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DESIGN AND ANALYSIS OF INFORMATION SYSTEMS

STUDENT NUMBER
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DOCUMENTATION MAS FINAL PROJECT

Project Description:

I'm excited to introduce you to my project, the Library Management System, which emerged from my assignment in the Information Systems Design (PRI) course. The goal was to innovate daily operations in book libraries by simplifying customer order management and streamlining operations through modern technology. From user-friendly interfaces to robust database management systems, I've integrated various technologies to enhance efficiency and improve customer service.

With the Library Management System, customers can easily browse books, select preferred copies, and securely complete orders online. Meanwhile, library staff have comprehensive access to manage the book database, ensuring seamless operations. Support teams and warehouse staff play integral roles in addressing customer inquiries and maintaining inventory.

Throughout development, I've concentrated on enhancing user experience and implementing solutions that optimize library management tasks. This project reflects my dedication to advancing library services and exploring innovative information systems solutions.

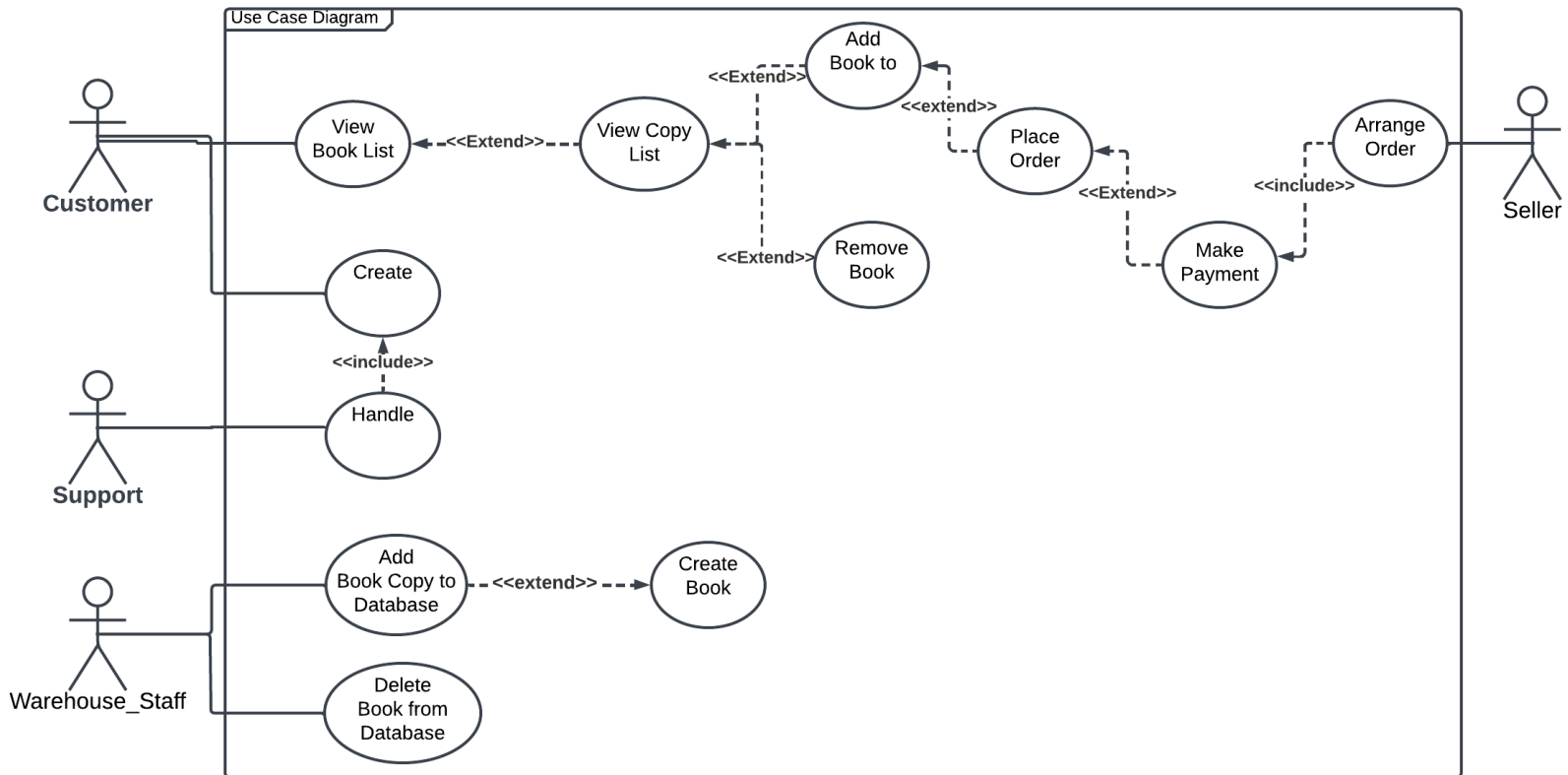
I invite you to explore the Library Management System and witness firsthand how it enhances library operations:

- **Book Management:** Staff can add, delete, and manage book copies.
- **Order Management:** Customers can select books, choose languages, complete transactions securely, and receive orders at their addresses.
- **Staff Access:** Library personnel have full database access for managing books.
- **Delivery Process:** Sellers handle customer order deliveries.
- **Customer Support:** Support teams manage customer inquiries.
- **Warehouse Management:** Warehouse staff maintain an organized and updated book database.

This system aims to increase customer satisfaction and enhance overall library efficiency.

Use Case Diagram Explanation:

This use case diagram shows how different people (actors) interact with the book library system. The main actors are the Customer, Staff, Seller, Support Team, and Warehouse Staff. Each one has specific tasks to do in the system. Here's a simple explanation of what each actor does:



Use Case scenario

Customer

The customer can view the list of books provided by the system. After selecting a book of interest, the system shows a list of available copies of that book. The customer can add or remove book copies to/from their basket. After creating their order, they can proceed with the payment. Once the payment is done, it is the seller's responsibility to arrange the delivery of the order.

Warehouse Staff

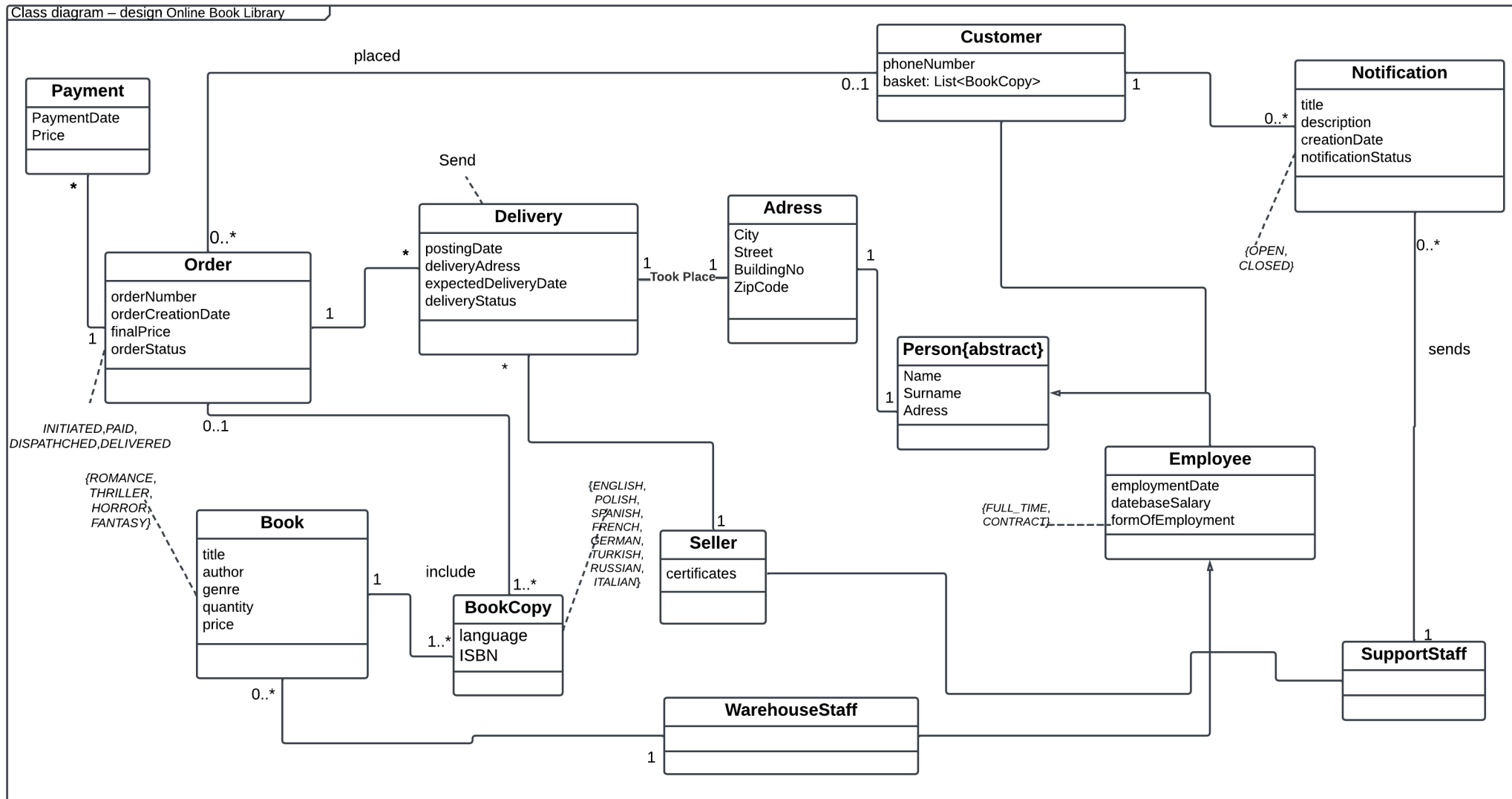
The warehouse staff is responsible for managing the book database. This includes adding new book copies, deleting existing book copies, and creating new book copies.

Support Staff

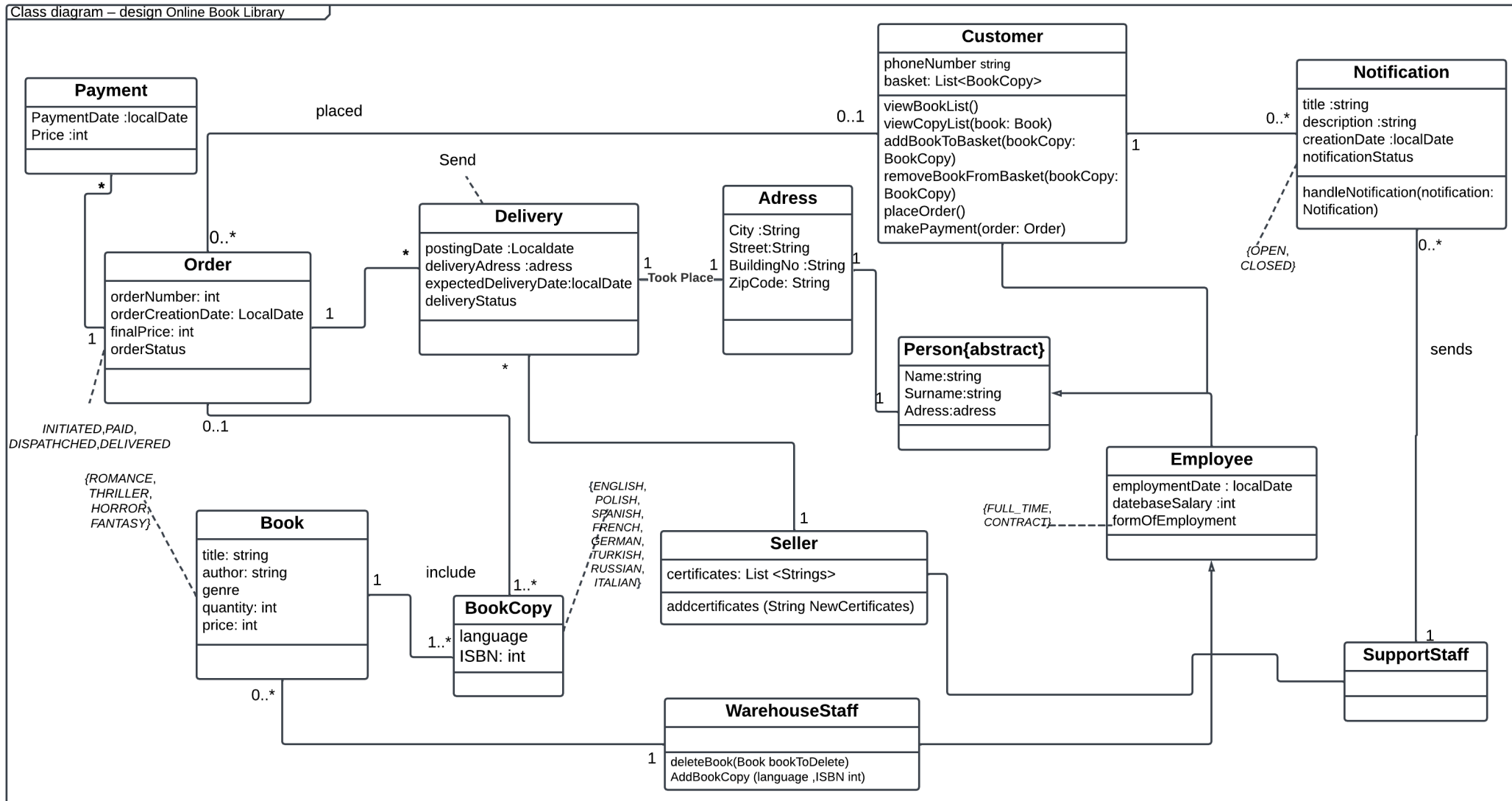
Support staff handles customer notifications. The system forwards notifications created by customers to the support staff, who then respond to these notifications to resolve customer issues.

Class Diagram – Analytical

In this diagram I have clearly indicated how each class is related to other classes and the multiplicity of connections. These connections reflect the relationships necessary for the system to perform its functions. We will see these relationships in more detail in code, where objects in the system can interact with each other and perform business processes.

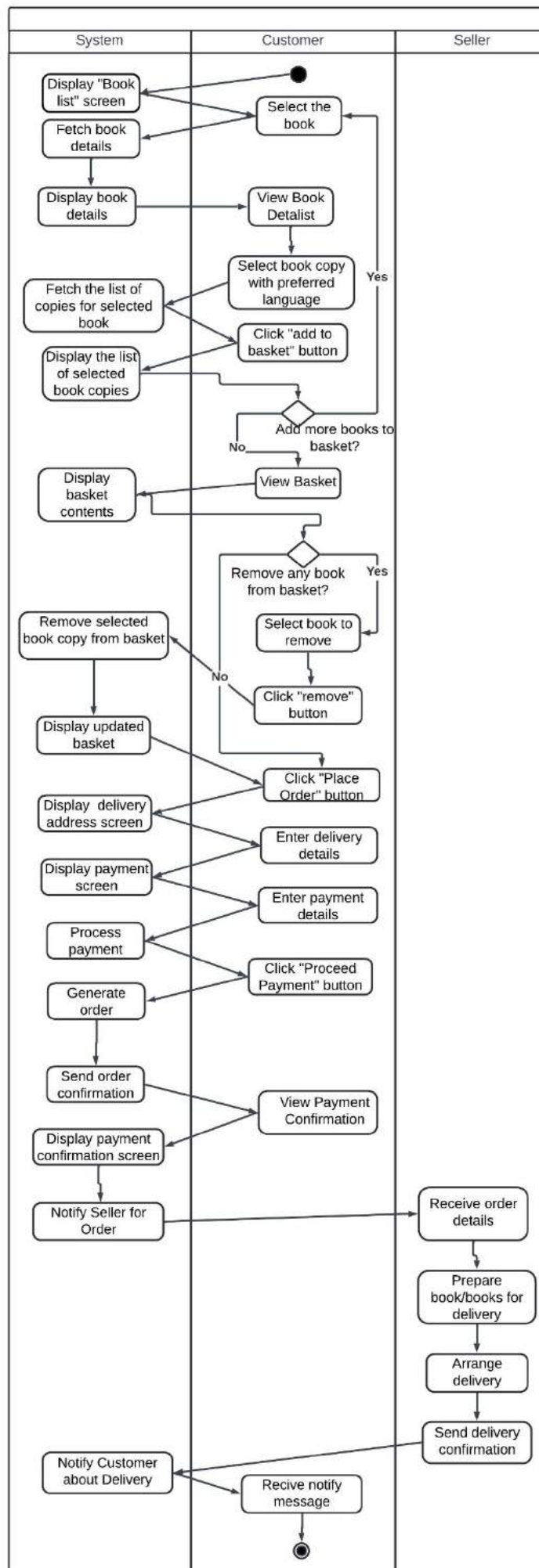


Class Diagram – Design



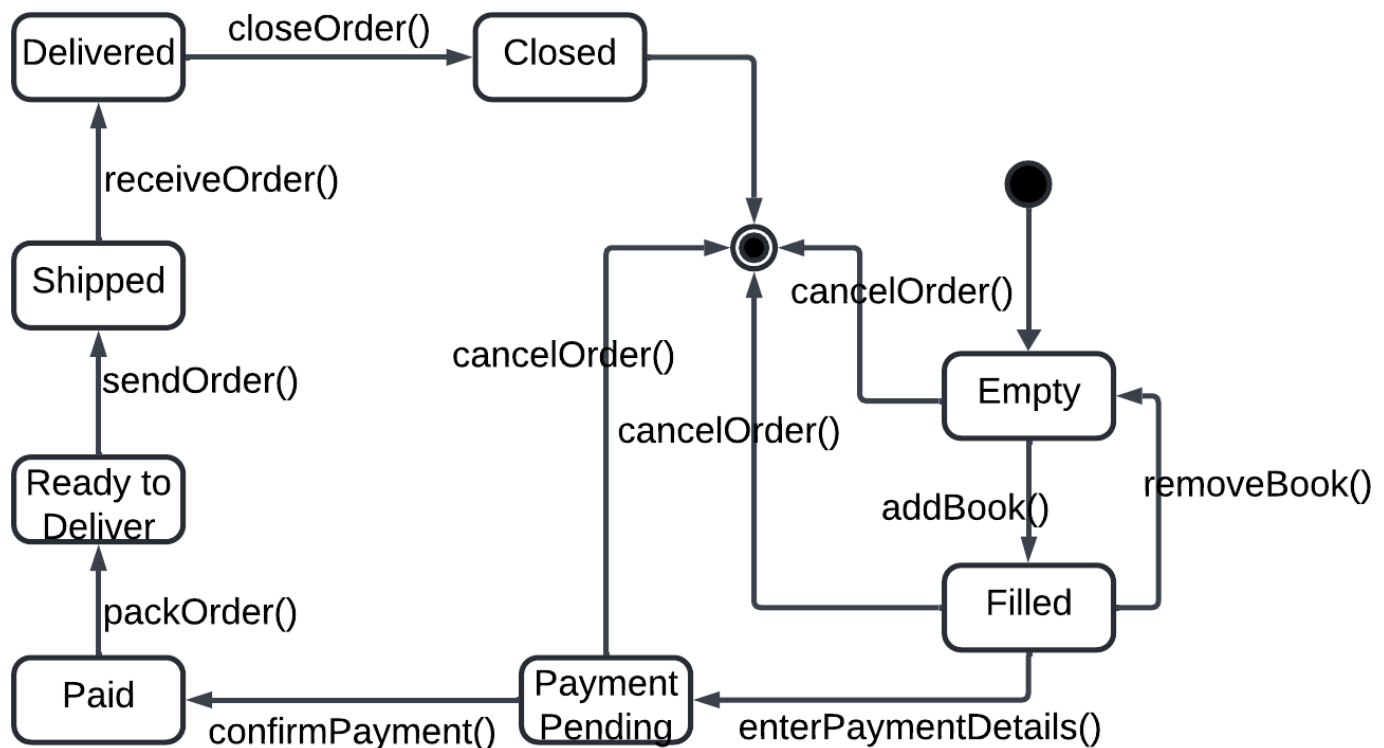
Activity Diagram for " Customer Makes an Order "

This activity diagram shows the steps a customer takes to make an order. It includes actions like browsing the book list, selecting copies, adding items to the basket, placing the order, and making the payment. The diagram also covers the seller's role in processing the order and arranging delivery. This helps to clearly understand the entire process from start to finish.



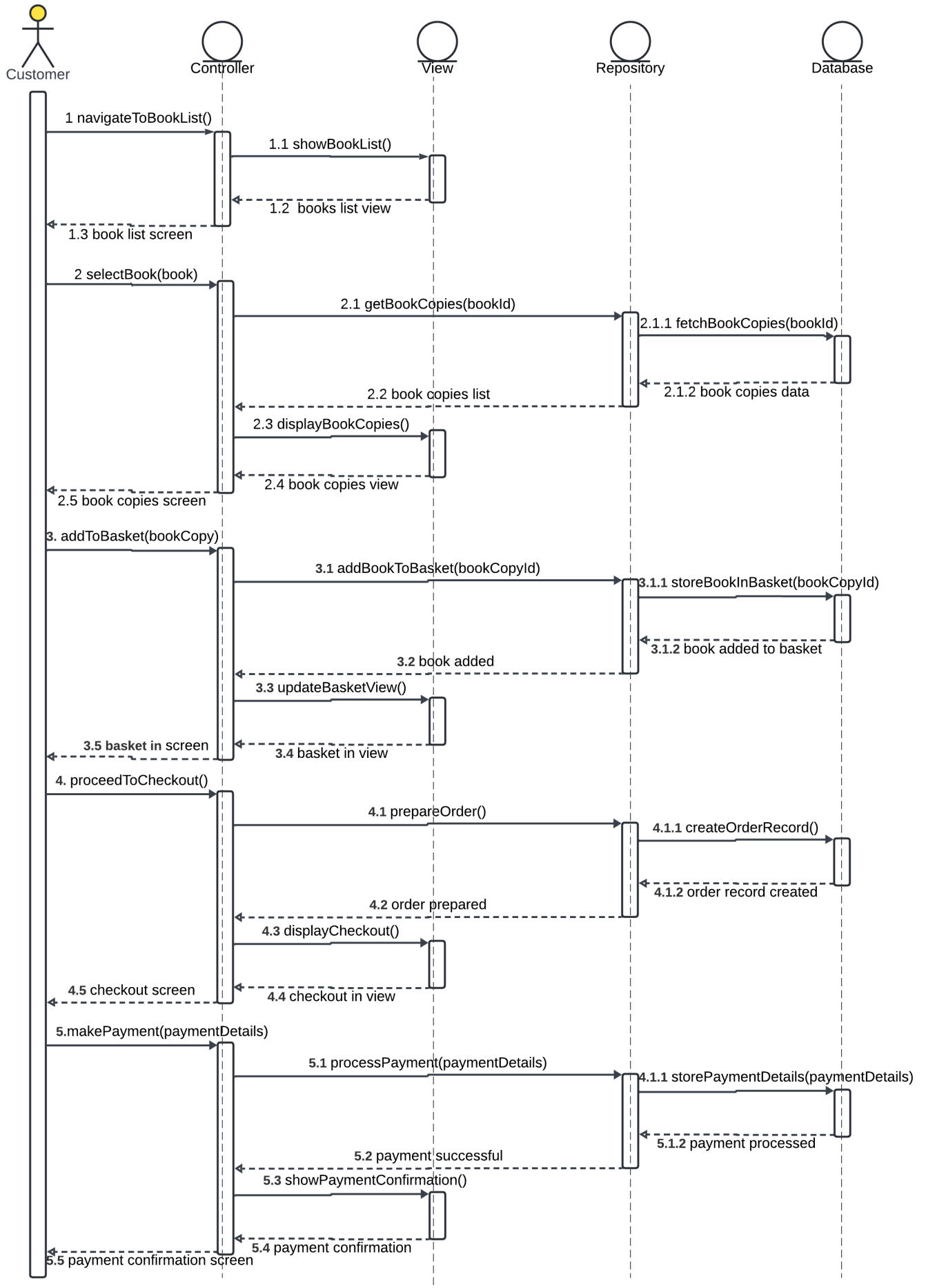
Order Class State Diagram

This state diagram shows the different states an order can go through, from creation to completion. It starts with the "Empty" state when the order is created but no items are added. When items are added, it moves to the "Filled" state. If payment details are entered, it goes to "Payment Pending". After payment is confirmed, it becomes "Paid". The order then gets "Ready to Deliver", gets "Shipped", and finally "Delivered". The last state is "Closed" when the order process is finished.



Order Class Sequence Diagram

This sequence diagram outlines the process of a customer navigating through a book ordering system. The interactions involve Customer, Controller, View, Books Repository, and Database components, showing the steps from viewing books to placing an order and making a payment.

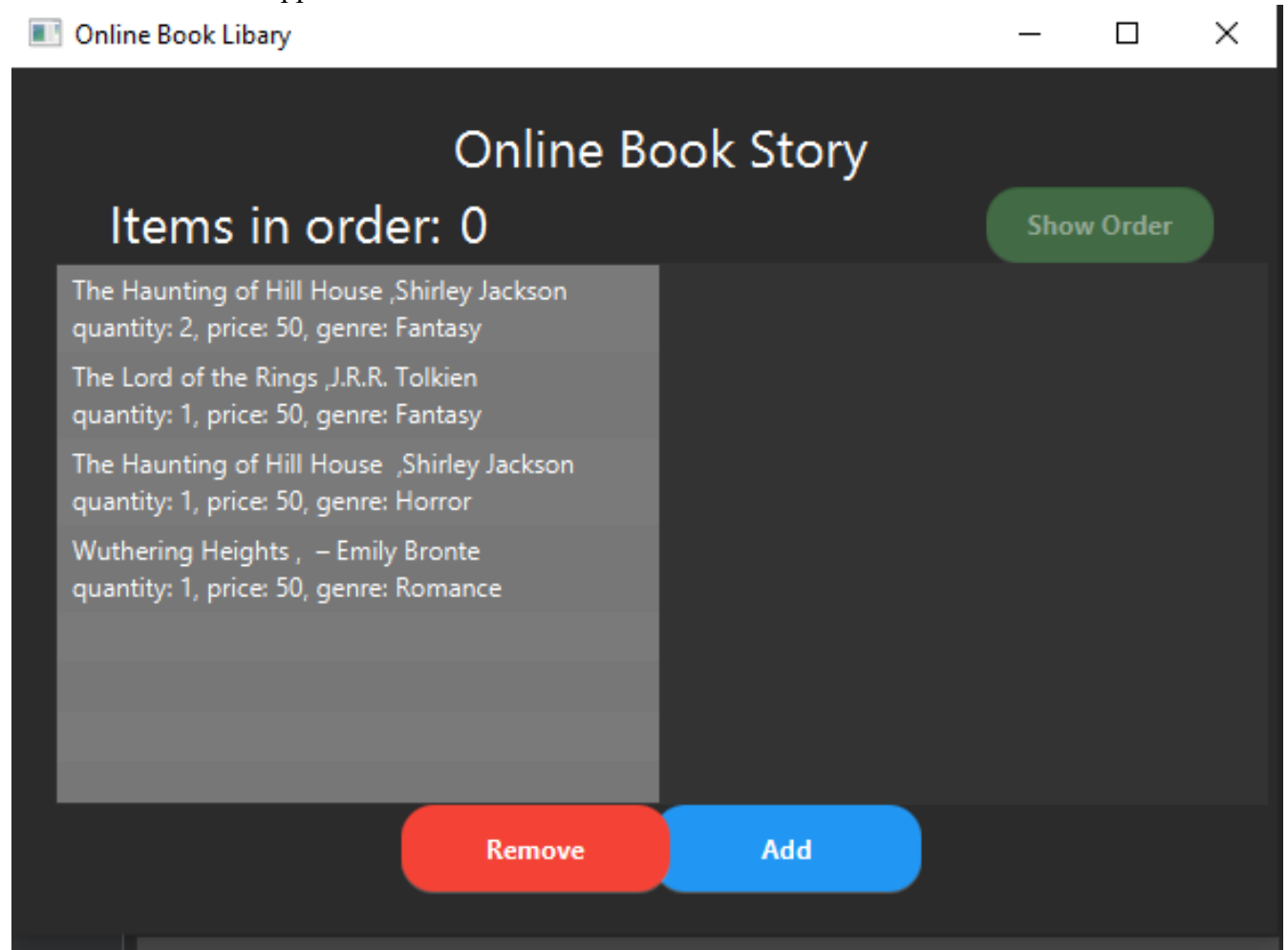


In conclusion, the Library Management System represents my dedication to improving library operations and enhancing customer experiences through innovative technology solutions. I invite you to explore how this system can transform and optimize library services. When you run the code, you'll also see the GUI visuals that accompany these functionalities. These visuals will be available as images in the accompanying documentation files. Thank you for your interest in this project!

UI Kit

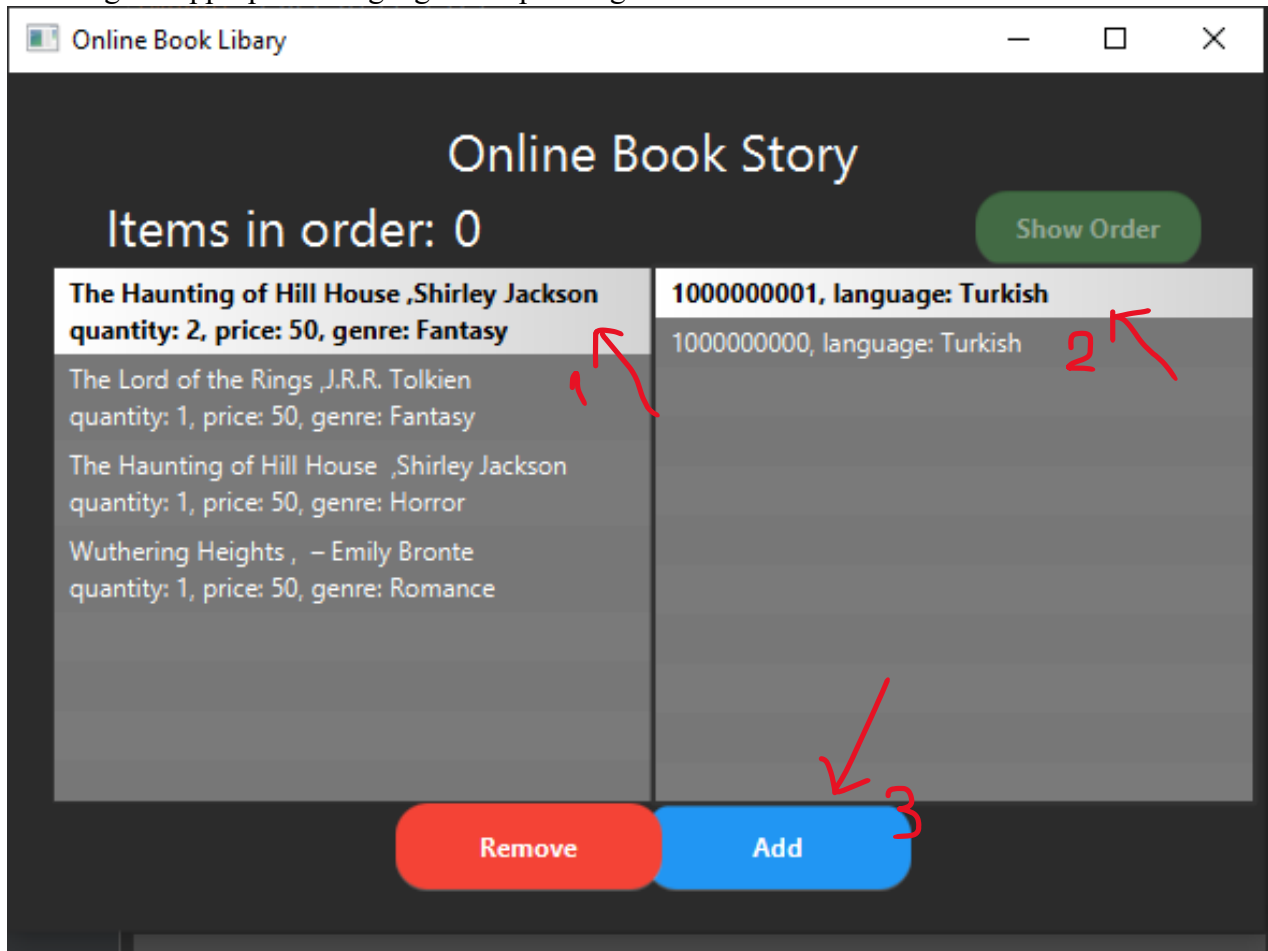
GUI Design

Home screen of the application:

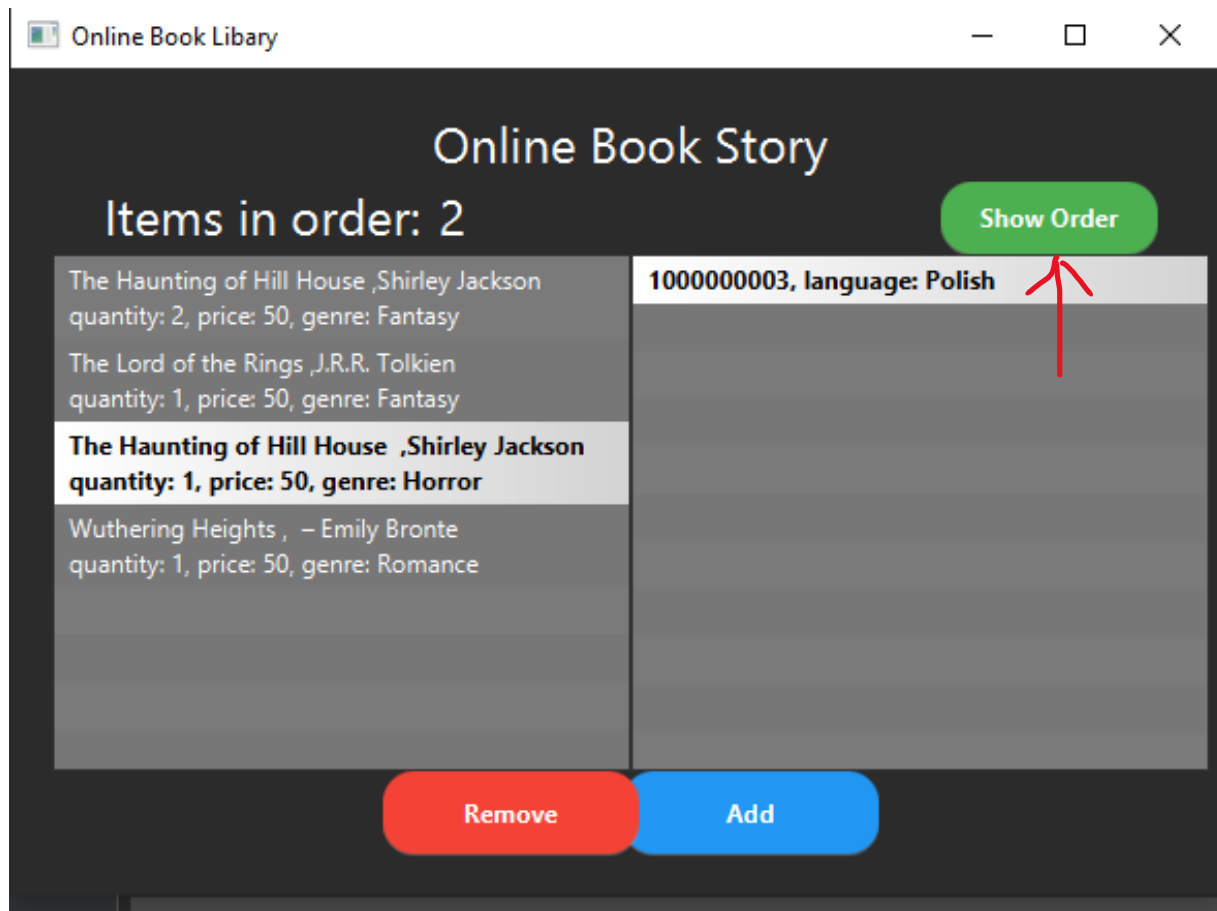


Step-by-step navigation

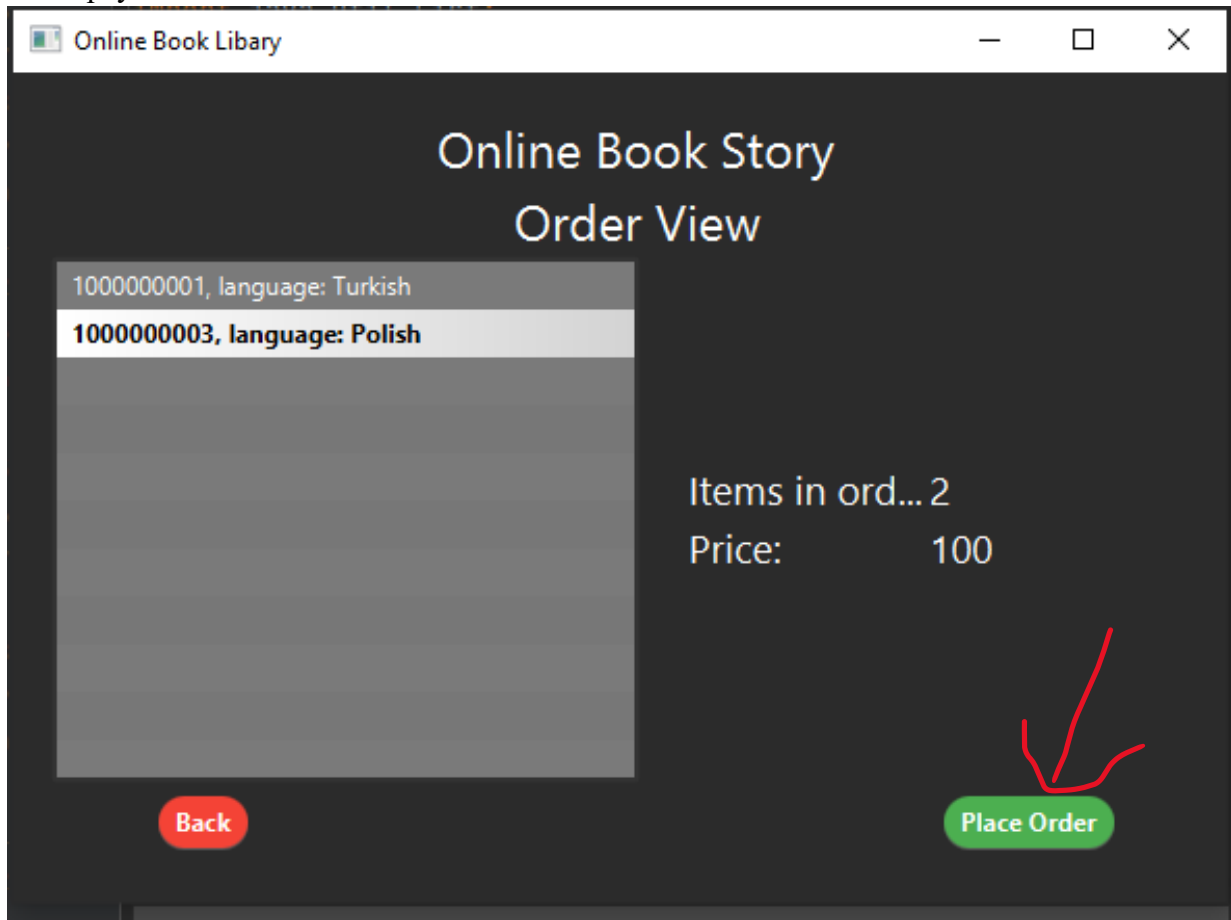
Below is a picture of the user interface used by selecting the books in the Part details, then selecting the appropriate languages and pressing add.



To see the list of books we added to the Basket, that is, to go to the next page, we need to click “show order”.



Then we reach the order view section and when we click on the place order button it will take us to the payment section.



The screenshot shows a web browser window titled 'Online Book Library'. The main heading is 'Online Book Story' followed by 'Enter your credit card'. There are three input fields: 'Credit card number:' containing '1234567890123456', 'CVC code:' containing '123', and 'Expiration date:' containing '12/34'. A green 'Pay' button is at the bottom. Handwritten red arrows and numbers point to each field: arrow 1 points to the credit card number field, arrow 2 points to the CVC code field, and arrow 3 points to the expiration date field.

Online Book Library

Online Book Story

Enter your credit card

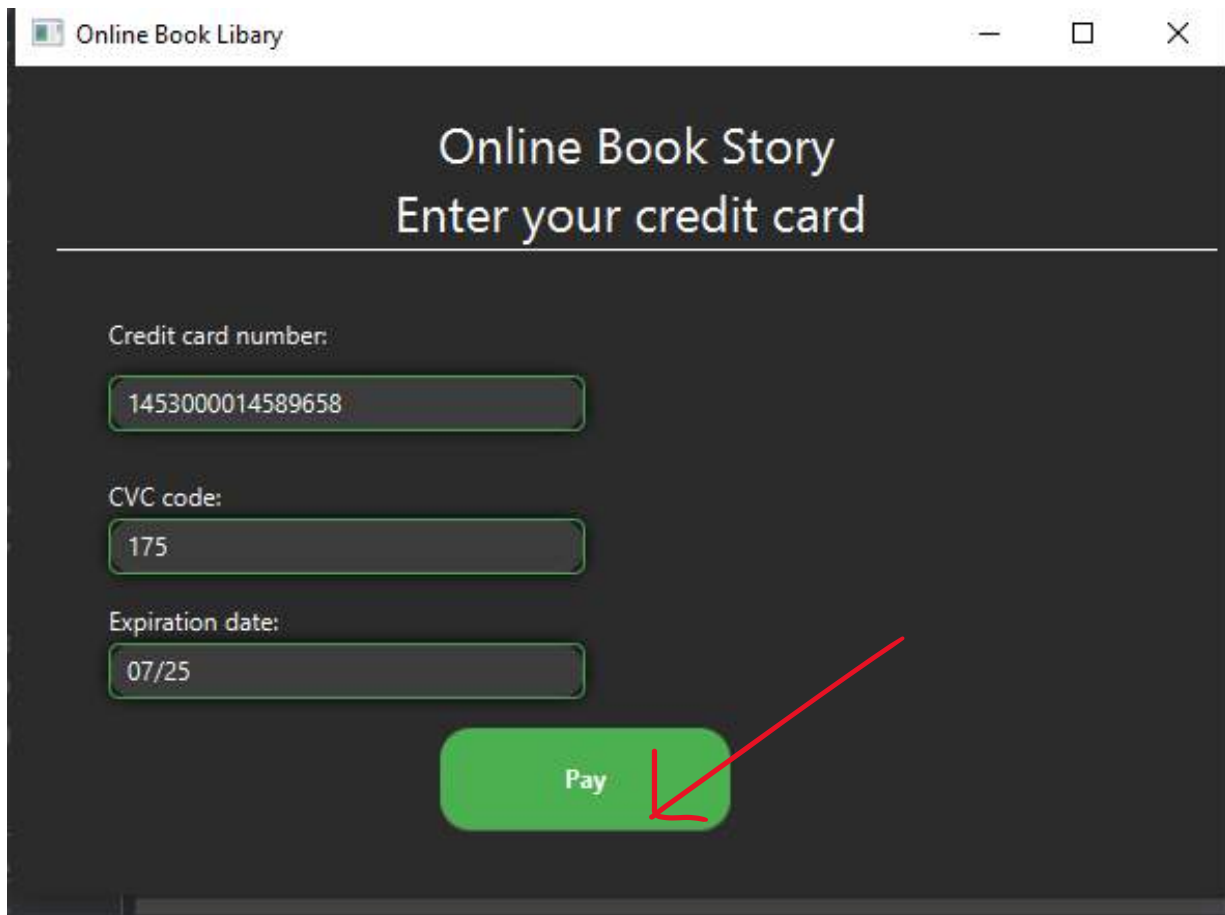
Credit card number:
1234567890123456

CVC code:
123

Expiration date:
12/34

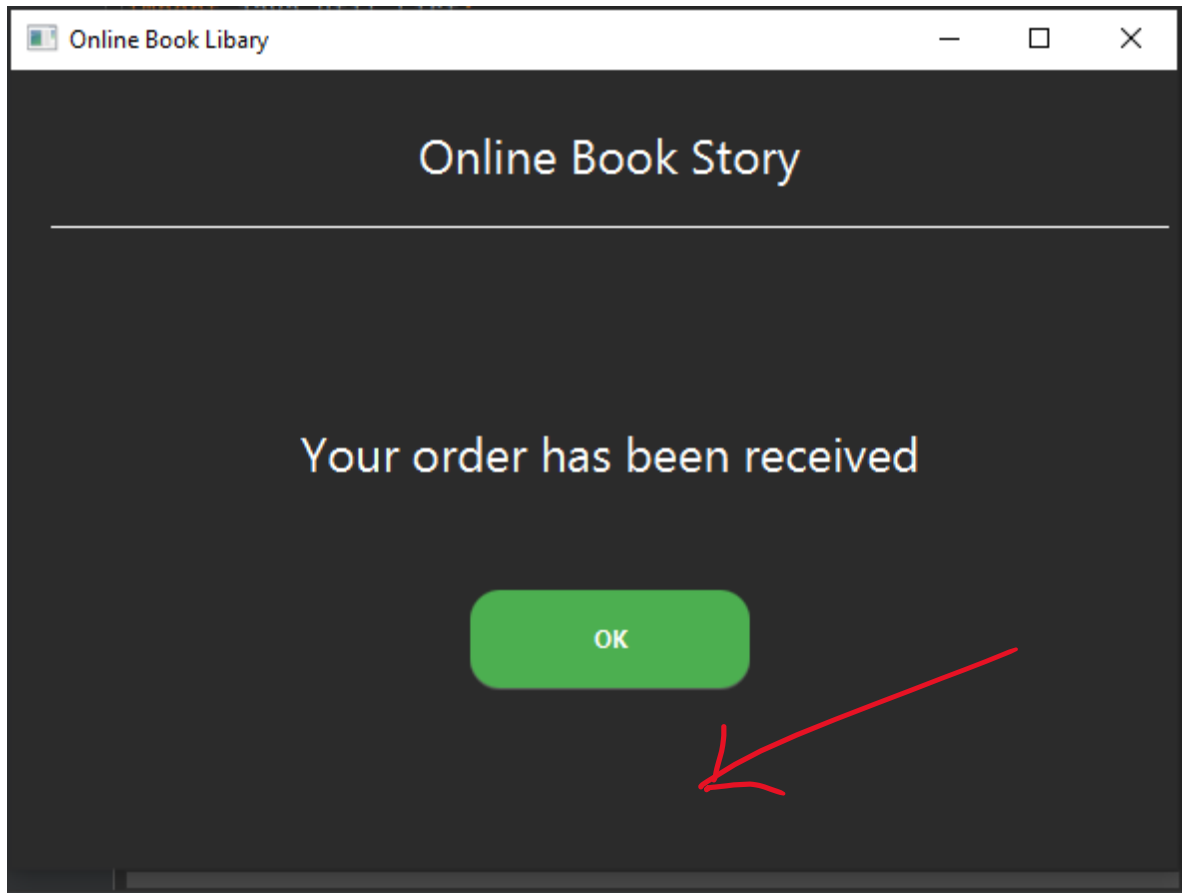
Pay

You must enter the correct card information in the payment section.



The screenshot shows a web browser window titled "Online Book Library". The main heading of the page is "Online Book Story" followed by "Enter your credit card". There are three input fields: "Credit card number:" containing "1453000014589658", "CVC code:" containing "175", and "Expiration date:" containing "07/25". Below these fields is a green "Pay" button. A red arrow points to the "Pay" button.

After entering the card information correctly, you can continue the transaction and click on the “pay” button.



After your payment is successfully confirmed, a message stating that you have received the payment will appear on your screen and then you can finalize the transaction by pressing the “ok” button.

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Thank you!