

# Bangladesh University of Business and Technology (BUBT)

## Dept. of Computer Science & Engineering



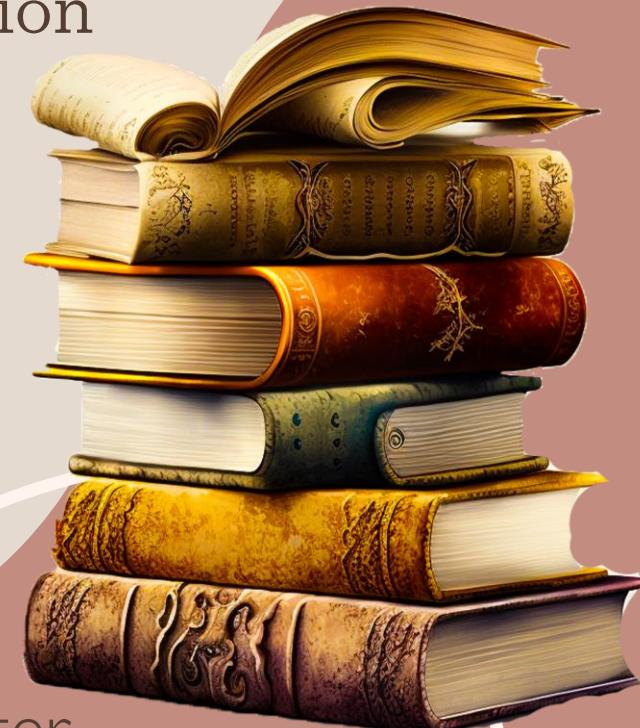
# Book Ordering System

An Innovative Online Bookstore Solution

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- Submitted To

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# Outline

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# Introduction

What is a Distributed Database System?

Why do we need a Book Ordering System?

## Problem Statement

Our Systems Face Challenges Such As:

- **Performance Bottlenecks**
- **Single Point Of Failure**
- **Low Scalability**

**Using A Distributed DBMS** With Fragmentation And Replication Solves These Problems By Improving Data Distribution And Access Efficiency.

# Objective

Develop a distributed book ordering system using category-wise data partitioning.

## Goals:

- Improve system performance
- Enhance fault tolerance
- Ensure efficient access to distributed data

# Motivation

- Book Categories Like **Knowledge**, **Academic**, **Magic**, And **Adventure** Have Varying Access Patterns.
- Distributing Categories Across Nodes:
  - Balances Server **Load**
  - Enhances **Modularity**
  - Improves **Response Time**
  - Enables **Localized Transactions**

# Technology Stack

- FRONTEND:

- HTML5, CSS3, JavaScript, Bootstrap.

- BACKEND:

- PHP

- DATABASE:

- MySQL.

- HOSTING:

- Localhost or Cloud-Based Servers.

# Literature review

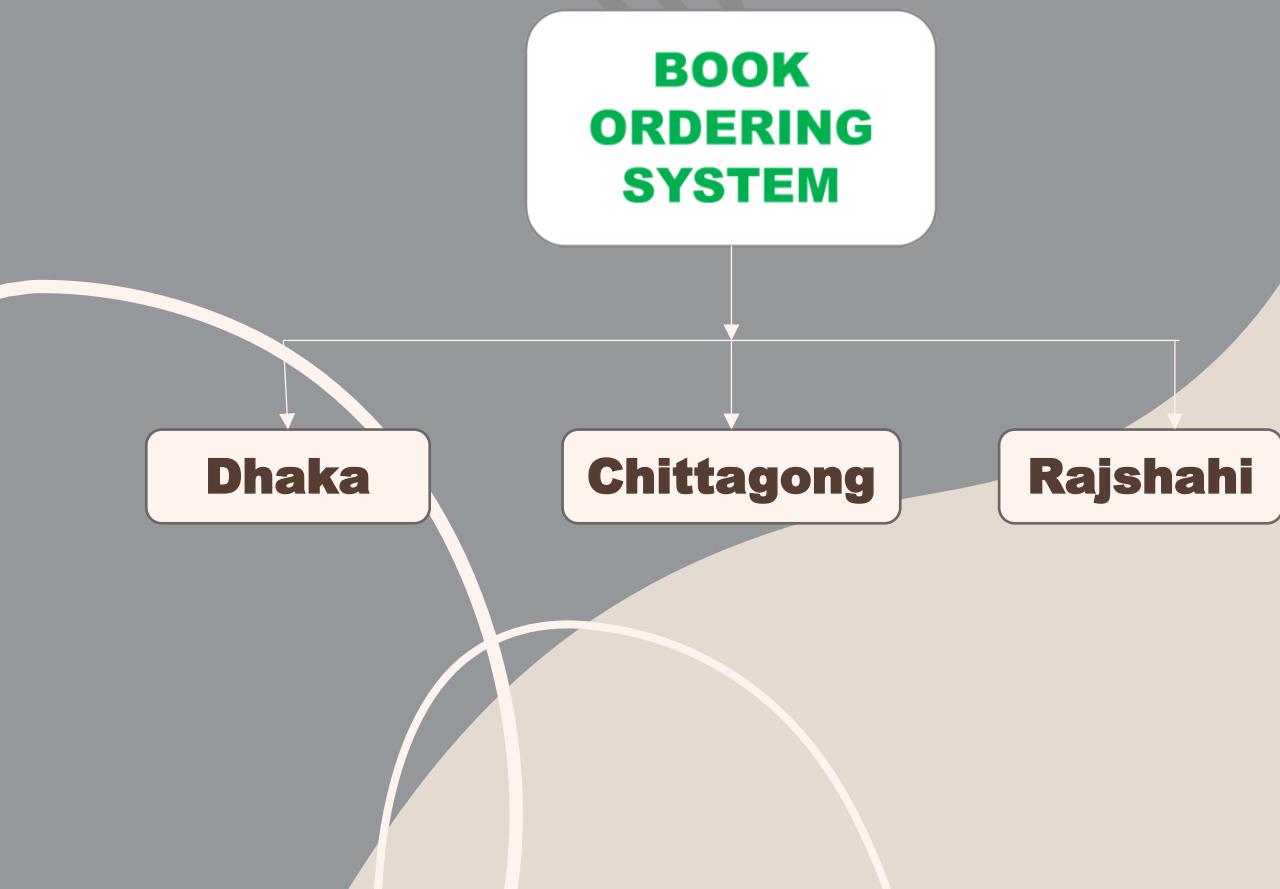
**Ezéchiel Et Al. [1]** (2019) Reviewed Distributed Database Systems (DDBS) Focusing On Three Strategies: Data Fragmentation, Allocation, And Replication. Key Challenges Include Query Optimization For Fragmented Data, Np-hard Allocation Problems, And Synchronization In Replicated Systems. The Paper Proposes Solutions For Efficient Synchronization, Particularly In Decentralized Peer-to-peer (P2P) Setups, Highlighting The Need For Scalability And Autonomy

**Santiago Et Al. [2]** (2021) Explored The Integration Of Distributed Database Systems (DDBS) In Data Security, Emphasizing Scalable And Expandable Access Control Models. The Paper Discusses The Challenges Of Implementing Access Control, Such As The Complexity Of DDBS, Data Integrity, And The Need For Skilled Management. It Also Examines Real-world Applications In Sectors Like IT And Social Media, Stressing The Importance Of Robust Security Measures And Future Research In Enhancing Data Protection.

# Features

- Distributed book storage based on category: knowledge, academic, magic, adventure
- Global search with local data management
- Category-specific transactions and fault isolation

# Fragmentation

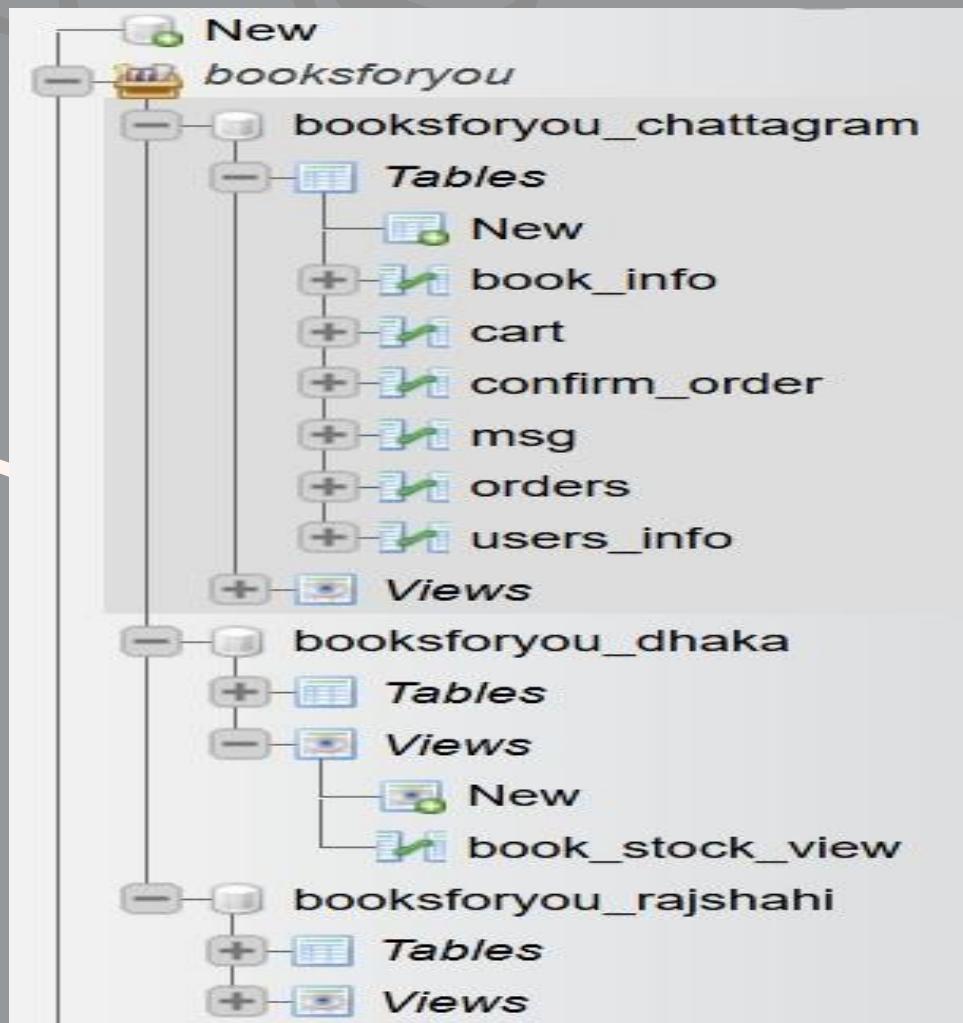


Horizontal fragmentation strategy by User Branch:

- Dhaka Branch
- Rajshahi Branch
- Chittagong Branch

# Fragmented Database

## Database View



## Nodewise Fragmentation

**BOOK ORDERING  
SYSTEM**

**Node 1 → Dhaka Branch**

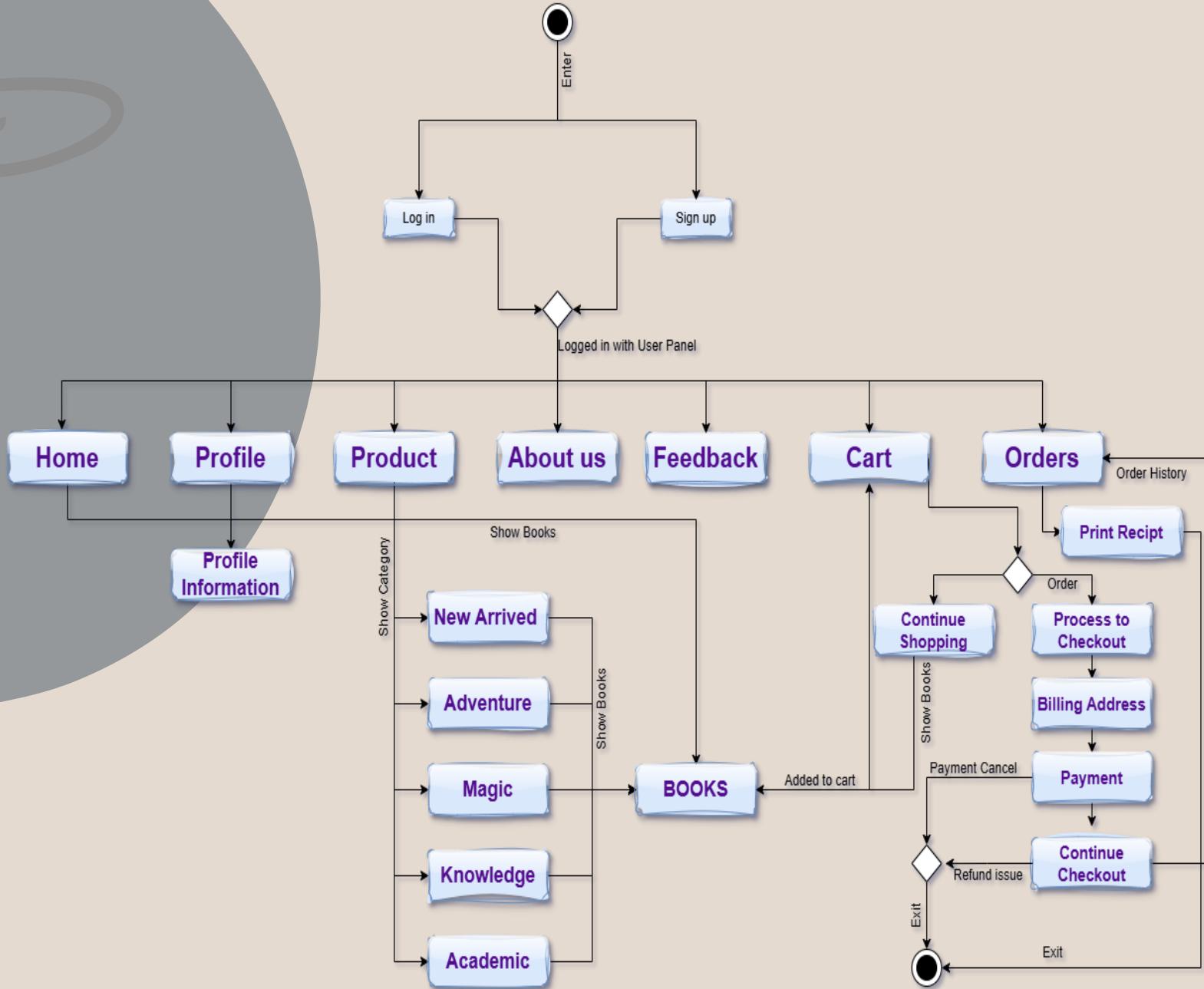
**Node 2 → Chittagong  
Branch**

**Node 3 → Rajshahi Branch**

## Activity Diagram of Book Ordering System

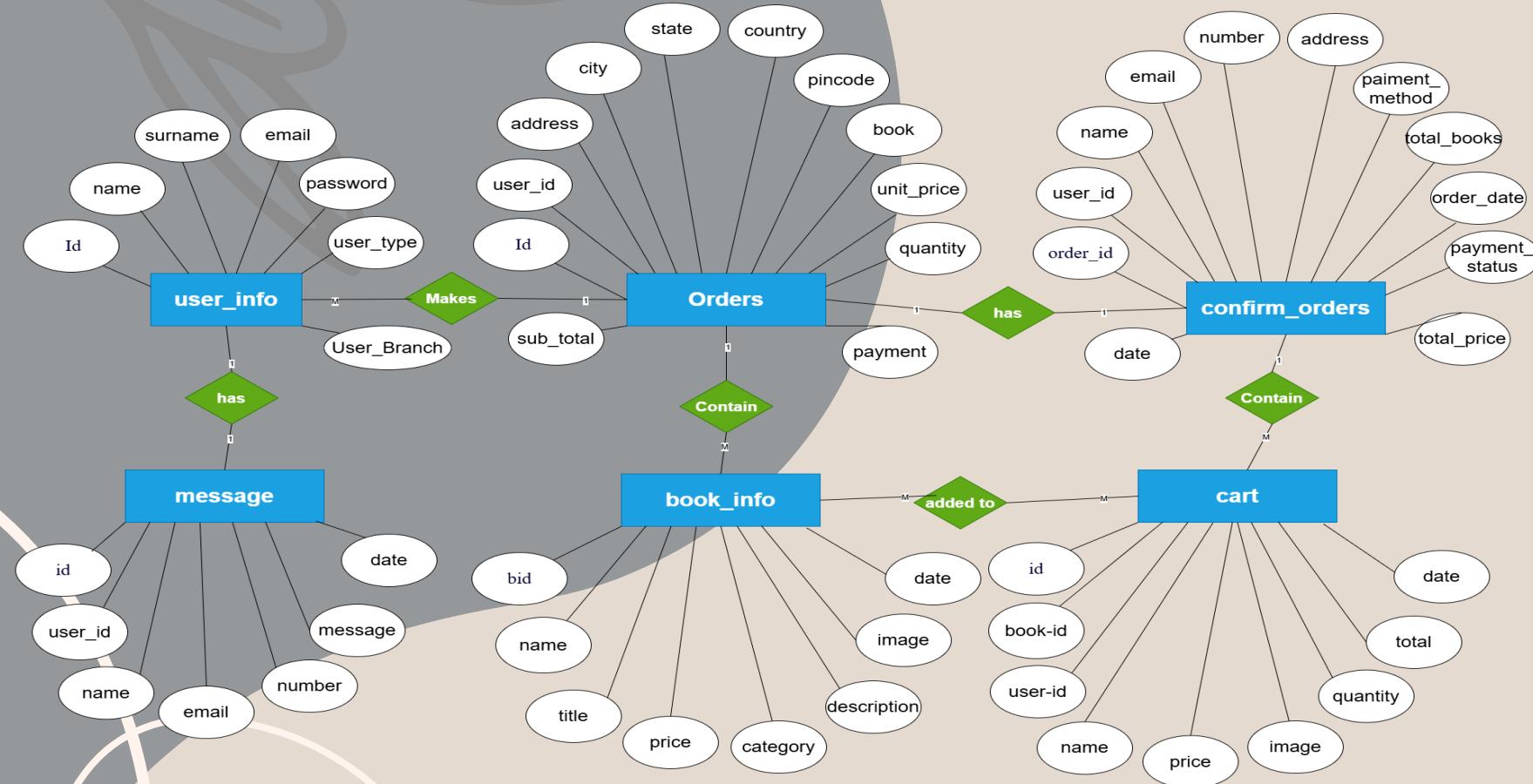
# Workflow diagram

**Flow of Data:** Showing a activity diagram of how data flows between modules.



# ER Diagram:

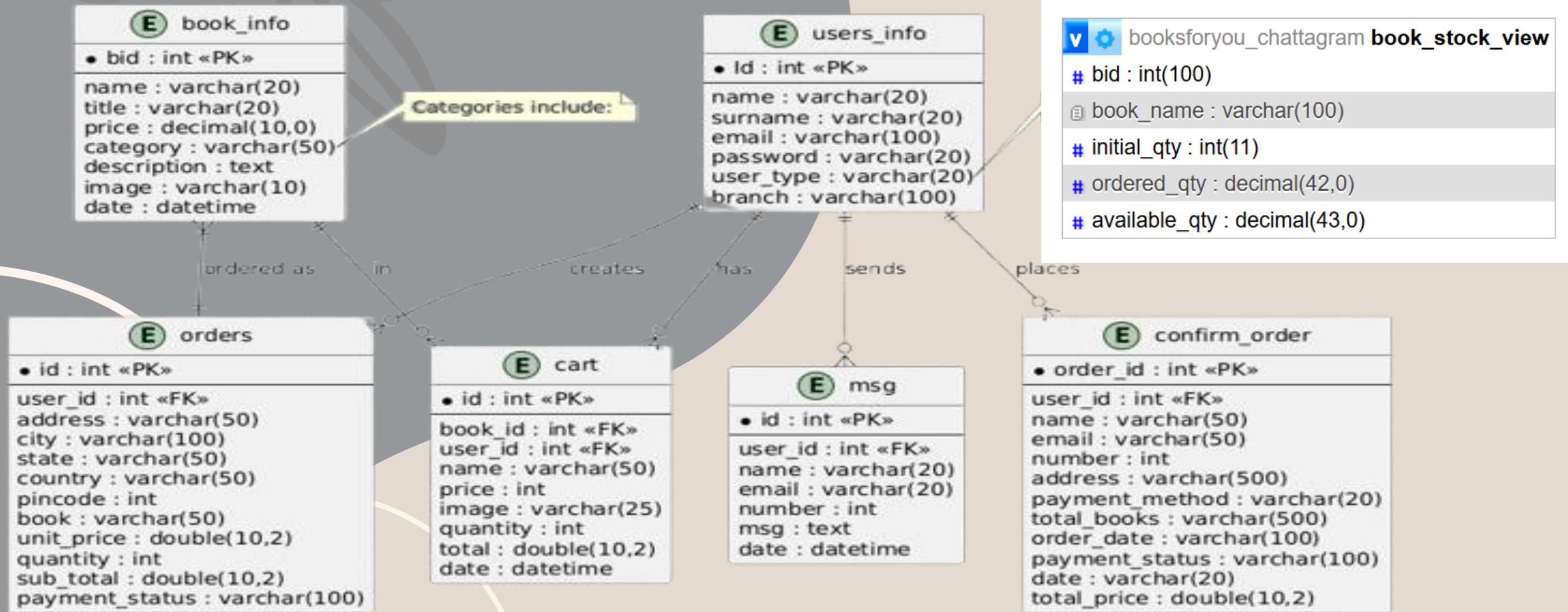
Highlight relationships between key entities like Users, Books, and Orders



# Database (Schema Diagram)

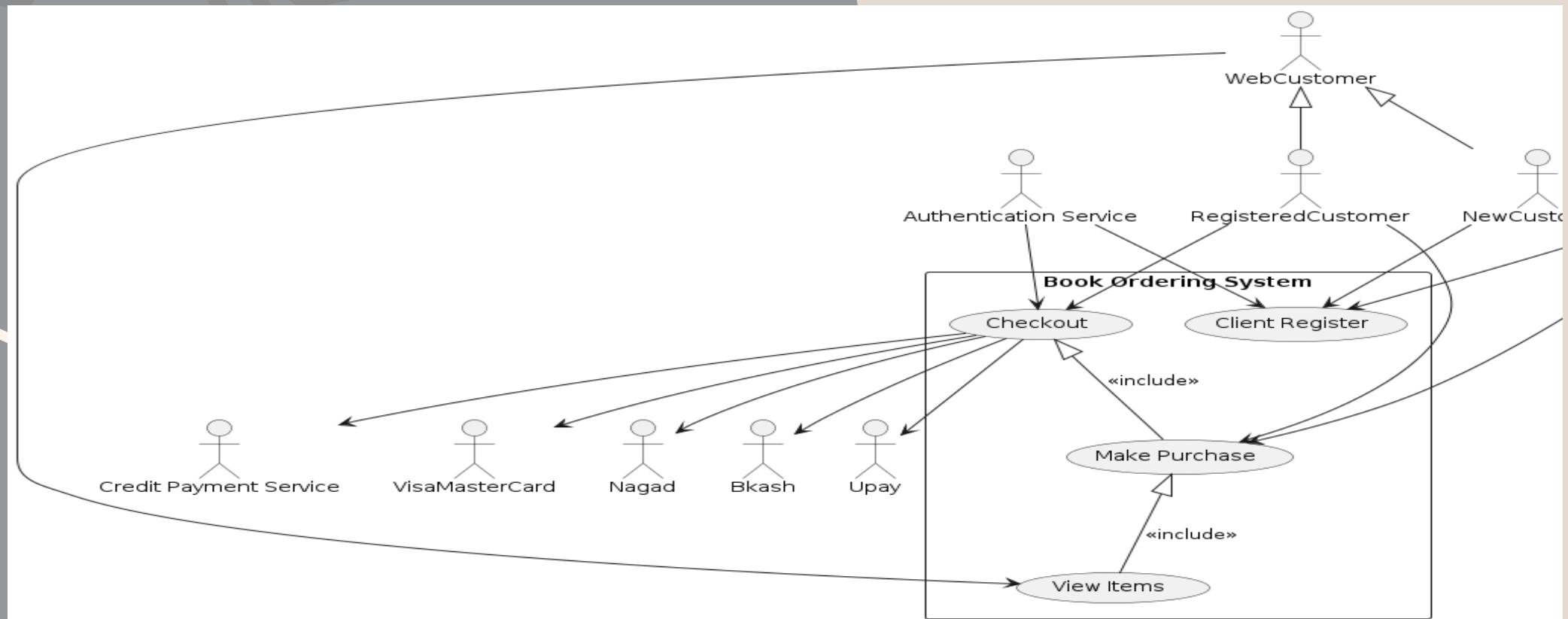
## Database Tables:

Highlight table structure for Users, Books, and Orders.



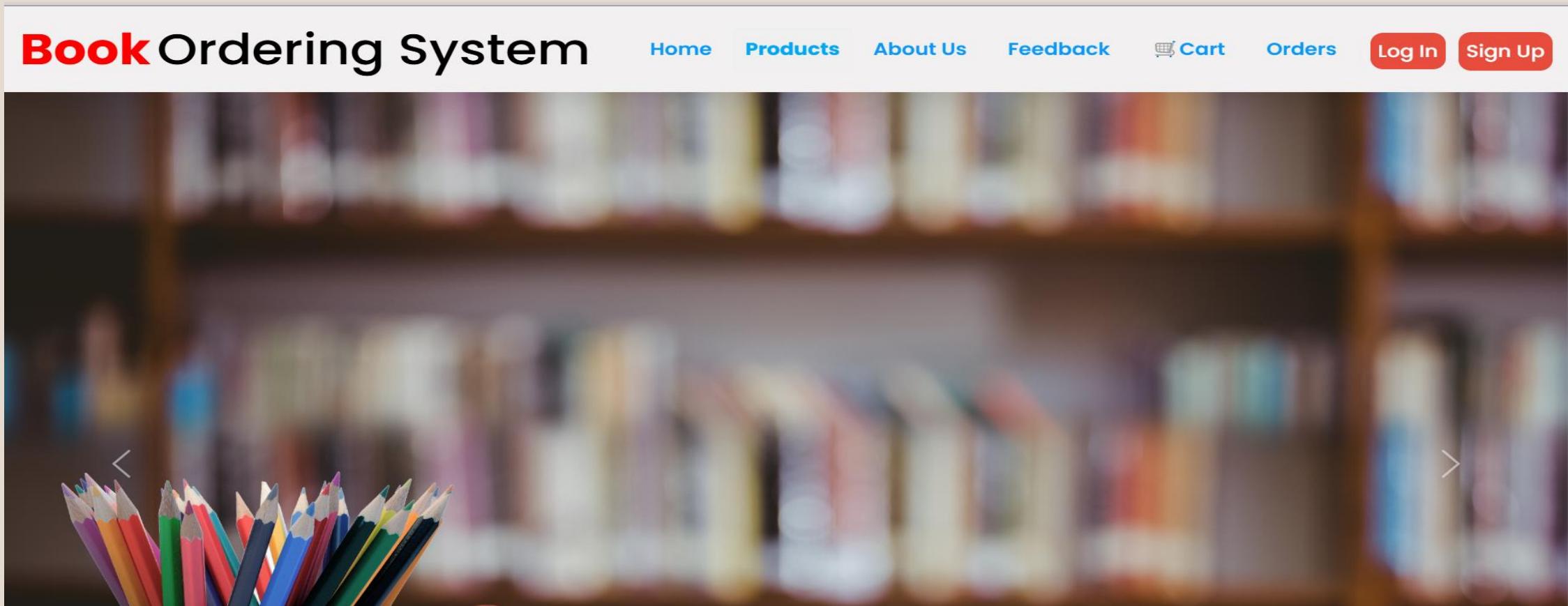
# Use Case Diagram:

Show interaction between users, administrators, and the system.



# System Architecture

User Module: Homepage.



System Home Page

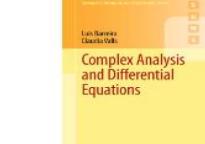
# System Architecture

User Module: Homepage.

**Book Ordering System**

Home Products About Us Feedback Cart Orders 

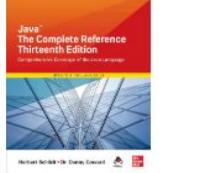
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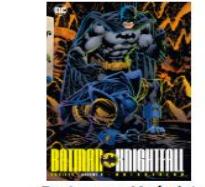
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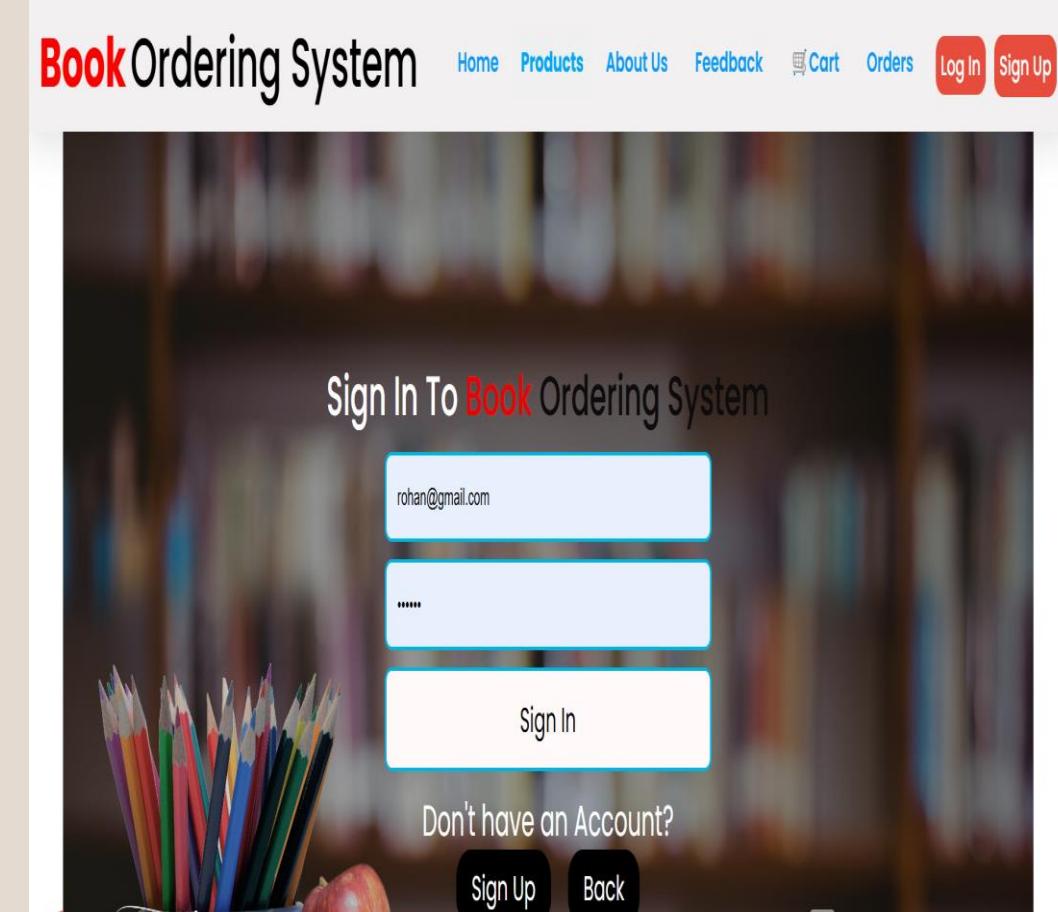
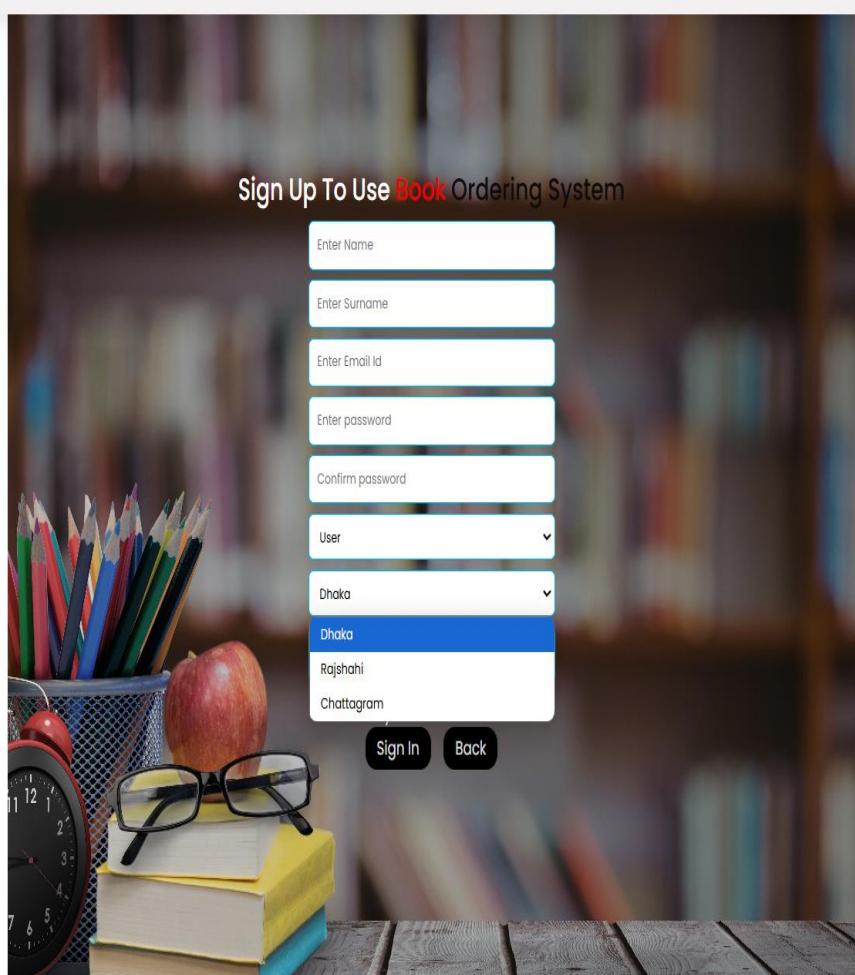
System Home Page

— 17

# System Architecture

User Module: Registration, login, and profile management.

Book Ordering System



# System Architecture

Book Module: Search, browse, and add to cart.

The screenshot shows a web-based book ordering system. At the top, there is a navigation bar with links for Home, Products, About Us, Feedback, Cart, and Orders. A user profile icon is also present. Below the navigation, a search bar is shown with a magnifying glass icon. The main content area displays a book listing for "Complex Analysis and Differential Equations" by Luis Barreira and Cláudia Valls. The book cover image is visible on the left. Key details listed include the author (Luis Barreira, Cláudia Valls), the name of the book (Complex Analysis and Differential Equations), the price (TK 399/-), the availability (20pcs), and a quantity selector set to 1. An "Add To Cart" button with a shopping cart icon is present. Below the book details, a section titled "Book Details" contains a brief description: "Emphasis is given to the applications of complex analysis to differential equations. Provides a rigorous approach with the right balance between theory and practice. Includes approximately 200 examples and 200 problems with detailed solutions. Includes supplementary material: sn.pub/extras".

Searching a Book named 'Java' and added to the cart for Order

# System Architecture

Order Module: Order processing and tracking.

Book Ordering System

Image	Name	price	Quatity	Total()
	Programming With C++	350	3	TK 1050/-

Total TK 1050/-

[Proceed To Checkout](#) [Continue Shopping](#)

Book Ordering System

order placed successfully!

Place Your Order Here

Just One Step away from getting your books

**Billing Address**

Full Name  
Your Name

Email  
example@gmail.com

**Books In Cart**

your cart is empty  
Grand total: TK 0/-

**Payment**

Accepted Payment Gateways

Book Ordering System

Place Your Order Here

Just One Step away from getting your books

**Billing Address**

Full Name  
Mr. Ali Azgar

Email  
aliagzgar@seabubblebd.edu.bd

Number  
0000000001

Address  
Eastern Housing

City  
Mirpur

State  
Dhaka

Country  
Bangladesh

Pincode  
1216

Shipping address same as billing

**Books In Cart**

Programming With C++ (TK 350/- x 3)  
Grand total: TK 1050/-

**Payment**

Accepted Payment Gateways

Choose Payment Method:

Cash on delivery

Debit card

Credit card

Rocket

Blish

[Continue to checkout](#)

Order Processing with Delivery Address

# System Architecture

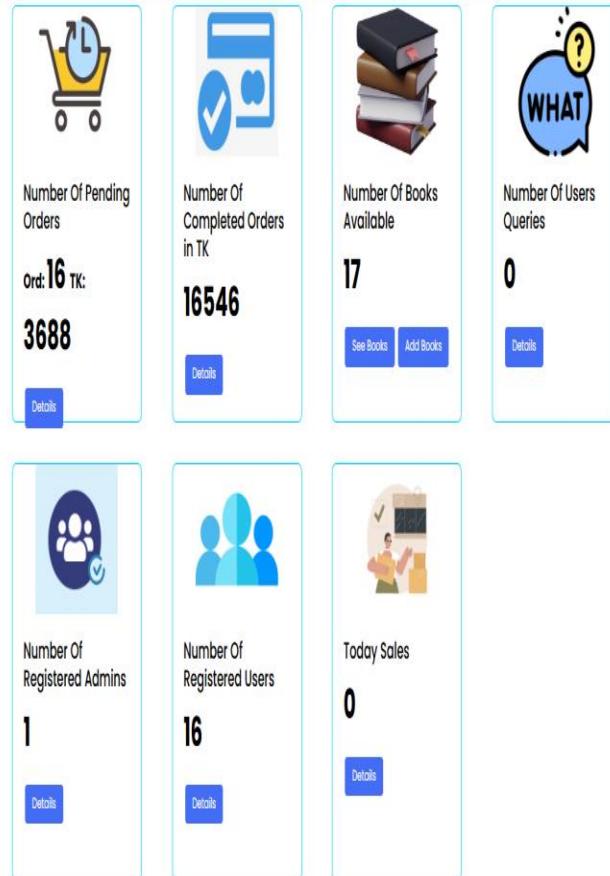
Admin Module: Inventory management and order supervision.

## Book Ordering System

Admin Panel

[Home](#) [Add Books](#) [Orders](#) [Message](#) [Users](#)

Hello admin [logout](#)



## PLACED ORDERS

Order Date : 19-May-2025

Order Id : #35

Name : Rone

Mobile Number : 1751572586

Email Id : sho@gmail.com

Address : Rajbari Sadar, Rajbari, Dhaka, Dhaka, Bangladesh - 1268

Payment Method : cash on delivery

Your orders : Seventh Sun #93,(1)

Total price : TK 560.00/-

Payment Status : pending

Order Date : 24-May-2025

Order Id : #0

Name : Mr. Ali Azgar

Mobile Number : 1

Email Id : aliazgar@cse.bupt.edu.bd

Address : Eastern Housing, Mirpur, Dhaka, Bangladesh - 1216

Payment Method : cash on delivery

Your orders : Programming With C++ #98,(3)

Total price : TK 1050.00/-

Payment Status : pending

# System Architecture

Admin Module: Adding books.

**Book Ordering System**

Admin Panel

[See All Books](#)

Home Add Books Orders Message Users

Hello admin [logout](#)

### Add Books To Books For You

Enter book Name

Enter Author name

enter product price

Adventure

Enter book description

enter product quantity

Choose File No file chosen

Add Book

Author: Luis Barreira , Clau  
Name: Complex Analysis And

Price: TK 399/-

[Update](#) [Delete](#)

Author: Dr. T K V Iyengar, D  
Name: Engineering Mathemat

Price: TK 500/-

[Update](#) [Delete](#)



# Future Work

- **AI-Based Book Recommendations**

Personalized suggestions based on user activity.

- **Real-Time Inventory Updates**

Instant stock synchronization across all nodes.

- **Mobile App Development**

Cross-platform apps for Android and iOS users.

- **Chatbot for Customer Support**

24/7 automated help for quick issue resolution.

- **Integration with E-Payment Gateways**

Smooth and secure online transactions.

- **Add More Branches**

Expand system architecture by adding more server nodes to increase availability and scalability.

# References

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Thank You

**Do You Have Any Question???**