Palestine Techinical University (Khadoorie)

Faculty of Engineering and Technology

Department of Computer Systems Engineering

"Introduction to Graduation Project"

Curious Minds world

An application to purchase books and stories for children.

Prepared By:

Aman Salman-202010541

Shahd Kitany-202012512

Supervised by:

Mohammad Khalil, Ph.D

Table OF Contents

CHAPTER 1 1

INTRODUCTION 1

1.1 The Dilemma: Instagram Marketing Challenges 2

1.2 The Journey: From Problem to Solution 2

CHAPTER 2 1

RELATED WORKS 1

2.1 Amazon : 4

2.2 :مؤسسة دار هبه للنشر والتوزيع 5

2.3 Sami Store : 6

CHAPTER 3 7

System objectives and requirements 7

3.1 Objectives: 8

3.2 Functional Requirements: 9

CHAPTER 4 10

METHODOLOGY 10

CHAPTER 5 12

SOFTWARE 12

5.1 Actors 13

5.2 Use Case Diagram: 13

5.3 Use Case Descriptions 16

5.4 Activity Diagram 22

5.5 System Sequence Diagrams 24

5.6 Entity-Relationship Diagrams 27

5.7 Relational Schema Diagrams 28

5.8 Class Diagrams 29

CHAPTER 6 30

TECHNOLOGY 30

6.1 Overview of Implementation Stack 31

6.2 Integrated Development Environment 32
6.3 User Interface Design 32
6.4 Front-End Technologies 33
6.6 Database 34
CHAPTER 7 35
INTERFACES App 35
7.1 Welcome Page 36
7.2 Sign In Page 37
7.3 Page when data is entered incorrectly 38
7.4 Sign Up Page 39
7.5 Home Page 40
7.6 .1 Categories Page 41
7.6.2 Categories Page 42
7.7 Cart Page 43
7.8 Profile Page 44
7.10 Edit Profile Page 45
7.11 Book Details Page 46
7.12 Wish List Page 47

CHAPTER 1

INTRODUCTION

1.1 The Dilemma: Instagram Marketing Challenges

In the ever-evolving landscape of e-commerce and digital marketing, the success of businesses hinges on their ability to adapt, innovate, and harness emerging technologies. This journey began with a fundamental problem faced by our esteemed client, Ms. sarah khateeb, and evolved into the development of a groundbreaking solution—an online book store application.

In today's interconnected world, social media platforms have become essential tools for businesses to engage with their audiences. Ms. Sarah, owner of Kid Skills Bookstore, recognized Instagram's potential for marketing her business but faced challenges in effectively using it for marketing, order management, and addressing customer issues, including difficulties in reaching and retaining customers and showcasing book choices. She sought a more efficient, customer-centric approach for promoting her bookstore while addressing these challenges

1.2 The Journey: From Problem to Solution

To address Ms. Sarah's challenges, we collected data through various methods. We analyzed customer preferences and behaviors by examining their interactions with the bookstore's website and the app. We also used surveys and feedback forms to gather valuable insights directly from customers. This data helped us tailor the online bookstore app to better meet their needs and improve marketing strategies.

CHAPTER 2

RELATED WORKS

2.1 Amazon :

In the context of exploring the e-commerce environment, including websites and applications, the Amazon website appears as one of the most prominent examples of the success of the online shopping experience at the global level, as Amazon is considered one of the largest digital platforms in the world, and an inspiration to provide a unique and comprehensive experience for users. It adopts the concept of Constant innovation by regularly launching new services and features, this can be an inspiration for us in creating our own app for selling books and stories.

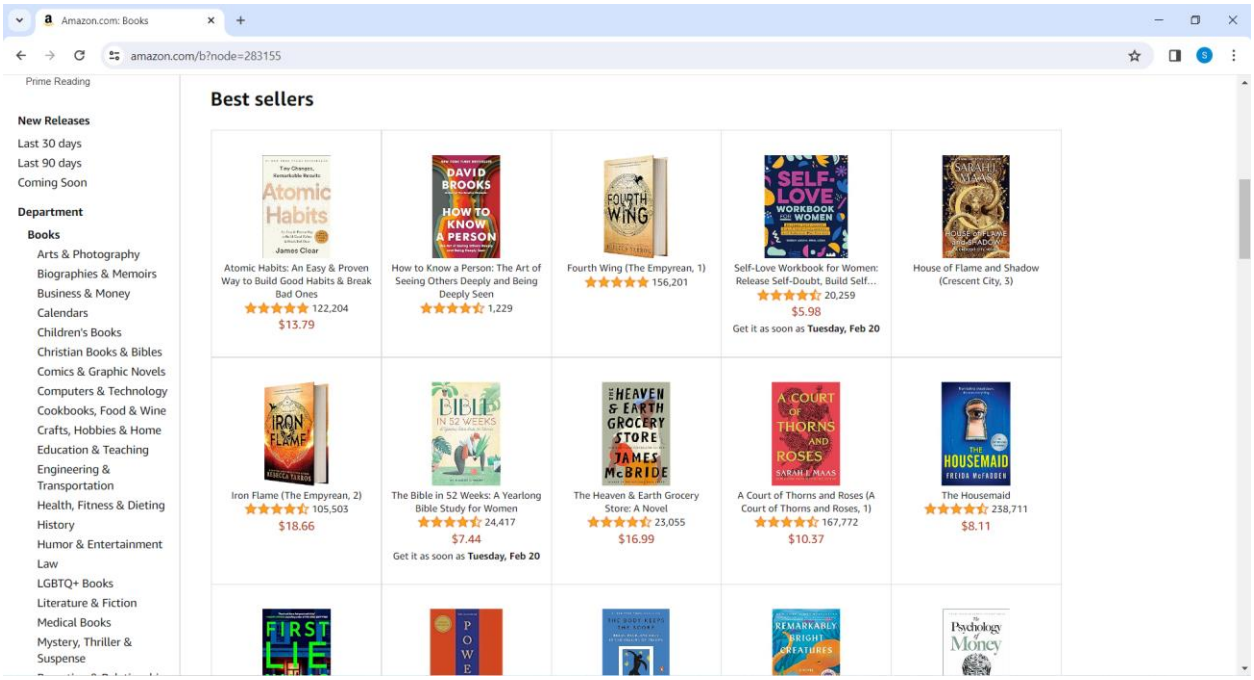


figure 2.1 : Amazon website

2.2 مؤسسة دار هبه للنشر والتوزيع:

In the Middle East and Arabian Gulf region, there is a presence (Dar Heba Publishing and Distribution Foundation), which primarily operates as a store selling books, interactive stories, and educational materials in the Arabic language, located in the Kingdom of Saudi Arabia and has several branches within the country. In addition, it expanded its reach by creating an online platform, delivering sales throughout the Middle East and the United States. The Foundation aims to promote the Arabic language on a large scale and focuses on educating children and nurturing their minds.

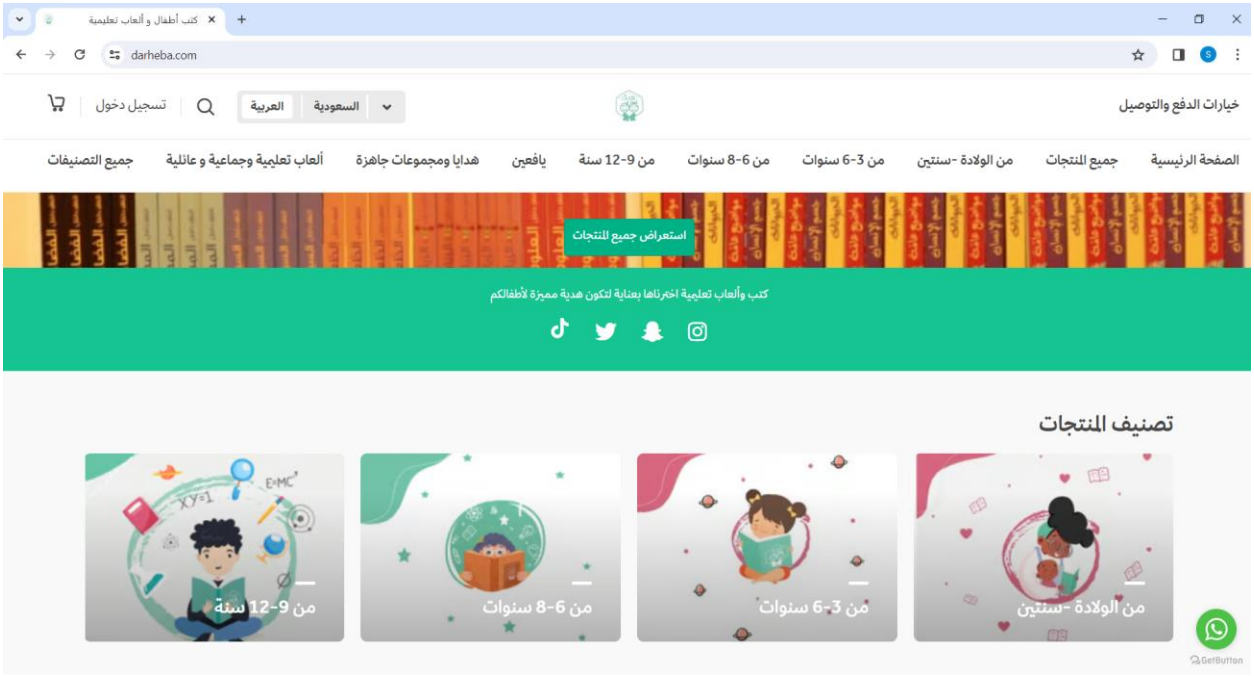


figure 2.2 : Dar Heba Publishing and Distribution Foundation website

2.3 Sami Store :

On a national level, the Sami Store application is available. Originally established as a store for selling clothing, accessories, perfumes, and children's toys, it is located in Nablus. The store later launched its own application, becoming one of the most popular apps in Palestine. The presence of such a local application will greatly assist us in building our own application, as it provides insights into people's preferences, interactions, as well as positive and negative aspects based on their experiences with this application.

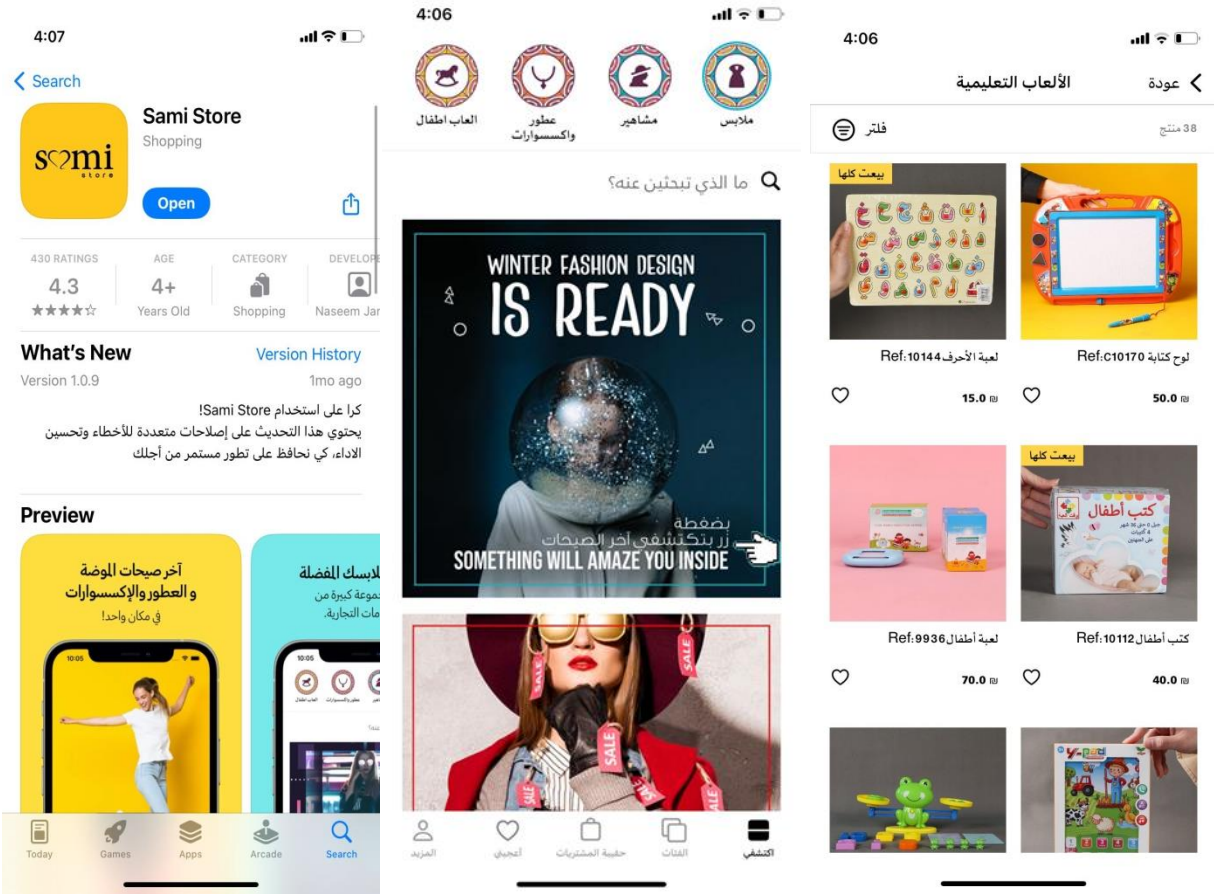


figure 2.3: Sami Store app

After viewing and analyzing similar sites, we have a more comprehensive view of online stores, and this will help us in creating our application.

CHAPTER 3

System objectives and requirements

3.1 Objectives:

1. User-Friendly Design:

The application should have an easy and straightforward user interface, focusing on providing a comfortable user experience for everyone, including older individuals who may not be fully familiar with technology.

2. Educational Books for Children:

The app should offer distinctive and useful educational books for children to enhance their skills and encourage them to spend their time away from electronic devices.

3. Easy and Secure Purchase Process:

The app should facilitate a user-friendly, fast and secure purchasing process. This includes ensuring a seamless transaction experience for users who wish to purchase books through the app where payment is made upon delivery..

4. Efficient Store Management:

The app should make it easy for the store owner to showcase the available books, organize the order process efficiently, and help users easily find and request the books they are interested in.

3.2 Functional Requirements:

Functional requirements for an application to purchase books and stories for children typically include features and capabilities that ensure the application meets its intended purpose effectively. Here are some functional requirements for application:

1- User Registration and Authentication:

- Users should be able to create accounts and log in securely.
- Password recovery mechanisms should be in place.

2- Browse and Search Functionality:

- Users should be able to browse a wide variety of children's books and stories.
- The application should provide a search feature to help users find specific books, , or genres.

3- Book Details:

- Each book listing should include details such as title, synopsis, and age-appropriateness.
- Users should be able to preview parts of the book or read reviews.

4- Purchase and Payment:

- Users should be able to add books to their cart and proceed to checkout.
- Secure payment options should be available, such as cash on delivery.

5- User Reviews and Ratings:

- Users should be able to leave reviews and ratings for books.
- The application should display aggregate ratings to help users make informed decisions.

6- Notifications:

- Users should receive notifications for promotions, new releases, or updates on their purchased books.

7- Multi-Platform Support:

- Ensure the application is accessible on multiple platforms, such as iOS, Android, and web browsers.

8- Customer Support:

- Provide a customer support system, such as live chat, email, or a help center, to assist users with any issues or inquiries.

9- Security Measures:

- Implement security measures to protect user data and ensure secure transactions.

CHAPTER 4

METHODOLOGY

The methodology used in the project:

in our project, we will embrace Agile technology as the foundational framework for our development approach. Agile is a modern methodology that emphasizes flexibility, collaboration, and responsiveness throughout the software development process. It involves breaking down the project into smaller, manageable parts called "sprints," which allows us to adapt to changing requirements and feedback rapidly. Agile also promotes close communication between the development team and stakeholders, ensuring that the final product meets the evolving needs of the project.

Our project is commissioned by a real customer who approached us with the need for a customized application. To gather all essential project information, we conducted a series of in-depth interactions with our client, utilizing both Zoom meetings and face-to-face discussions. Our commitment to the Agile methodology ensures that we can provide a flexible, adaptable, and efficient development process for this real-world project, aligning perfectly with the client's specific needs and expectations.

CHAPTER 5

SOFTWARE

DESIGN ANALYSIS OF THE PROPOSED SYSTEM

Analysis of the Proposed System

5.1 Actors

After conducting a thorough system analysis, we have identified three distinct actors within the system:

- **Administrator**
- **Registered User**
- **Guest**

These three roles represent the key personas who interact with our application, each with their own set of privileges and responsibilities.

5.2 Use Case Diagram:

Here we will try to show the interactions between the system and its environment in a simplified way:

5.2.1 Administrator's Use Case Diagram

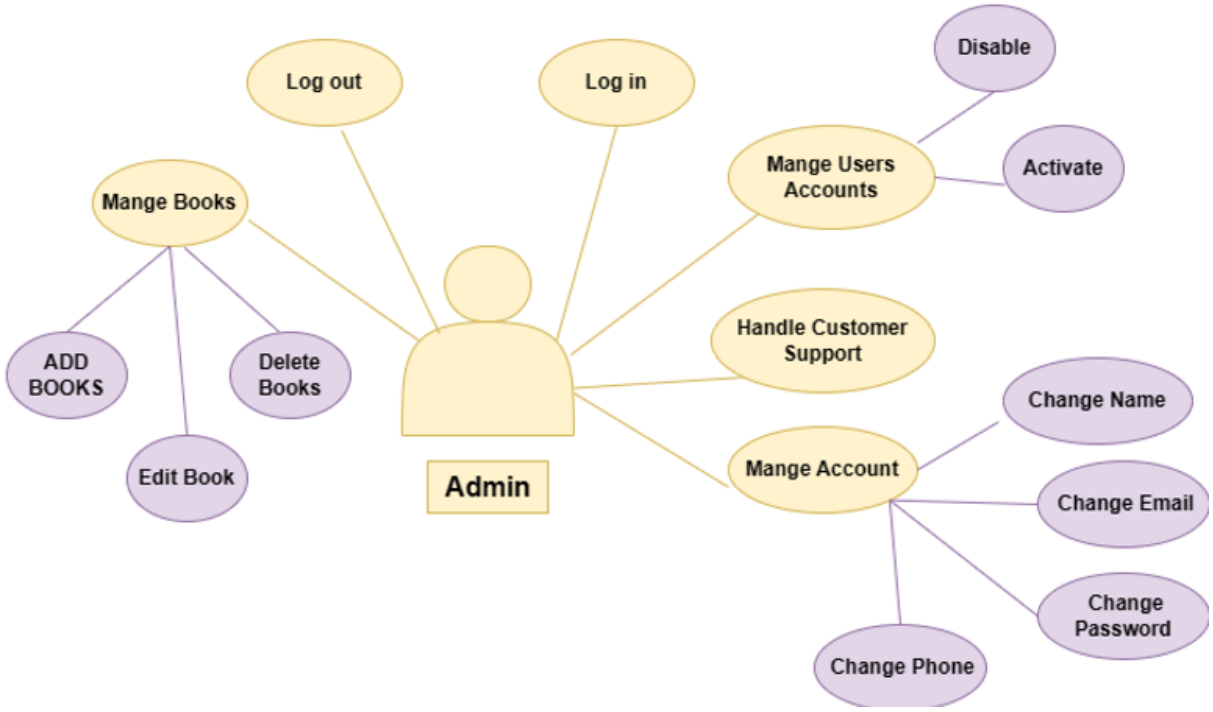


figure 5.1 : Administrator's Use Case Diagram

5.2.2 Registered User Use Case Diagram

figure 5.2 : Registered User Use Case Diagram

5.2.3 Guest Use Case Diagram

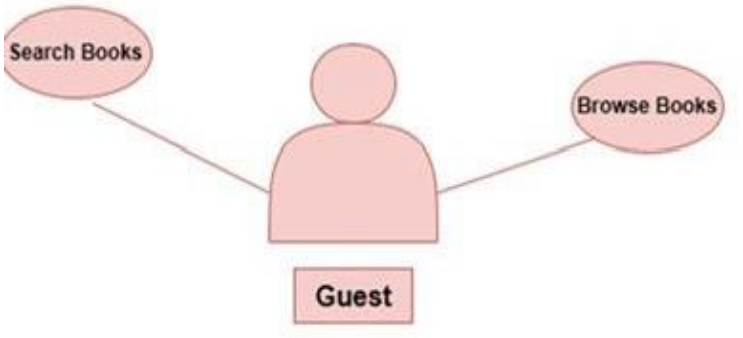


figure 5.3 : Guest Use Case Diagram

5.2.4 Summary all Use Case Diagram

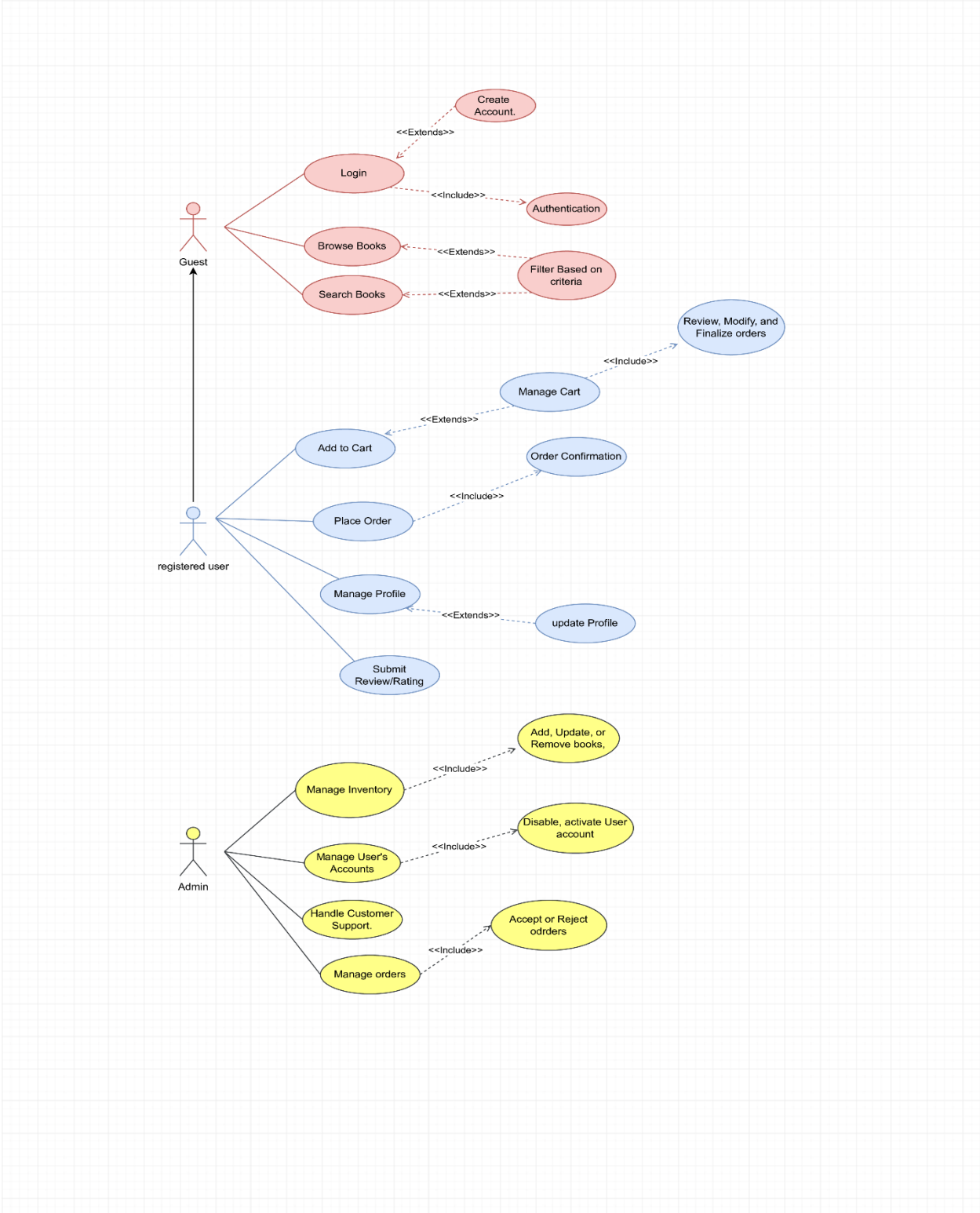


figure 5.4 : Summary all Use Case Diagram

5.3 Use Case Descriptions

5.3.1 Create Account

able below presents the “Create Account” use case description to create account for first time.

Use Case Name	User Account Creation on Online Book Store
Actor	**Guest**
Goal	To find specific books or discover new ones by searching for keywords, titles or other criteria within the online bookstore.
Preconditions	-The application is accessible. -The user has a device with internet connectivity. -The user is not logged in to the online book store.
Trigger	The user wants to have account in the Books Store.
Scenario	1. Open the application 2. Initiating Account Creation: 3. The user clicks on the "Sign Up" or "Create an Account". Enter User Information: The system presents a registration form, prompting the user to enter necessary information such as: Email, phone number, Password. 4. Validation and Verification: The system validates the email address to ensure it is unique and in the correct format. - If the email address is valid and not already registered, the system proceeds to the next step. - If the email address is invalid or already in use, an error message is displayed, and the user is prompted to enter a different email address. 5. Creating User Account: - Once the email address is validated and verified via the email , the system securely stores the user's information in the database.
Exceptions	No exception

Table:1

5.3.2 Sign in

Table below presents the “User Sign in” for Register user.

Use Case Name	User Sign In to Online Book Store Account
Actor	**Registered User**
Goal	To access the user's account on the online book store, allowing the user to browse, purchase, and manage orders.
Preconditions	-The application is operational. -The user has a registered account. -The user has a device with internet access. -The user is not currently logged in.
Trigger	The user clicks on the "Sign In" or "Log In" button on the online book store's homepage.
Scenario	User Input: The user clicks on the "Sign In" or "Log In" button. Login Form: The system displays a login form requesting the user to enter: Email Address (or phone) and Password Authentication: The user enters their registered email address(or phone) and password. The system authenticates the provided credentials against the stored user data in the database. Successful Login: If the provided credentials are correct, the system grants access to the user's account. The user is redirected to their account dashboard or the homepage. Notes: Invalid Credentials: If the user enters an incorrect email address or password, the system displays an error message. The user is prompted to enter the correct credentials or use the "Forgot Password" feature to reset their password.
Exceptions	No exception

Table:2

5.3.3 Search for Books

Table below presents the “Search for Books” for Admin ,Visitor ,Register user.

Use Case Name	Search for Books
Actor	**Registered User**, **Guest**, **Admin**
Goal	To find specific books or discover new ones by searching for keywords, titles, authors, or other criteria within the online bookstore.
Preconditions	The user has access to the online bookstore application. The user is on the homepage or search page of the application.
Trigger	The user wants to preview Or to buy books.
Scenario	1. Open the application 2. Click on the one of the books in the homepage or click on the search bar on the top of the page. 3. Previewing the book.
Exceptions	No exception

Table:3

5.3.4 User Editing Profile Information

Table below presents the “User Editing Profile Information.” for Register user.

Use Case Name	User Editing Profile Information.
Actor	**Registered User**.
Goal	To update and manage personal information associated with the user's account , including name, contact details.
Preconditions	-The user has a device connected to the Internet. -The application is running. -The user has an account and logs into his account.
Trigger	The user accesses the "Account Settings" or "Edit Profile" section.

Scenario	1. Open the application. 2. User Navigation: The user navigates to the "Account Settings" or "Edit Profile", through the profile icon at the top. 3. Profile Editing Form: - The system displays a form with the user's current profile information, allowing them to edit fields such as: - Email - Phone Number - Password 4. Editing Information: - The user modifies the desired fields with the updated information, then click "Save" or "Confirm".
Exceptions	No exception

Table:4

5.3.5 User Purchasing Books

Table below presents the "User Purchasing Books " for Register user.

Use Case Name	User Purchasing Books
Actor	**Registered User**
Goal	To successfully purchase books from the online book store, utilizing an auto-fill feature to streamline the checkout process.
Preconditions	- The application is operational. - The user is logged into their account. - The user has added the desired books to their shopping cart. - The user has previously saved billing and It now adds the receiving location via GPS.
Trigger	Purchase the book either (directly, by adding it to the shopping cart, or through the Wish list).
Scenario	1. Open the application and log in. 2.View the book you want to buy, A- you can order directly by clicking on the "Buy Now" button. B- Or by adding it to your cart by clicking on the "buy it" button, and then purchasing it. C- Or by adding it to your wish list by clicking on the heart button, and then purchasing it. 3. Reviewing the Order: - The system displays a summary of the order, including the selected books, quantities, total price, and shipping information.(the user add his name and the location) - The user reviews the order details to ensure accuracy.

	6. Order Confirmation: - The system confirms the order, displaying a confirmation message to the user via what's app.
Exceptions	No exceptions

Table:5

5.3.6 Adding Books to Cart Or Wish list

Table below presents the "Adding Books to Cart Or Wish list" for Register user.

Use Case Name	Adding Books to Cart or Wish list
Actor	**Registered User**.
Goal	To add books to the shopping cart for future purchase or to the wish list for later consideration.
Preconditions	- The application is operational. - The user is logged into their account. - The user has navigated to the book details page or search results page displaying the desired books..
Trigger	The user clicks on the "Add to Cart" or "Add to Wish list" button next to a specific book.
Scenario	Adding Books to Cart: 1. User Selects Books: - The user selects the books they want to purchase. 2. Adding to Cart: - The user clicks the "Add to Cart" button next to the selected book. - The system adds the book to the user's shopping cart, displaying a confirmation message. - The user can continue shopping or proceed to checkout. 3. Reviewing Cart: - If the user clicks on the shopping cart icon, the system displays the added books and their quantities. - The user can edit quantities, remove items, or proceed to checkout from the cart page. Add to Wishlist: - The user clicks the "Add to Wishlist" button next to the selected book. - The system adds the book to the user's Wishlist, displaying a confirmation message. - The user can continue shopping or proceed to checkout.

Exceptions	- Item Already in Wishlist.

Table:6

5.3.7 Admin Accepts Order

Table below presents the “Admin Accepts Orders” for Admin.

Use Case Name	Admin Accepts Orders
Actor	**Admin**
Goal	To process and accept customer orders, ensuring accurate fulfillment and timely delivery.
Preconditions	- The application system is operational. - The admin user is logged into their admin panel. - There are pending orders waiting for approval and processing.
Trigger	The admin user accesses the admin panel and navigates to the "Pending Orders" section .
Scenario	1. Admin Accesses Pending Orders: - The admin user logs into the admin panel and navigates to the section displaying pending orders awaiting approval. 2. Reviewing Orders: - The admin user reviews the details of each pending order, including the books ordered, quantities, shipping address, and payment information. 3. Accepting Orders: - For each order, the admin user clicks the "Accept" or "Reject" button. - The system updates the order status and generates a confirmation message for the admin and the customer.
Exceptions	Insufficient Stock: - If the system detects that the ordered books are out of stock or the available quantity is insufficient to fulfill the order, the admin is notified. - The admin can contact the customer to offer alternatives, cancel the out-of-stock items, or place them on backorder if applicable. - Shipping Address Issues: - If the shipping address provided by the customer is incomplete or inaccurate, the admin may contact the customer for clarification. - If unable to resolve the address issue, the admin may cancel the order and notify the customer.

Table:7

5.4 Activity Diagram

5.4.1 Admin Activity Diagram :

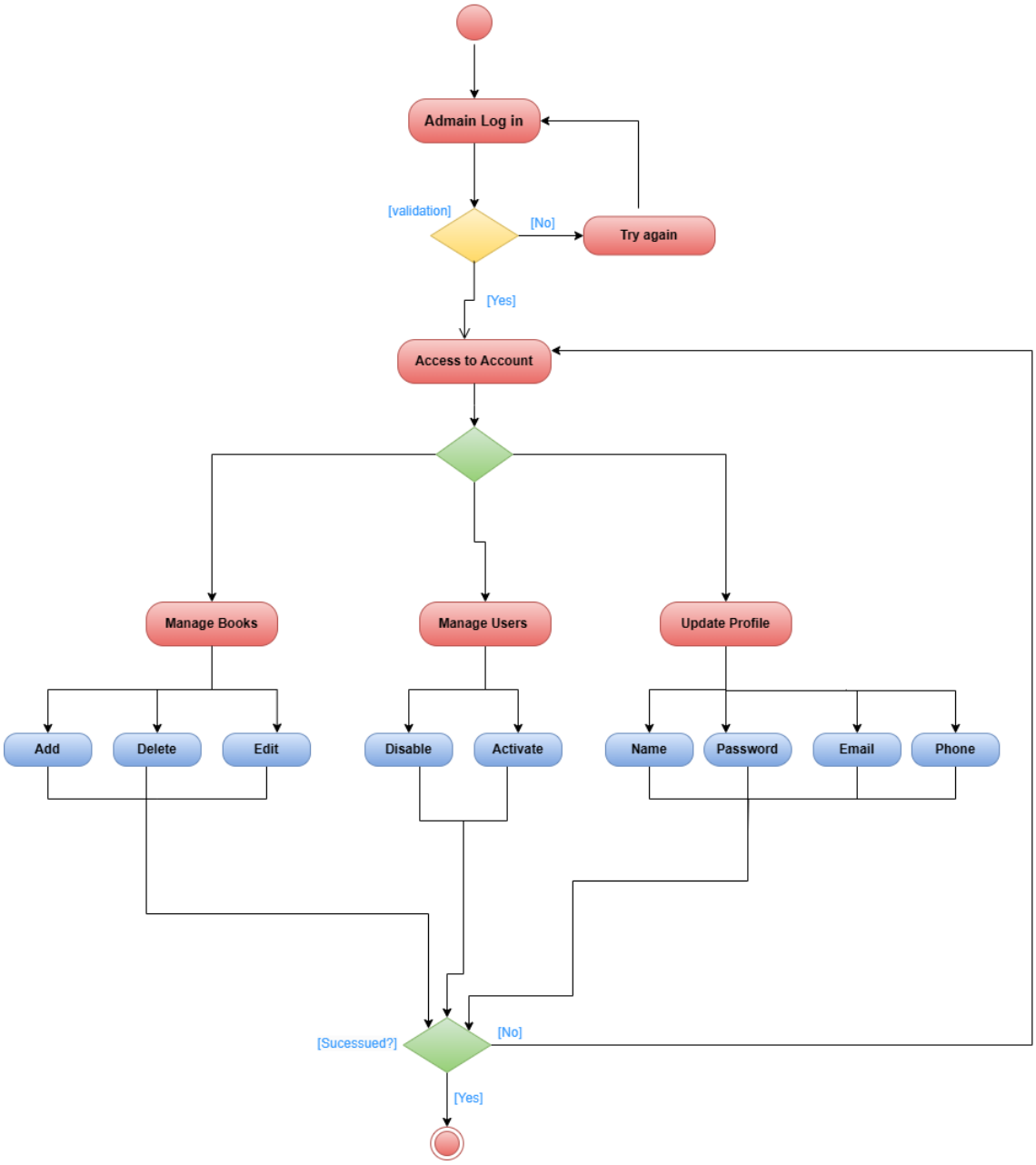


figure 5.5 Admin Activity Diagram

5.4.2 User Activity Diagram

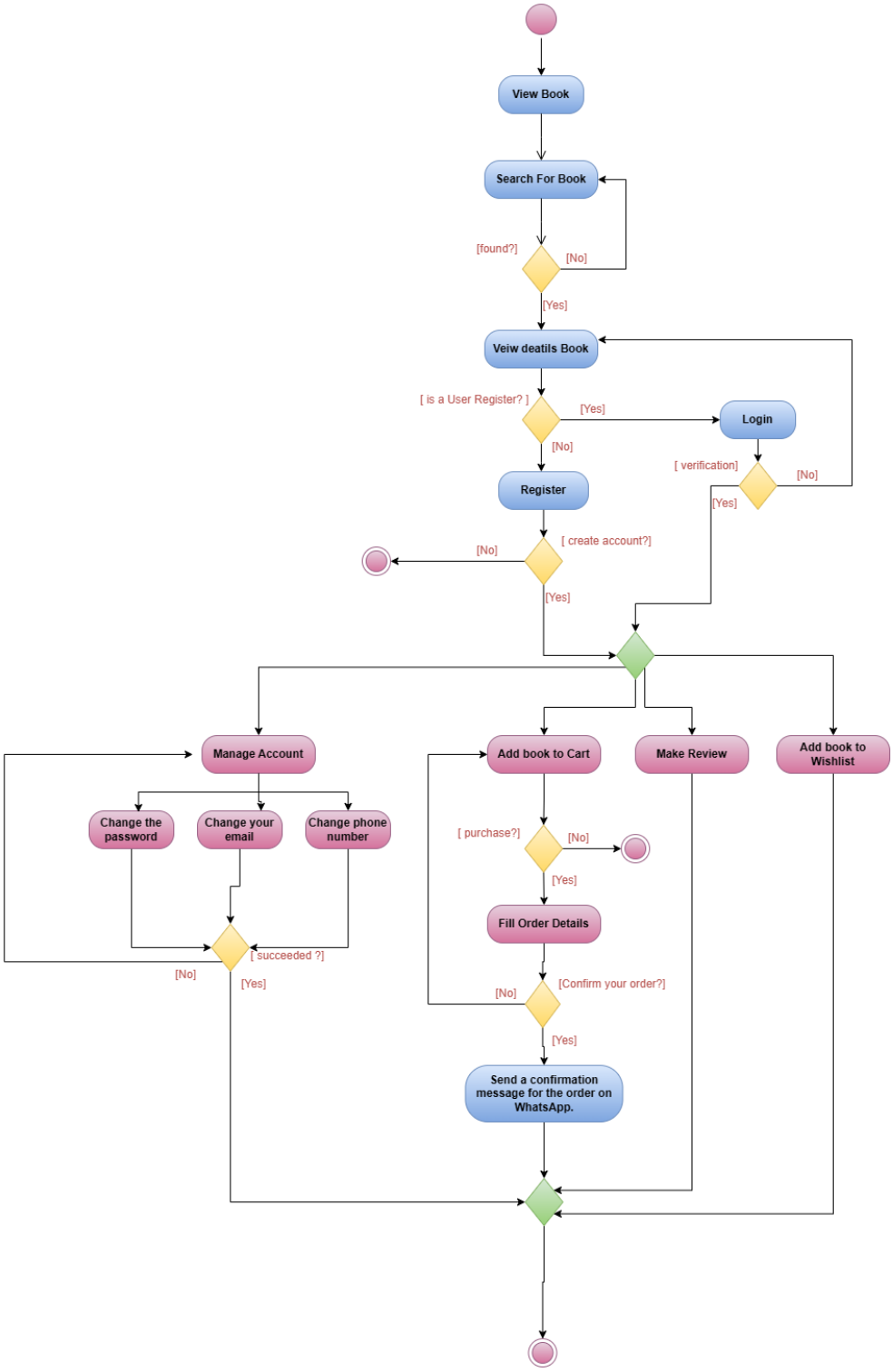


figure 5.6: User Activity Diagram

5.5 System Sequence Diagrams

5.5.1 System Sequence Diagram for User or Admin Login

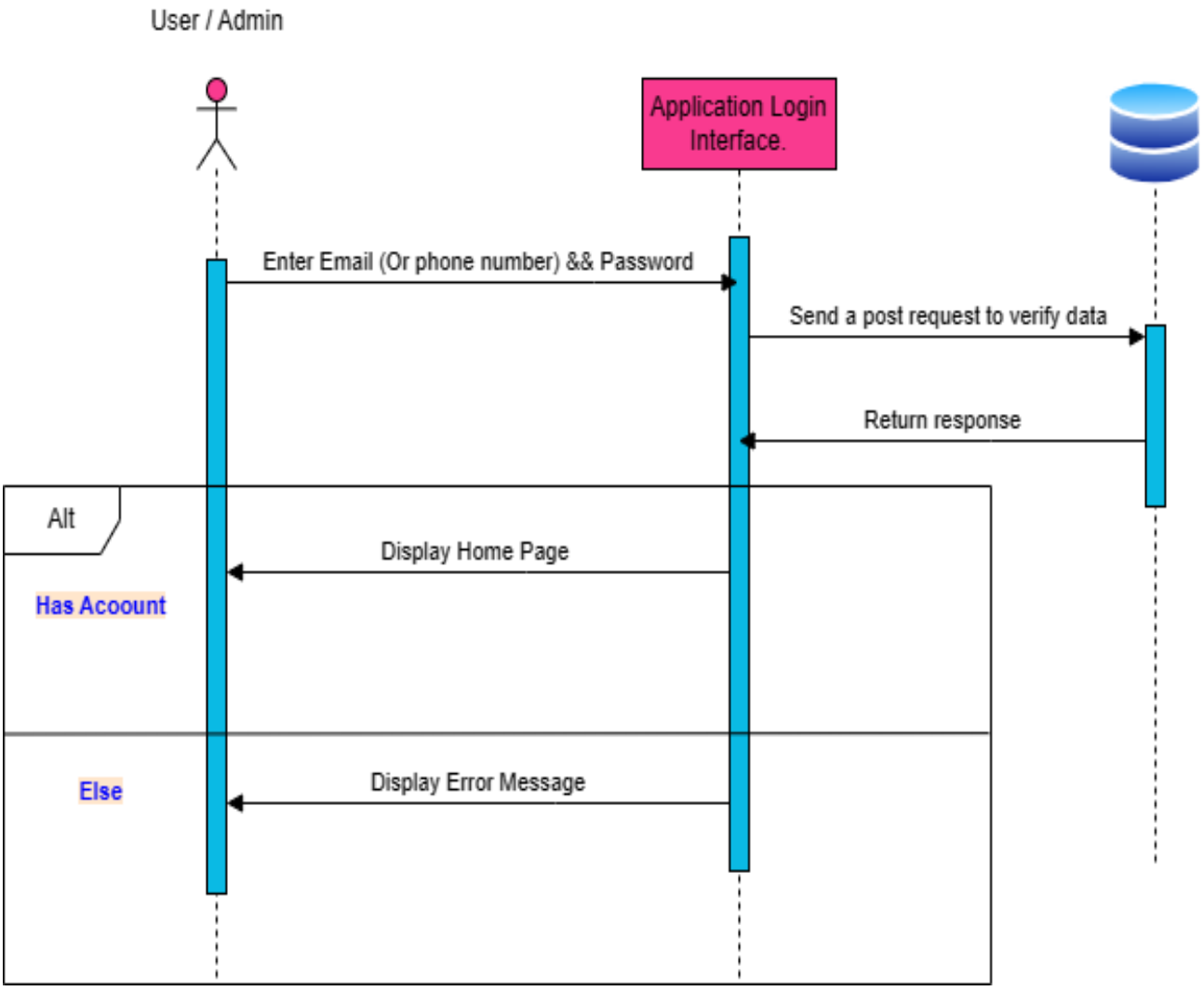


figure 5.7: System Sequence Diagram for User or Admin Login

5.5.2 System Sequence Diagram for Order Process

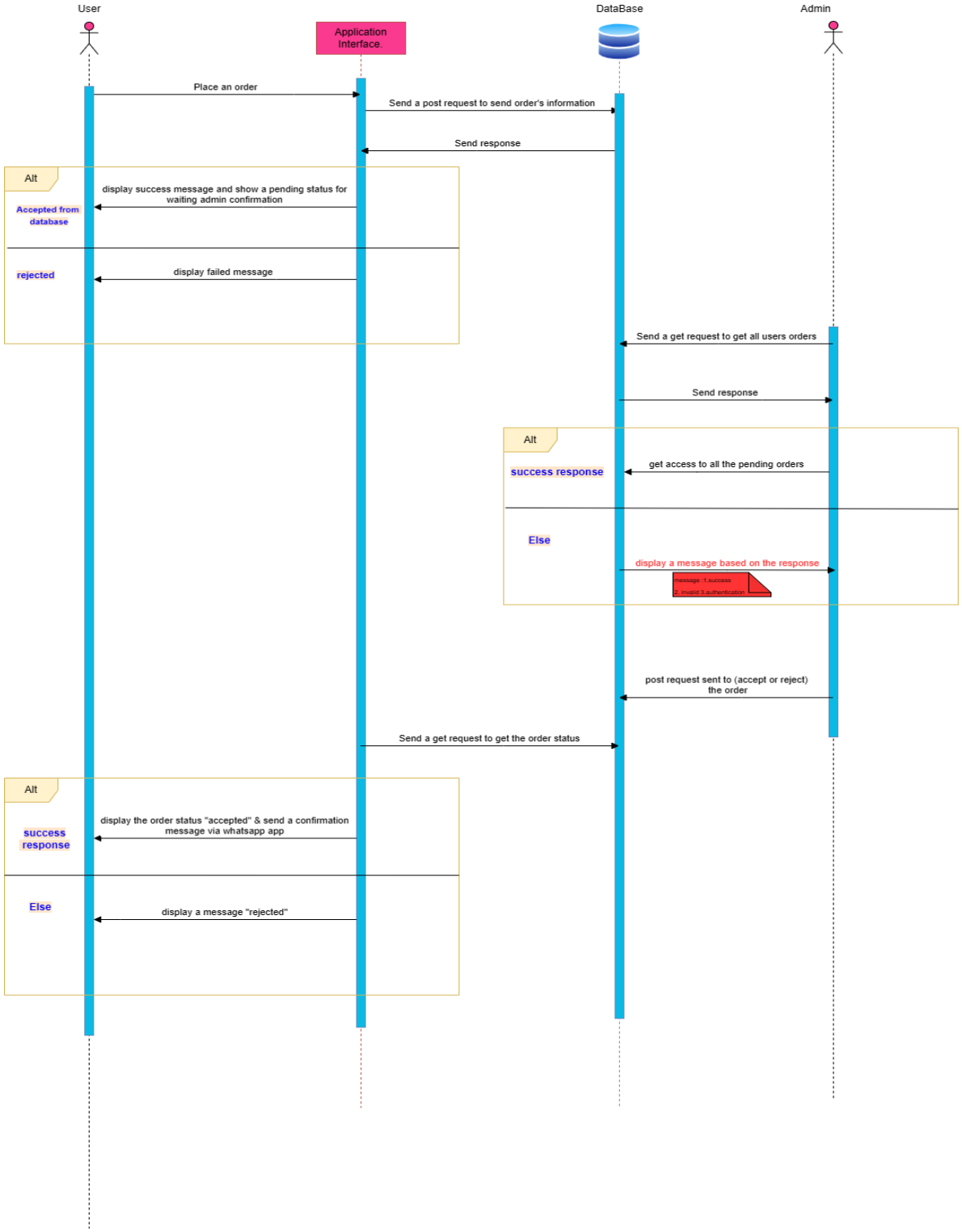


figure 5.8: System Sequence Diagram for Order Process

5.5.3 System Sequence Diagram for User or Admin Logout

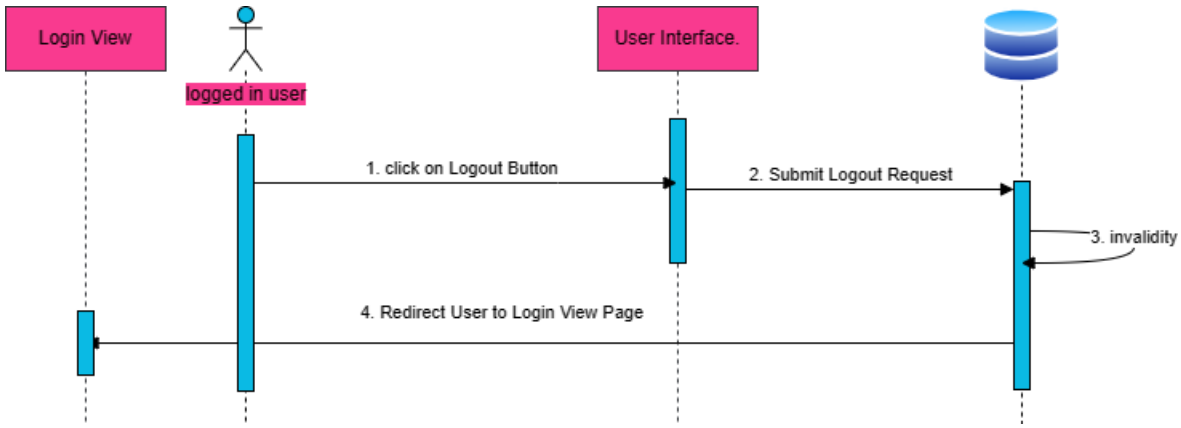


figure 5.9: System Sequence Diagram for User or Admin Logout

5.6 Entity-Relationship Diagrams

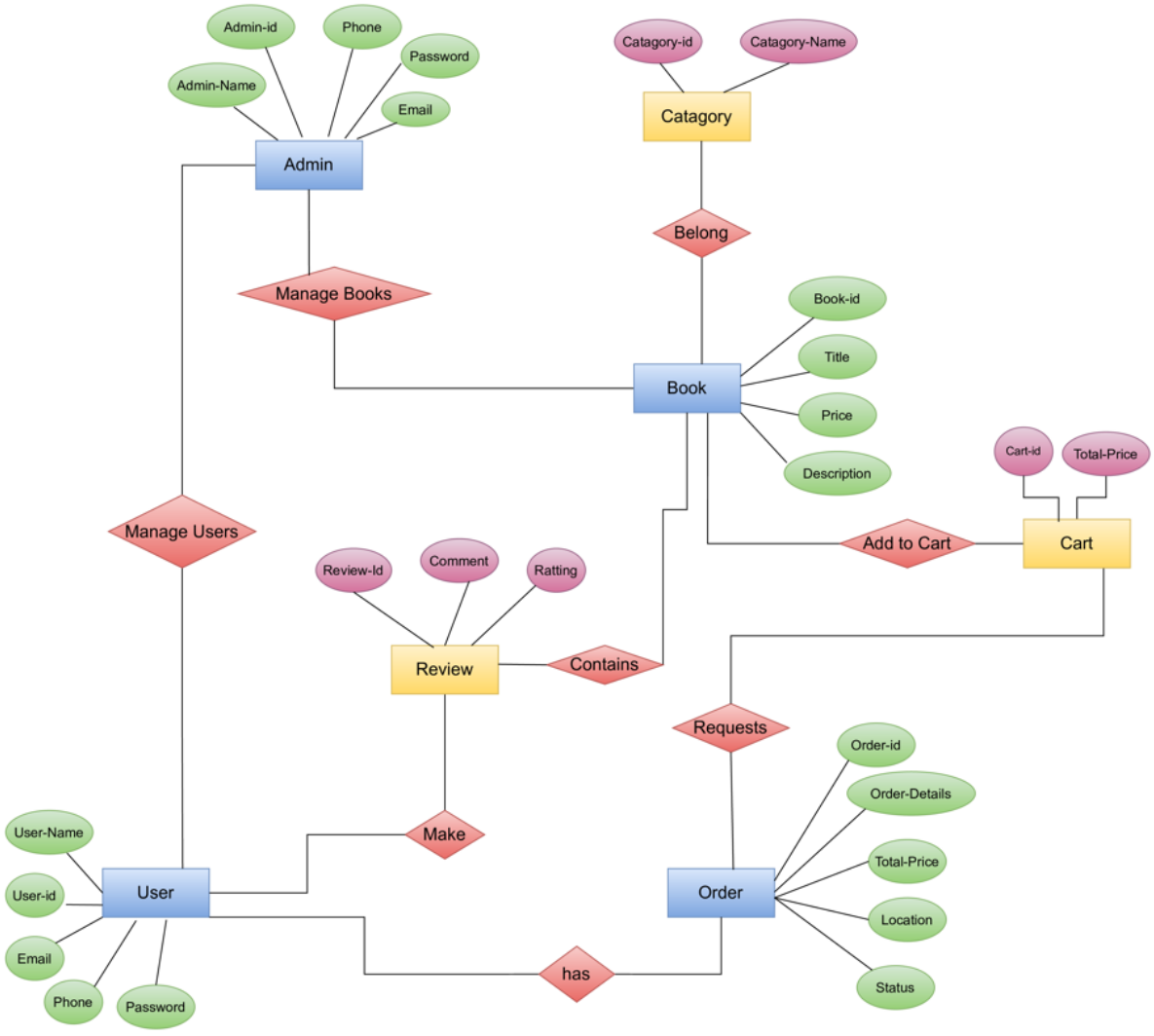


figure 5.10: Entity-Relationship Diagrams

5.7 Relational Schema Diagrams

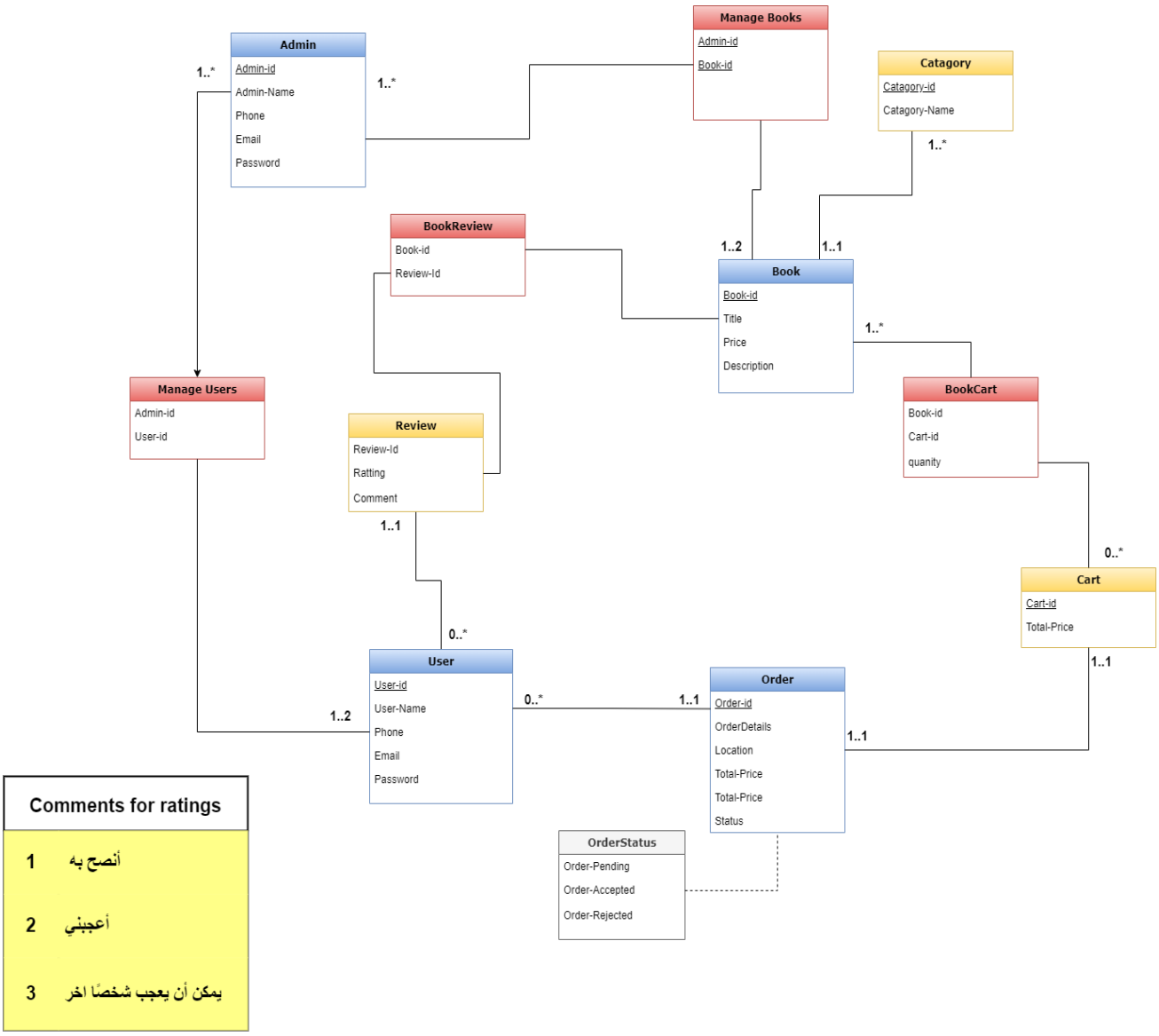


figure 5.11: Relational Schema Diagrams

5.8 Class Diagrams

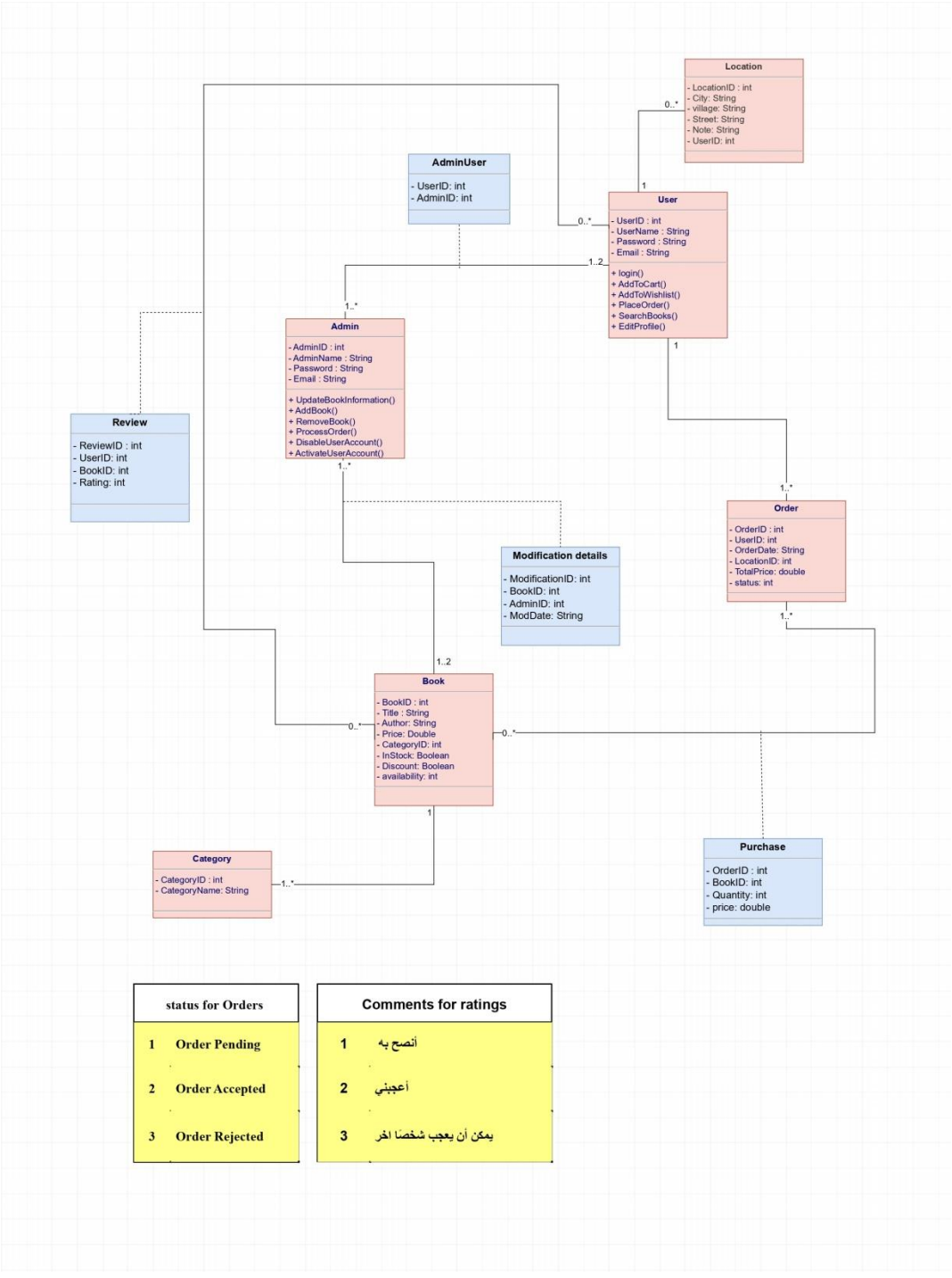


figure 5.12: Class Diagrams

CHAPTER 6

TECHNOLOGY

In this chapter we will discuss the IDE on which we plan to work, all used technologies, programming languages, frameworks, and database we plan to use in building our website.

6.1 Overview of Implementation Stack

Integrated Development Environment:

- Visual Studio Code

User Interface Design:

- Figma

Front-End Technologies:

- React.js JavaScript Library
- React Material UI

Back-End Technologies:

- Node.js
- Express.js Framework

Database:

- MongoDB database.

6.2 Integrated Development Environment

6.2.1 Visual Studio Code (VSCode):

Visual Studio Code (VSCode) is an open-source, lightweight code editor developed by Microsoft, widely embraced for its extensibility and feature-rich environment. In mobile app development, VSCode is favored for its support of multiple programming languages, extensive extension ecosystem catering to platforms like React Native and Flutter, robust debugging capabilities, version control integration, and intelligent code completion. Its flexibility and customization make it a preferred choice for developers building applications for diverse mobile platforms.

figure 6.1 :Visual Studio Code logo

6.3 User Interface Design

6.3.1 Figma

Figma is a cloud-based design and collaboration tool that is primarily used for creating user interfaces (UI) and user experience (UX) designs. It has gained widespread popularity among designers, developers, and teams working on web and mobile app design projects.

figure 6.2 :Figma logo

6.4 Front-End Technologies

6.4.1 React Native :

"React Native" is a popular open-source framework developed by Facebook. It's used for building mobile applications for IOS and Android platforms using JavaScript and React, a popular JavaScript library for building user interfaces.

React Native allows developers to write code in JavaScript and use React components to create a mobile app that looks and feels like a native app. It enables code reusability across different platforms, making it more efficient for developers to maintain and update their mobile applications for both IOS and Android.

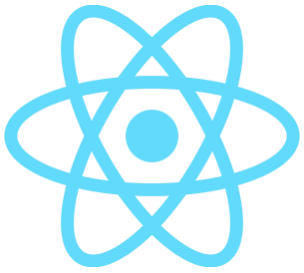


figure 6.3 React Native logo

6.5 Back-End Technologies

6.5.1 Node.js :

Node.js is an open-source server-side runtime environment that allows the execution of JavaScript code beyond the browser, utilizing Chrome's V8 engine. Renowned for its event-driven, non-blocking I/O model, Node.js is highly efficient for building scalable and real-time applications, such as chat apps.

It unifies JavaScript for both client and server-side development and boasts a vast ecosystem of libraries via npm. Scalability is a strong suit, achieved through easy horizontal scaling. Widely used for web servers, APIs, real-time applications, and microservices, Node.js owes its

popularity to performance, scalability, and effective handling of concurrent connections. The active developer community further supports its widespread adoption.

figure 6.3 :Node JS logo

6.6 Database

6.6.1 MongoDB database:

MongoDB is a widely used open-source NoSQL database system, renowned for its document-oriented structure storing data in BSON format. Its flexibility allows varied document structures, making it suitable for applications requiring dynamic and schema-less data modeling. With scalability for handling large volumes of data and high traffic, MongoDB employs horizontal scaling across multiple servers. As a NoSQL database, it offers a more flexible storage solution and supports a rich query language for versatile data retrieval. Features like high availability, automatic failover, and replication enhance its suitability for diverse applications such as content management, e-commerce, real-time analytics, and IoT. MongoDB prioritizes security with robust authentication, authorization, and encryption measures. Its flexible schema accommodates changing data requirements, making it well-suited for agile development environments. The active developer community and extensive ecosystem further contribute to MongoDB's popularity.

figure 6.4 MongoDB database logo

CHAPTER 7

INTERFACES App

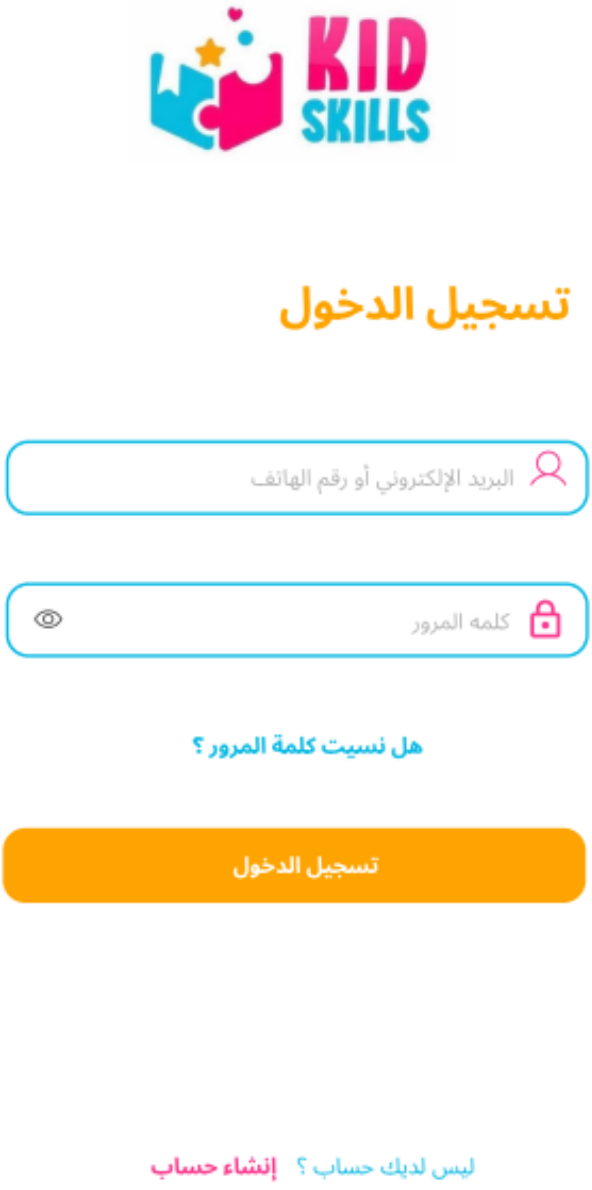
7.1 Welcome Page

The welcome page greets users with a warm welcome message as they enter the bookstore application.

Figures 7.1: Welcome page

7.2 Sign In Page

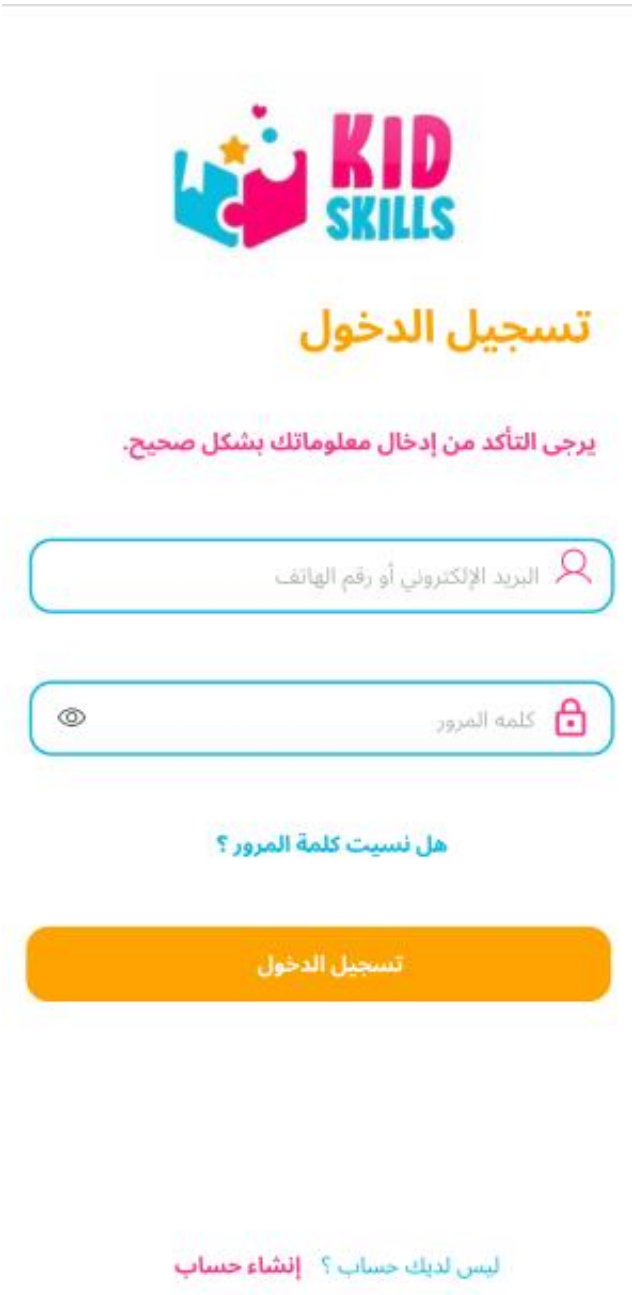
This interface allows users to enter their credentials to access their account and enjoy personalized features



Figures 7.2: Sign in page

7.3 Page when data is entered incorrectly

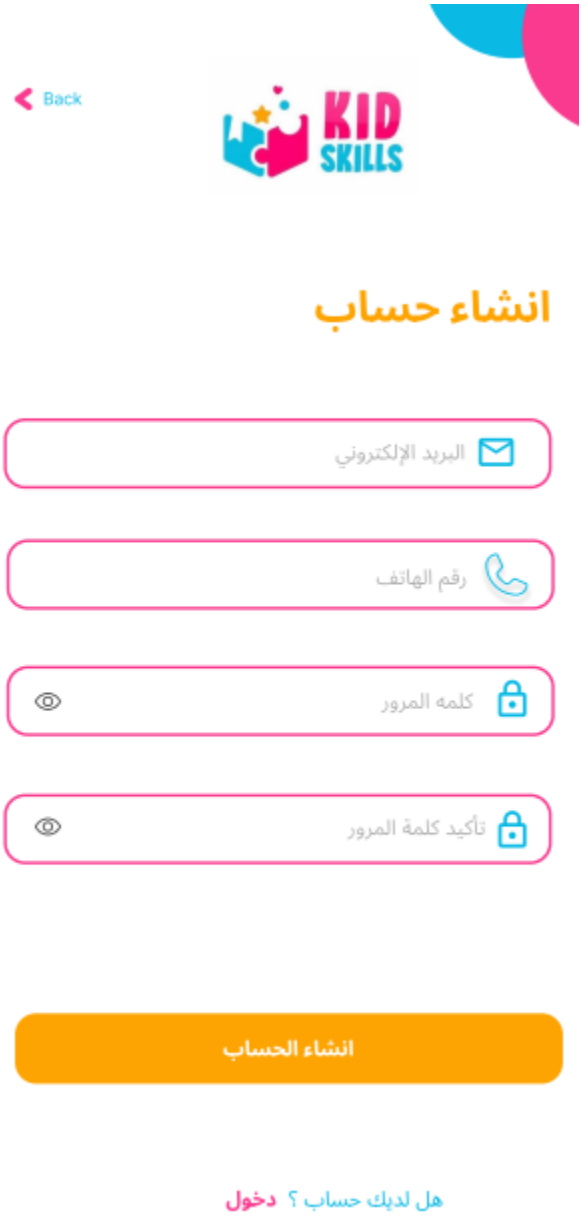
Users can use this interface to reset their forgotten password by providing their email or username for account recovery.



Figures 7.3: Page when data is entered incorrectly

7.4 Sign Up Page

This interface allows new users to create an account, providing essential information such as name, email, and password to access the bookstore's features and services.



Figures 7.4: Sign up page

7.5 Home Page

The home page serves as the main hub, displaying featured books, recommendations, and updates about the bookstore.

Figures 7.5: Home page

7.6 .1 Categories Page

Users can browse books by categories or genres on this page, making it easy to find books of interest.

Figures 7.6: Categories page1

7.6.2 Categories Page

Users can browse books by categories or genres on this page, making it easy to find books of interest.

Figures 7.7: Categories page2

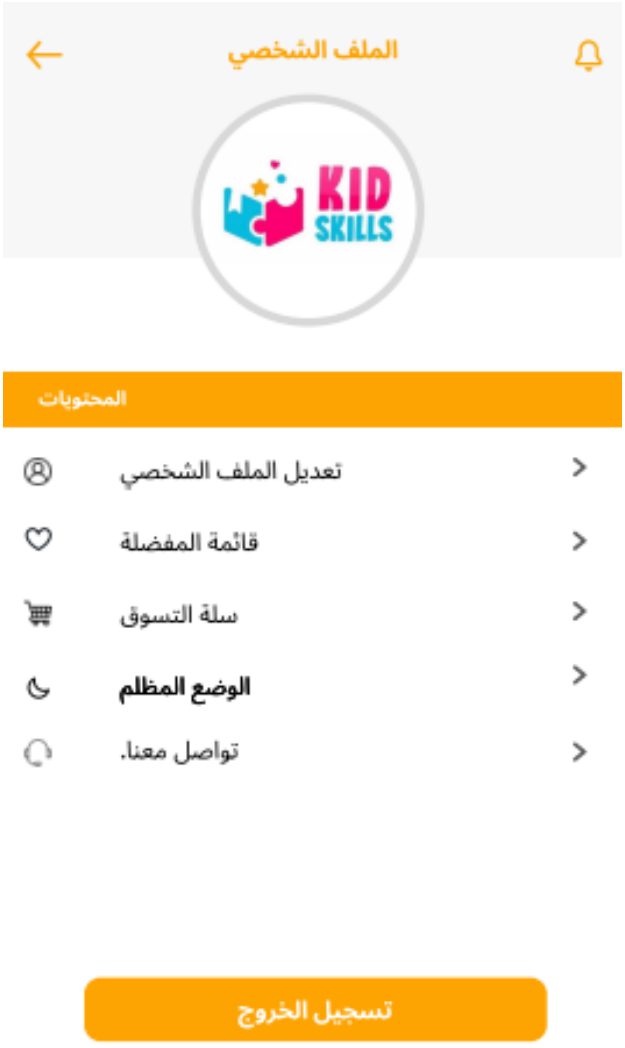
7.7 Cart Page

Users can view and manage items added to their shopping cart before proceeding to the checkout process.

Figures 7.8: Cart page

7.8 Profile Page

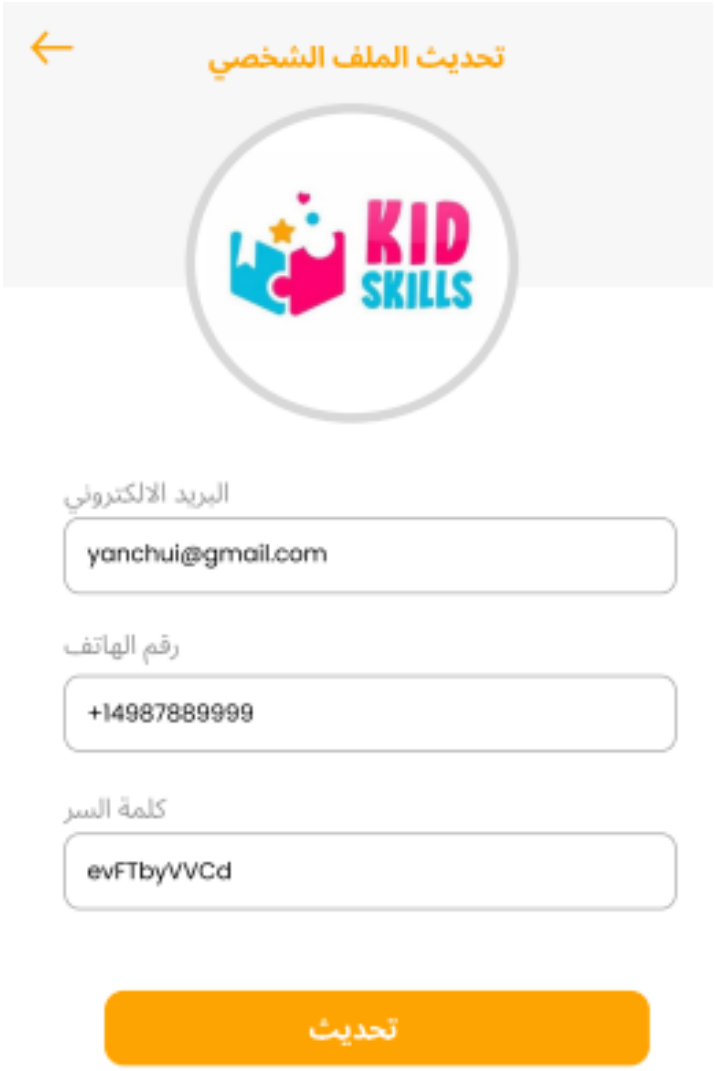
Here, users can access and manage their account details, order history, and preferences.



Figures 7.9: Profile page

7.10 Edit Profile Page

Users can update their account information, such as name, email, and password, in this interface.



Figures 7.10: Edit Profile page

7.11 Book Details Page

Users can explore detailed information about a specific book, including its synopsis, author details, and purchase options.

Figures 7.11: Book Details page

7.12 Wish List Page

This interface lets users curate a list of books they desire to read or purchase in the future.

Figures 7.12: Wish List page