## horizontal line



Order Processing System

Database Management Systems Final Project

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**Implementation of a DBMS of an online bookstore.**

# Team Members

|  |  |
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# Database ERD Diagram

## 

# Analysis

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## Triggers

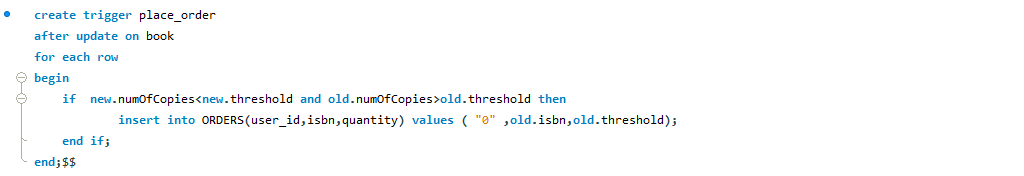
1. Modify\_existing\_books

Make users cannot update the quantity of a book if this update will cause the quantity of a book in stock to be negative.



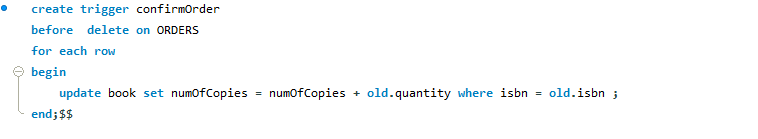
1. Place\_order

System order an order with constant quantity is placed only when the quantity of a book drops from above a given threshold , assuming System is a manager with id 0



1. confirmOrder

The quantity of the book in store automatically increases with the quantity specified in the order , when manager confirm an order



## Indices

Add indices to when search , to optimize the queries

## Database Tuning

To ensure using memory efficiently, a relation is made for publishers instead of keeping a column for publisher in the BOOK relation to avoid redundancy of information as many books may have the same publisher.

Moreover, a relation is created to store managers’ IDs instead of keeping a column of boolean in the USER\_INFORMATION relation as the number of managers is much less than the number of users, so storing managers’ IDs is a more cost-effective approach.

## Concurrency / Transaction Control

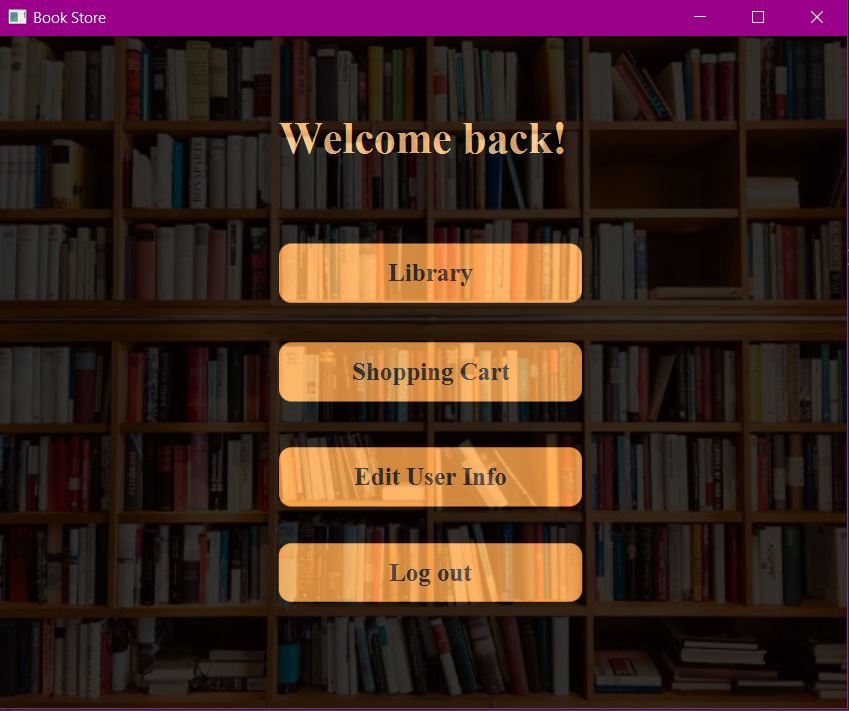
On checkout from the shopping cart, a transaction is started with an isolation level of Repeatable Read to prevent dirty reads and non-repeatable reads while the user is entering his credit card details. A transaction is committed on confirmation if the credentials are valid. If the user cancels the checkout, the transaction rollback.

On modifying a book, a transaction is started with an isolation level of Repeatable Read to prevent dirty reads and non-repeatable reads while the user is entering the new details of the book. A transaction is committed on confirmation if the new title is unique.

# Sample Screenshots

## User

User Homepage



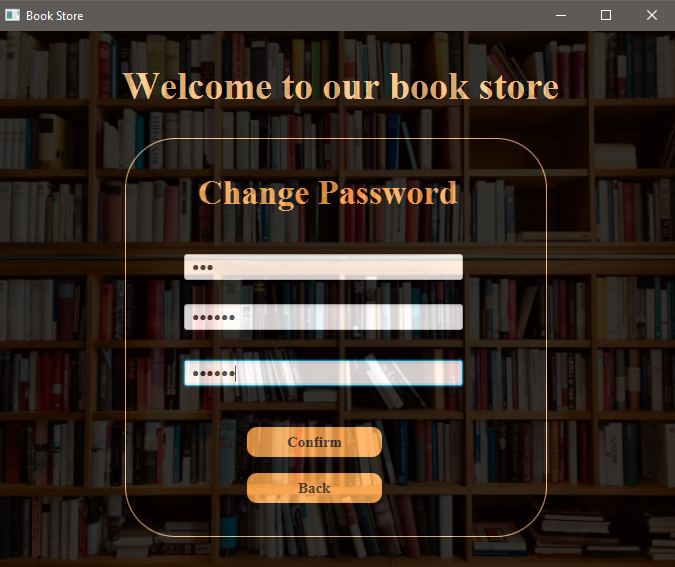
Edit User Info ::

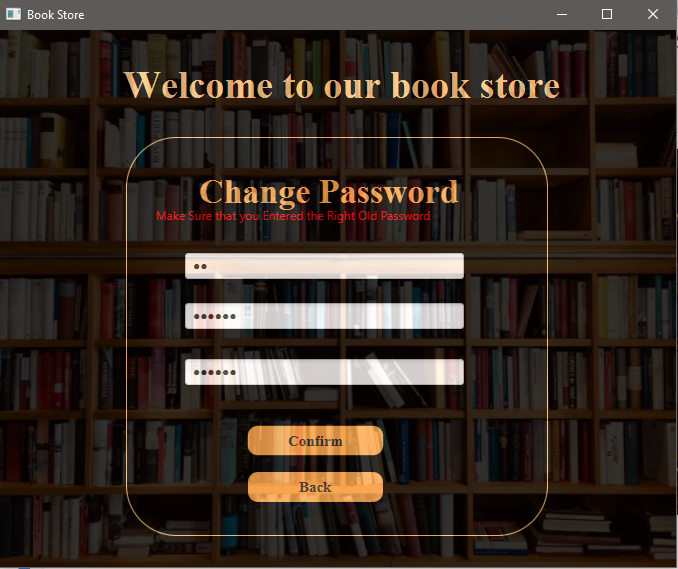
>> before editing fields .

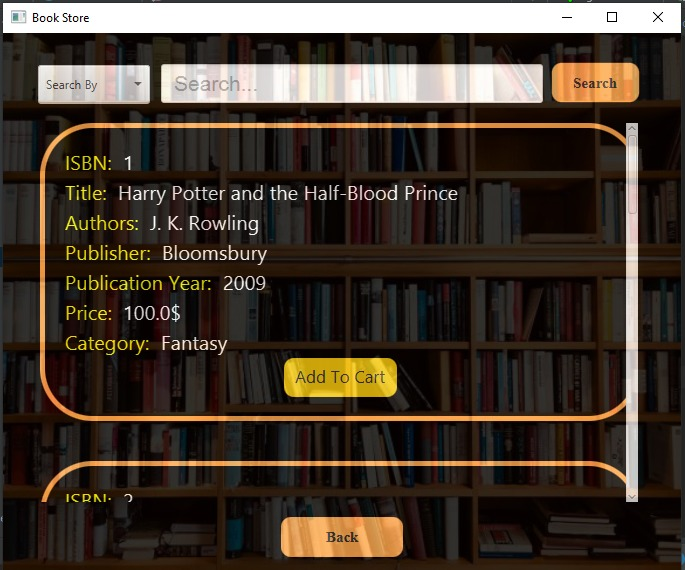


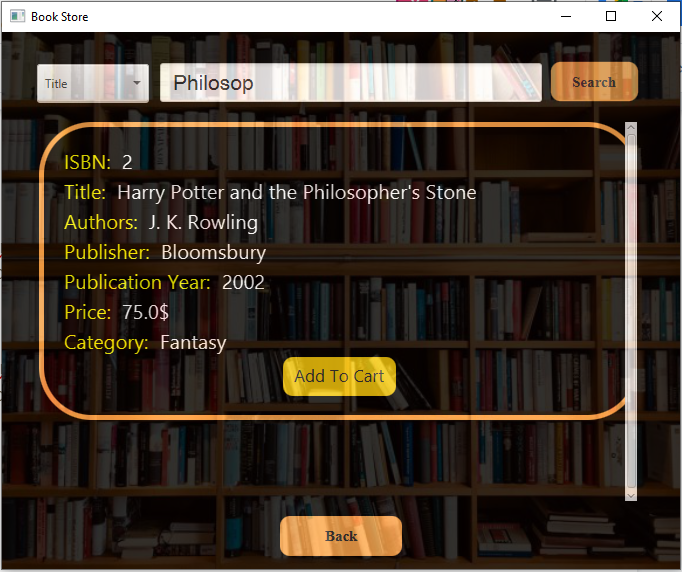
>> after editing ::

>> For Editing Password ::

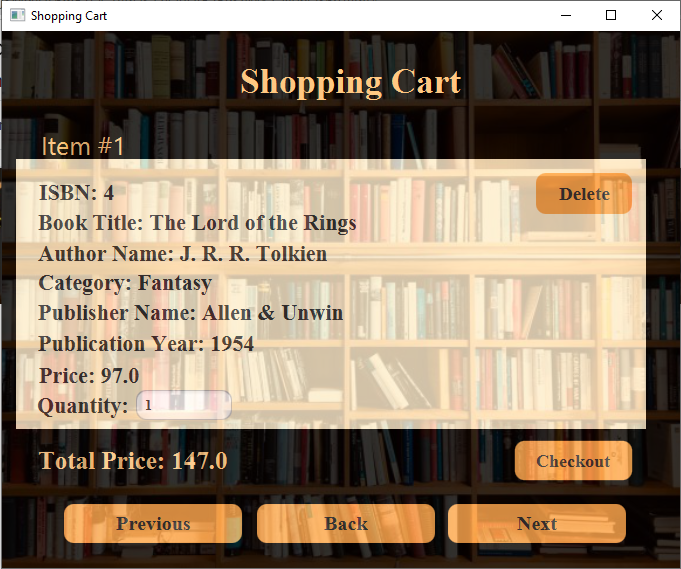


>> Entering invalid old password ::

Library 

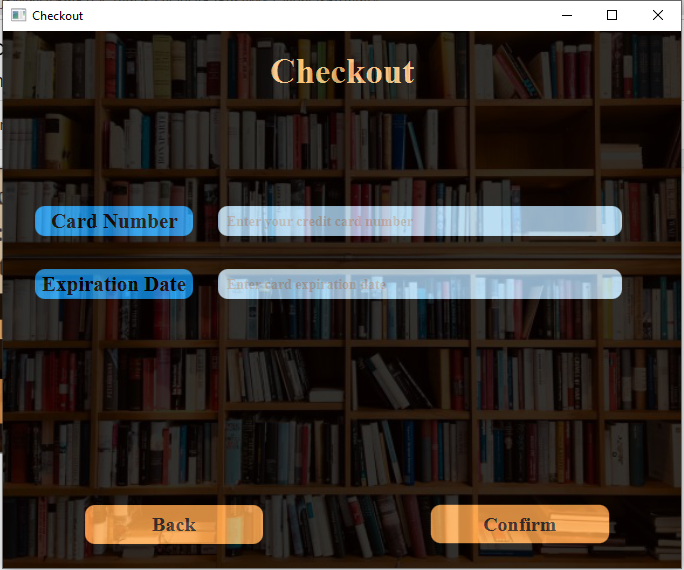
Search 

Shopping Cart

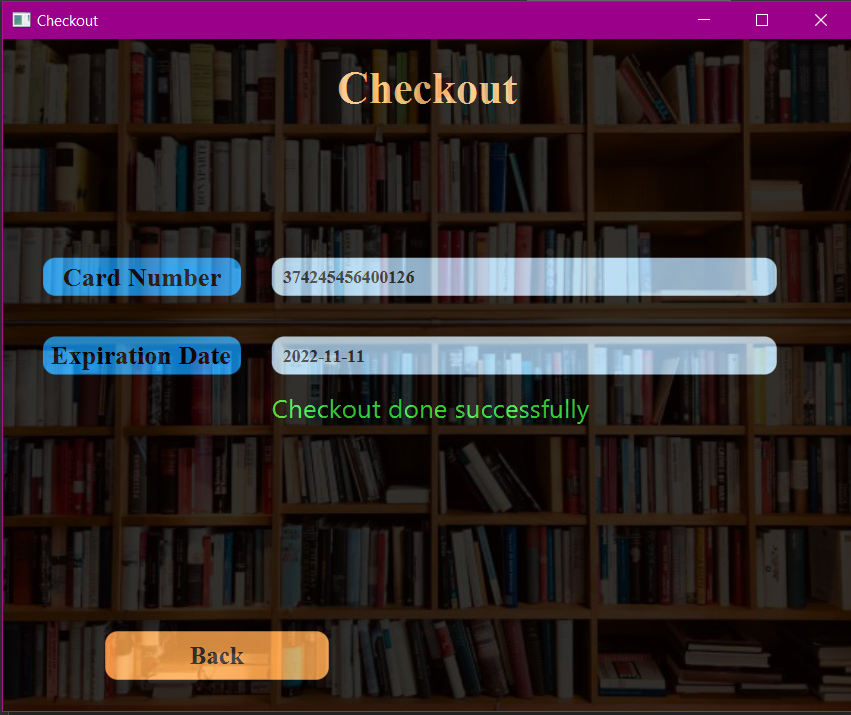




Checkout



Checkout Success

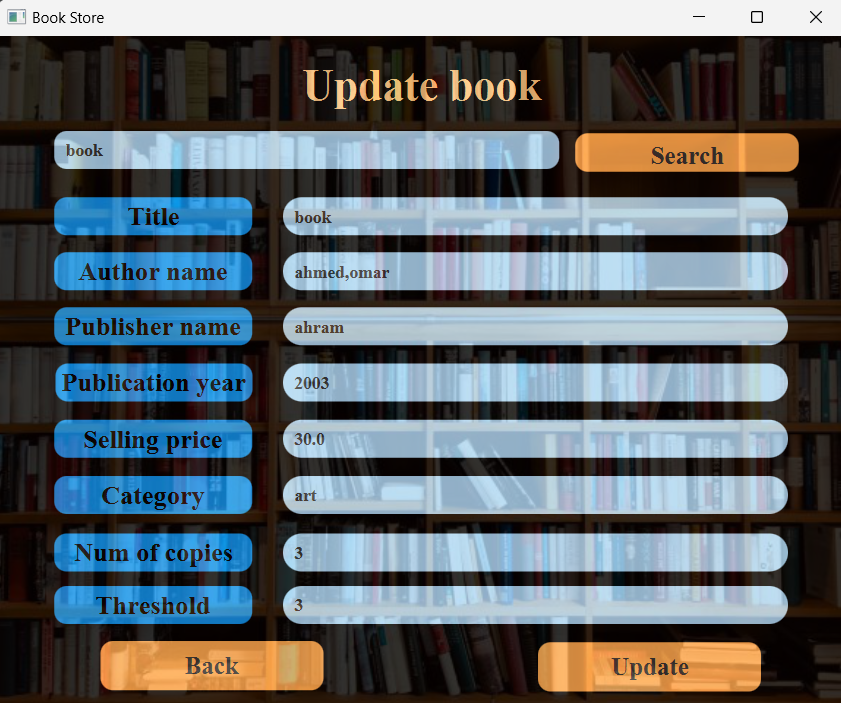


Checkout with quantities exceeding stock value



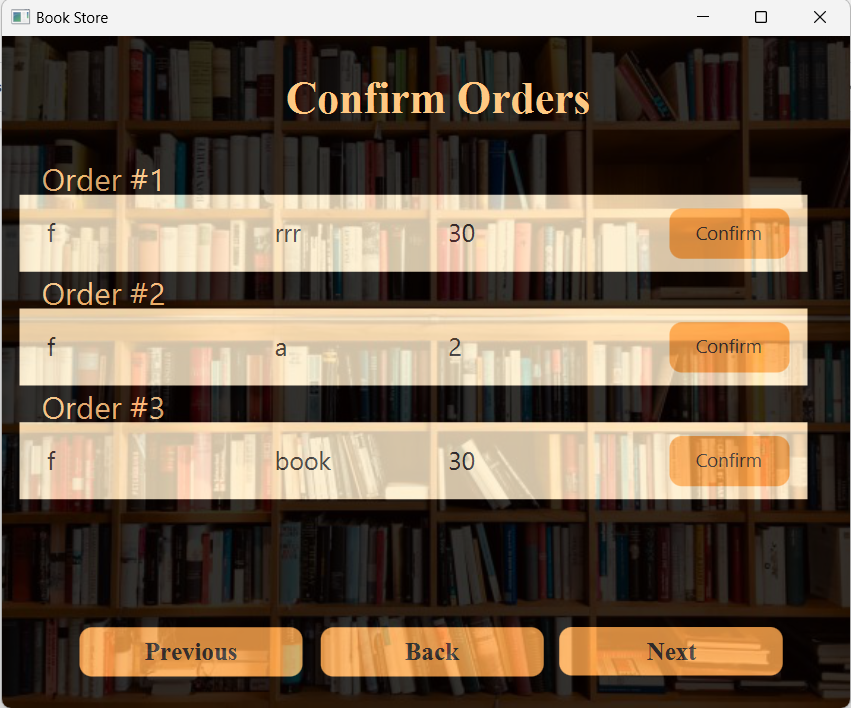
## Manager

Modify existing books



Add book

Confirm orders



Place orders for books

Add book

