(BL.Returned_date) - JULIANDAY(BL.Due_date)) AS INTEGER)
    ELSE 0
    END AS Number_of_Days_Returned_Late,
    BL.Branch_id,
    CASE WHEN BL.Returned_date > BL.Due_date THEN
        (JULIANDAY(BL.Returned_date) - JULIANDAY(BL.Due_date)) * LB.LateFee
    ELSE 0.00
    END AS LateFeeBalance
FROM BOOK_LOANS BL
JOIN BORROWERS BOR ON BL.Card_no = BOR.Card_no
JOIN BOOK B ON BL.Book_id = B.Book_id
JOIN LIBRARY_BRANCH LB ON BL.Branch_id = LB.Branch_id;
```

```

sqlite> CREATE VIEW vBookLoanInfo AS
...> SELECT
...>     BL.Card_no,
...>     BOR.Name AS Borrower_Name,
...>     BL.Date_out,
...>     BL.Due_date,
...>     BL.Returned_date,
...>     CAST((JULIANDAY(COALESCE(BL.Returned_date, CURRENT_DATE)) - JULIANDAY(BL.Date_out)) AS INTEGER) AS TotalDays,
...>     B.Title AS Book_Title,
...>     CASE WHEN BL.Returned_date > BL.Due_date THEN
...>         CAST((JULIANDAY(BL.Returned_date) - JULIANDAY(BL.Due_date)) AS INTEGER)
...>     ELSE 0
...>     END AS Number_of_Days_Returned_Late,
...>     BL.Branch_id,
...>     CASE WHEN BL.Returned_date > BL.Due_date THEN
...>         (JULIANDAY(BL.Returned_date) - JULIANDAY(BL.Due_date)) * LB.LateFee
...>     ELSE 0.00
...>     END AS LateFeeBalance
...> FROM BOOK_LOANS BL
...> JOIN BORROWERS BOR ON BL.Card_no = BOR.Card_no
...> JOIN BOOK B ON BL.Book_id = B.Book_id
...> JOIN LIBRARY_BRANCH LB ON BL.Branch_id = LB.Branch_id;
sqlite> SELECT *
...> FROM vBookLoanInfo;
123456|John Smith|2022-01-01|2022-02-01|2022-02-01|31|To Kill a Mockingbird|0|1|0.0
789012|Jane Doe|2022-01-02|2022-02-02|2022-02-02|NULL||1984||1|
345678|Bob Johnson|2022-01-03|2022-02-03|2022-02-03|NULL||Pride and Prejudice||2|
901234|Sarah Kim|2022-01-04|2022-02-04|2022-02-04|31|The Great Gatsby|0|3|0.0
567890|Tom Lee|2022-01-05|2022-02-05|2022-02-09|35|One Hundred Years of Solitude|4|1|5.0
234567|Emily Lee|2022-01-06|2022-02-06|2022-02-10|35|Animal Farm|4|2|6.0
890123|Michael Park|2022-01-07|2022-02-07|2022-03-08|60|The Catcher in the Rye|29|2|43.5
456789|Laura Chen|2022-01-08|2022-02-08|2022-03-10|61|Lord of the Flies|30|3|52.5
111111|Alex Kim|2022-01-09|2022-02-09|2022-02-06|28|Brave New World|0|1|0.0
222222|Rachel Lee|2022-01-10|2022-02-10|2022-02-07|28|The Picture of Dorian Gray|0|2|0.0
333333|William Johnson|2022-03-01|2022-03-08|2022-03-08|7|The Alchemist|0|1|0.0
444444|Ethan Martinez|2022-03-03|2022-03-10|2022-03-10|7|The God of Small Things|0|3|0.0
555555|Grace Hernandez|2022-02-03|2022-03-03|2022-02-18|15|Wuthering Heights|0|3|0.0
565656|Sophia Park|2022-01-14|2022-02-14|2022-03-31|76|The Hobbit|45|1|56.25
676767|Olivia Lee|2022-01-15|2022-02-15|2022-02-21|37|The Lord of the Rings|6|3|10.5
787878|Noah Thompson|2022-03-05|2022-03-12|2022-03-24|19|The Hitchhiker's Guide to the Galaxy|12|2|18.0
989898|Olivia Smith|2022-03-23|2022-03-30|2022-03-30|7|The Diary of a Young Girl|0|3|0.0
121212|Chloe Park|2022-01-18|2022-02-18|2022-02-18|31|The Da Vinci Code|0|3|0.0
232323|William Chen|2022-03-24|2022-03-31|2022-03-31|7|The Adventures of Huckleberry Finn|0|1|0.0
343434|Olivia Johnson|2022-01-21|2022-02-21|2022-02-21|31|The Adventures of Tom Sawyer|0|3|0.0
454545|Dylan Kim|2022-01-24|2022-02-24|2022-02-24|31|A Tale of Two Cities|0|3|0.0

```

Task 2

Requirement 1 - User checks out a book

Library Management System

Book ID:

19

Branch ID:

1

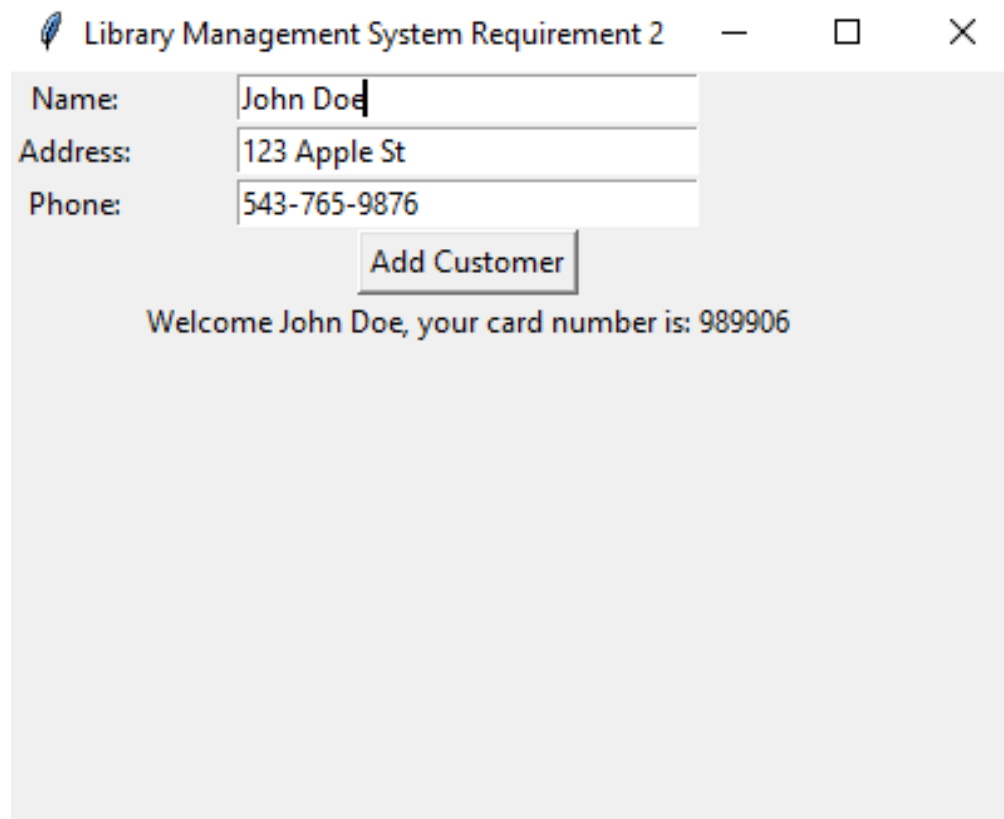
Card Number:

454545

Checkout Book

Book ID: 1, Branch ID: 1, Copies: 3
Book ID: 2, Branch ID: 1, Copies: 2
Book ID: 3, Branch ID: 2, Copies: 1
Book ID: 4, Branch ID: 3, Copies: 4
Book ID: 5, Branch ID: 1, Copies: 5
Book ID: 6, Branch ID: 2, Copies: 3
Book ID: 7, Branch ID: 2, Copies: 2
Book ID: 8, Branch ID: 3, Copies: 1
Book ID: 9, Branch ID: 1, Copies: 4
Book ID: 10, Branch ID: 2, Copies: 2
Book ID: 11, Branch ID: 1, Copies: 3
Book ID: 12, Branch ID: 3, Copies: 2
Book ID: 13, Branch ID: 3, Copies: 1
Book ID: 14, Branch ID: 1, Copies: 5
Book ID: 15, Branch ID: 3, Copies: 1
Book ID: 16, Branch ID: 2, Copies: 3
Book ID: 17, Branch ID: 3, Copies: 2
Book ID: 18, Branch ID: 3, Copies: 2
Book ID: 19, Branch ID: 1, Copies: 4
Book ID: 20, Branch ID: 3, Copies: 1
Book ID: 21, Branch ID: 3, Copies: 1

Requirement 2 - Add a new borrower into the database



Library Management System Requirement 2

Name: John Doe

Address: 123 Apple St

Phone: 543-765-9876

Add Customer

Welcome John Doe, your card number is: 989906

Requirement 3 - Add a new book with publisher into the database



Library Management System Requirement 2




Book Id:	999
Book Title:	A Real Book
Book Publisher Name:	Big Publisher
Book Publisher Phone:	123-234-4566
Book Publisher Address:	123 Main St

Book A Real Book has been added to the library with ID: 2222
with Publisher Name: Big Publisher, Publisher Phone Number: 123-234-4566, and Publisher Address: 123 Main St

Requirement 4 - Enter a book and see every branch that has it loaned out

The screenshot shows a window titled "Library Management System" with a purple header bar. Inside the window, there is a label "Book Title:" followed by a text input field containing the value "1984". Below the input field is a button labeled "Show Loan Info". Underneath the button, the text "Branch Name: Main Branch, Copies Loaned: 1" is displayed. The rest of the window area is a light gray placeholder.

Requirement 5 - See how many books were turned in late in a given range

 Library Management System Requirement 5

— □ ×

Date Start (YYYY-MM-DD):

2022-02-01

Date End (YYYY-MM-DD):

2022-03-01

Search

Book ID: 5, Branch ID: 1, Card Number: 567890, Date Checked Out: 2022-01-05, Due Date: 2022-02-05, Date Returned: 2022-02-09, Days Late: 4
Book ID: 6, Branch ID: 2, Card Number: 234567, Date Checked Out: 2022-01-06, Due Date: 2022-02-06, Date Returned: 2022-02-10, Days Late: 4
Book ID: 7, Branch ID: 2, Card Number: 890123, Date Checked Out: 2022-01-07, Due Date: 2022-02-07, Date Returned: 2022-03-08, Days Late: 29
Book ID: 8, Branch ID: 3, Card Number: 456789, Date Checked Out: 2022-01-08, Due Date: 2022-02-08, Date Returned: 2022-03-10, Days Late: 30
Book ID: 14, Branch ID: 1, Card Number: 565656, Date Checked Out: 2022-01-14, Due Date: 2022-02-14, Date Returned: 2022-03-31, Days Late: 45
Book ID: 15, Branch ID: 3, Card Number: 676767, Date Checked Out: 2022-01-15, Due Date: 2022-02-15, Date Returned: 2022-02-21, Days Late: 6

Requirement 6 - Enter a borrower or book to see their late fee



Library Management System Requirement...



Name:	<input type="text"/>
Address:	<input type="text"/>
Phone:	<input type="text"/>
<input type="button" value="Add Customer"/>	
Book Id:	<input type="text"/>
Book Title:	<input type="text"/>
Book Publisher Name:	<input type="text"/>
Book Publisher Phone:	<input type="text"/>
Book Publisher Address:	<input type="text"/>
<input type="button" value="Add Book"/>	
Borrower Name:	<input type="text"/>
Borrower Id:	<input type="text"/>
Borrower Late Fees:	<input type="text"/>
<input type="button" value="Search"/>	
<input type="button" value="Book Search"/>	

Contributions List

Dylan Campbell:

Task 2 Requirement 2 and 5

Submission documents

Karla Nevarez:

Task 1 Queries 1-3

Task 2 Requirements 1 and 4

Jeremiah Pitts:

Task 2 Requirements 3, 6a, and 6b