LOOK INNA BOOK

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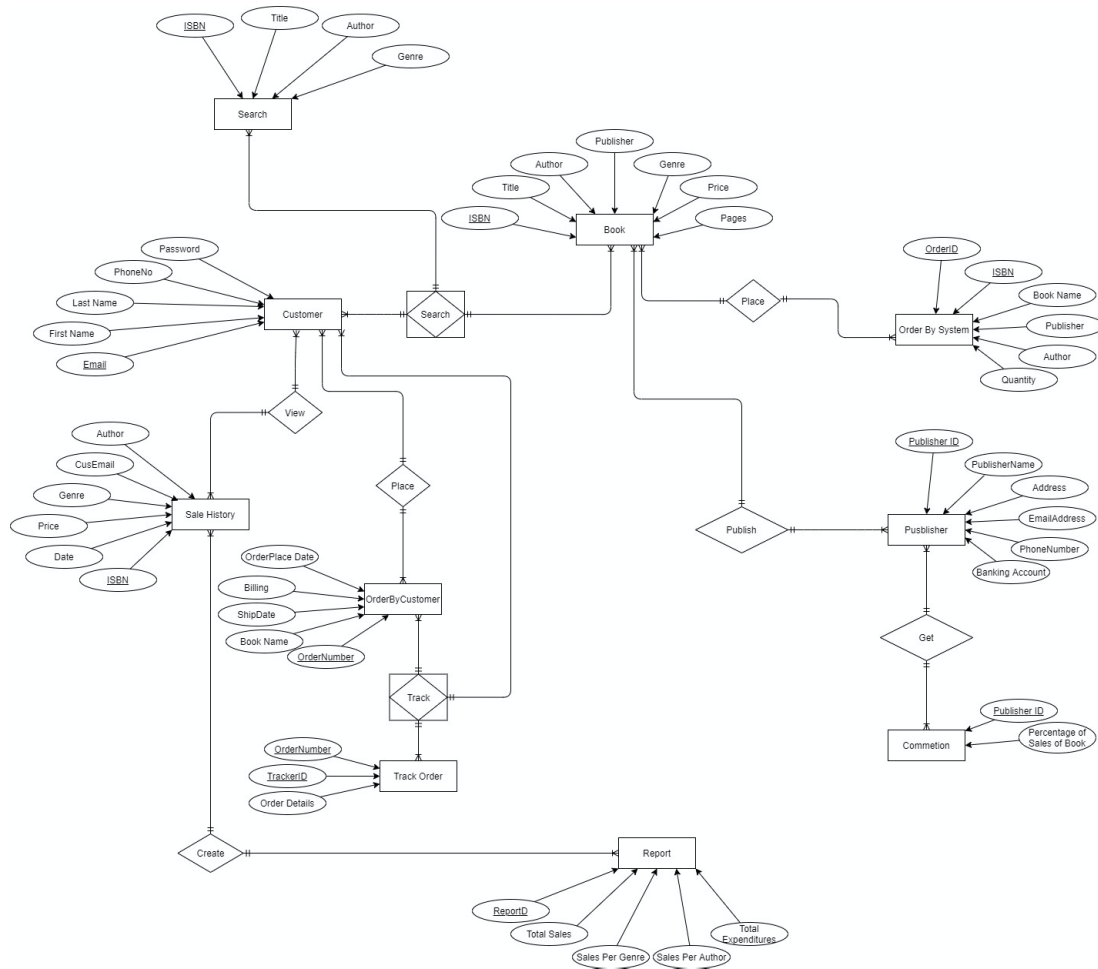
1 Conceptual Design

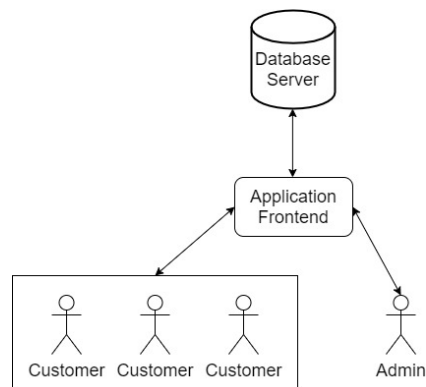**Diagram 1**: ER Diagram of Look Inna Book

Diagram 2: Architecture of the Bookstore

In diagram 1, the ER Diagram of the bookstore Look Inna Book has been depicted. Diagram 2 shows the basic architecture of the bookstore that has been kept in mind.

2.1.1 Entities

- Book

The "book" entity represents a book within the database. Its attributes are ISBN, Title, Author, Publisher, Genre, Price, and Pages. The ISBN is used as the primary key of this entity as no 2 books will have the same ISBM number.

- Customer

The "customer" entity represents customers of the bookstore. Its attributes include Email, First Name, Last Name, Phone no. and Password. The Email is used as the primary key for this entity.

- Search

The "search" entity represents the search functionality of the bookstore. The attributes are, ISBN, Title, Author, and Genre. The primary key is ISBN.

- Sale History

The "sale history" entity represents the data of the books that has been sold. The attributes here are Author, CusEmail, Genre, Price, Date, and ISBN. The primary key is ISBN.

- Order By Customer

The "Order By Customer" entity represents the data of an individual customer. The attributes are, order place date, book name, billing address, ship date and Order Number. The order number is the primary key as it is unique for each order.

- Order By System

The "order by system" entity represents the data stored for each order within the system. The attributes are ISBN, OrderID, Book name, publisher, author, and quantity. The primary key is OrderID.

- Publisher

The "Publisher" entity represents the publishers in the bookstore. The attributes are, Publisher ID, PublisherName, EmailAddress, Address, PhoneNumber and Banking Account. The primary key is the Publisher ID as it is unique for each.

- Track Order

The "Track Order" entity represents the functionality used for tracking order. The attributes are TrackerID, OrderNumber and OrderDetails. The OrderNumber is the primary key.

- Report

The "report" entity represents the report functionality being accessed by the admin/owner of the bookstore. The attributes of the report entity are ReportID, total sale, sales per genre, sales per author, total expenditures. Here the primary key is the ReportID.

- Commission

The "commission" entity represents the commission the publisher receives. The attributes of commission entity are PublisherID and % of book. The primary key is the publisherID.

2.1.2 Relations

- View

The "view" relation relates the customer (owner) of the bookstore to the Sale History. This relation is for the admin to view the sale history taken from the customer.

- Create

The "create" relation relates the sale history to the report. This relation is intended to create a report after the sale has been made.

- Place

The "place" relation relates the customer to the OrderByCustomer entity. This relation is intended to identify the relation between a customer and the system after the order is placed. It also relates the book with order by system.

- Publish

The "publish" relation relates the publisher to the book entity. The primary keys are ISBN and PublisherID.

- Get

The "get" relation relates the publisher entity to commission. This relation is intended to connect the publisher to how much commission it will receive from a book. The primary key involved is publisherID.

- Search

The "search" relation is an associative relation that relates customer, book, and search entitities together. The primary keys involved are ISBN and email.

- Track

The "track" relation is an associative entity relation that relates OrderByCustomer and TrackOrder. The primary key involved is OrderNumber.

2.1.3 Participation Types

- Total Participation

  - Book to Publishes is total participation because every book has to be published by someone.
  - Customer to View is total participation as all the orders placed must be able to be viewed by the admin.
  - Customer to Search should be total participation as all the customers should be able to search the bookstore.
  - Publisher to Get is total participation as all the publishers should receive some commission on sale.

- Partial Participation

  - Every other relationship, that is not listed above should be partial participation as there is no condition which makes the entity to participate in the relation.
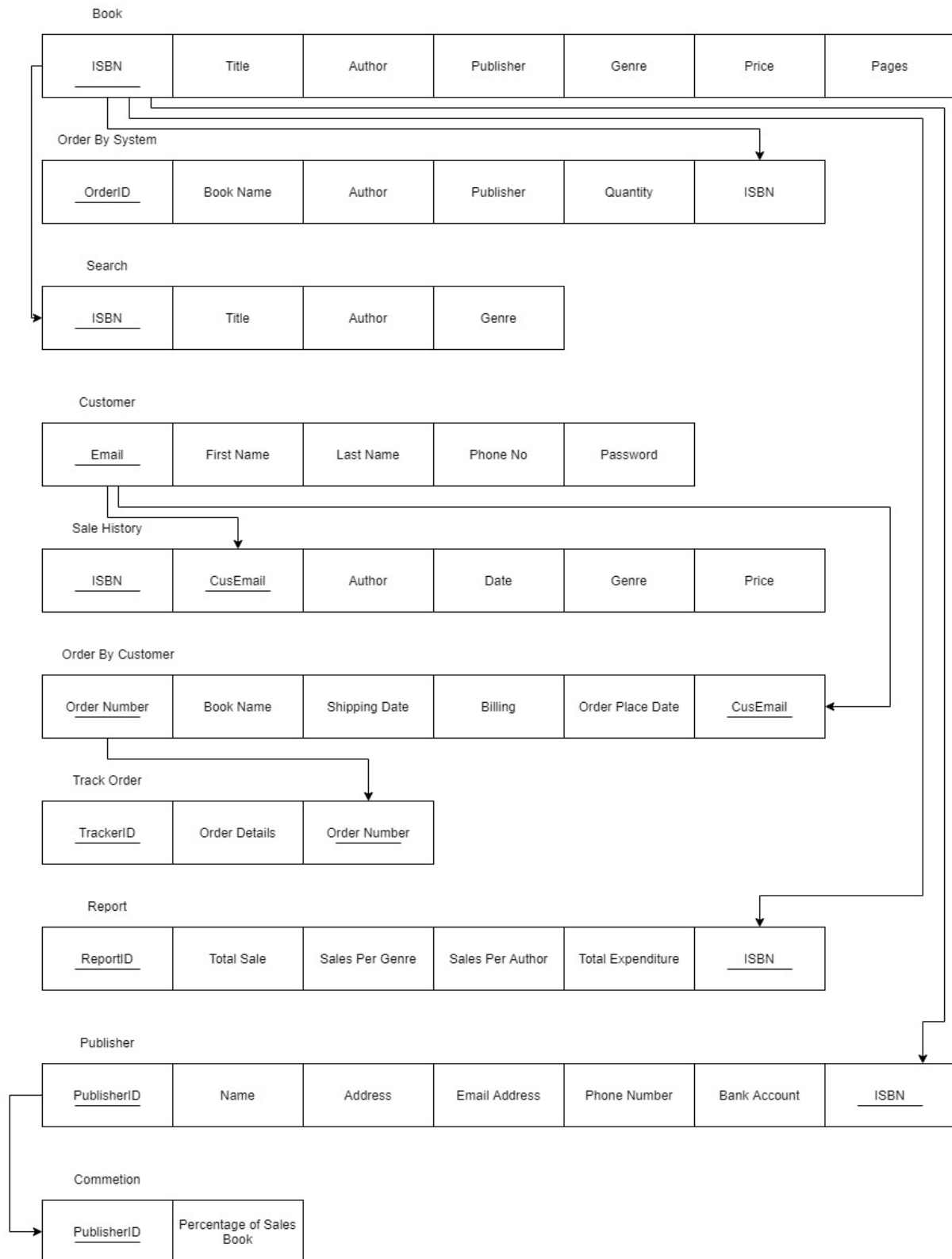
2.2 Reduction to Relation Schemas

Book

ISBN	Title	Author	Publisher	Genre	Price	Pages

Order By System

OrderID	Book Name	Author	Publisher	Quantity	ISBN

Search

ISBN	Title	Author	Genre

Customer

Email	First Name	Last Name	Phone No	Password

Sale History

ISBN	CusEmail	Author	Date	Genre	Price

Order By Customer

Order Number	Book Name	Shipping Date	Billing	Order Place Date	CusEmail

Track Order

TrackerID	Order Details	Order Number

Report

ReportID	Total Sale	Sales Per Genre	Sales Per Author	Total Expenditure	ISBN

Publisher

PublisherID	Name	Address	Email Address	Phone Number	Bank Account	ISBN

Commetion

PublisherID	Percentage of Sales Book

Diagram 3: Reduction to Relational Database Schema

2.3 Normalization of Relation Schema

In 1st NF we reduce multivalued attributes, in 2nd NF we remove partial dependencies and the 3rd NF we remove the transitive dependencies. In the following all the tables are normalized in 3rd NF.

Book

Book

ISBN	Title	Author	Publisher	Genre	Price	Pages

Search

Search

ISBN	Title	Author	Genre

Customer

Customer

Email	First Name	Last Name	Phone No	Password

Publisher

Publisher

PublisherID	Name	Address	Email Address	Phone Number	Bank Account

Report

Report

ReportID	Total Sale	Sales Per Genre	Sales Per Author	Total Expenditure

Commission

Commetion

PublisherID	Percentage of Sales Book

Order by customer

Order By Customer

Order Number	Book Name	Shipping Date	Billing	Order Place Date

Order by system

Order By System

OrderID	Book Name	Author	Publisher	Quantity	ISBN

Sale history

Sale History

ISBN	CusEmail	Author	Date	Genre	Price

Track order

Track Order

TrackerID	Order Details	Order Number

2.4 Database Schema Diagram
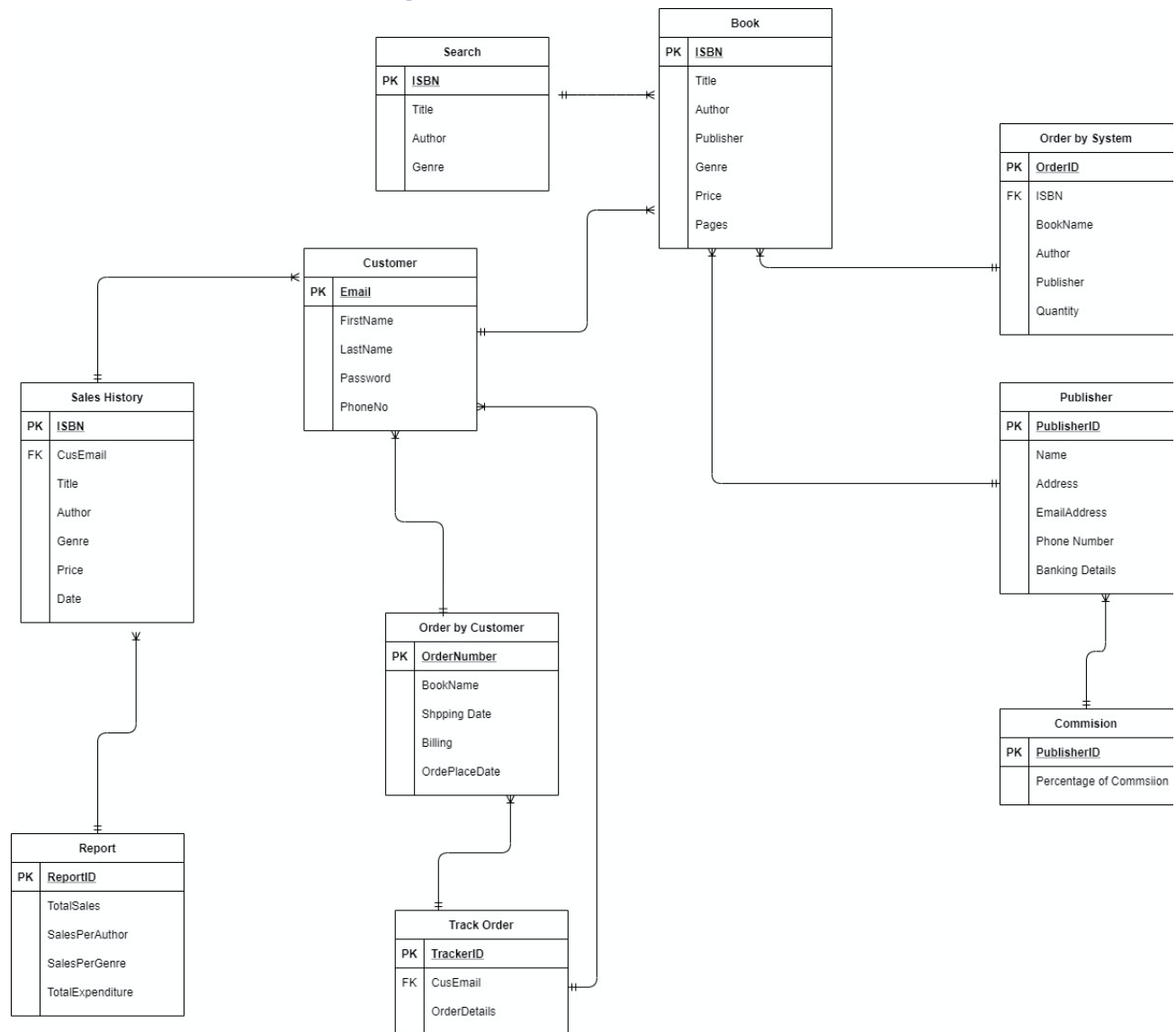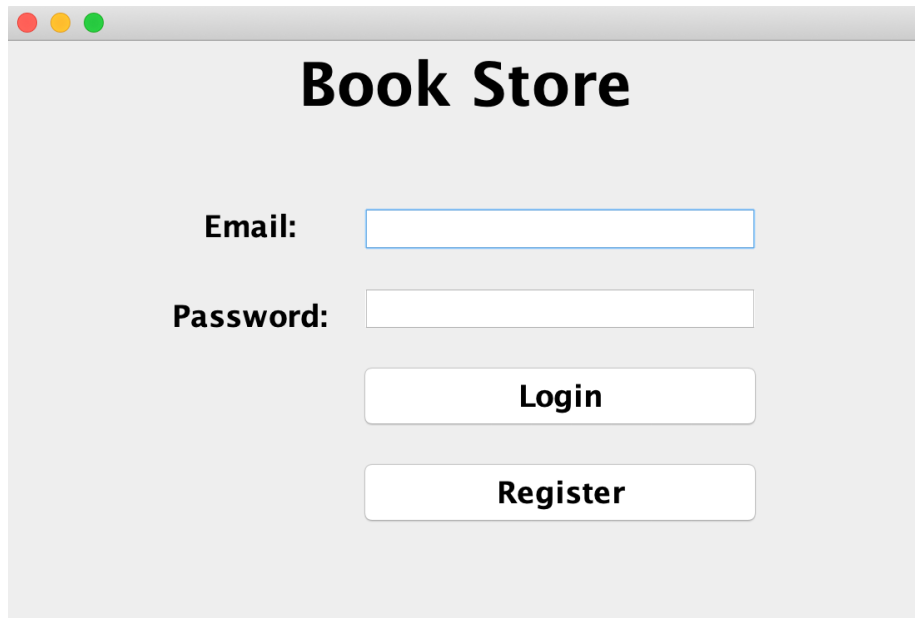
Diagram 4: Database Schema Diagram
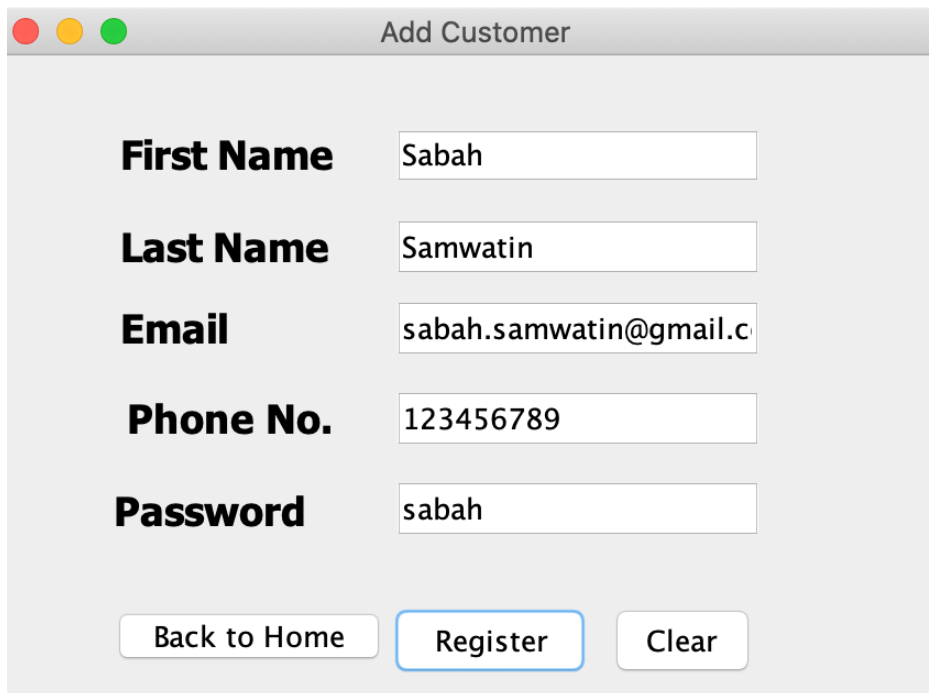
2.5 Implementation
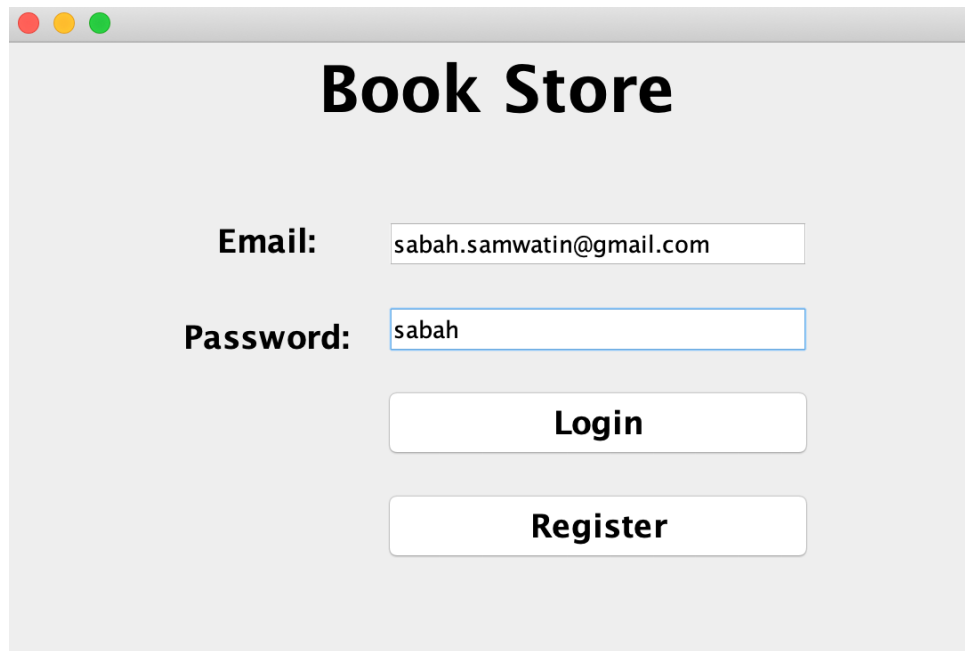
Screenshot 1: Running the Driver class will open this window

Screenshot 2: Registering New Customer pressing register on the 1st window
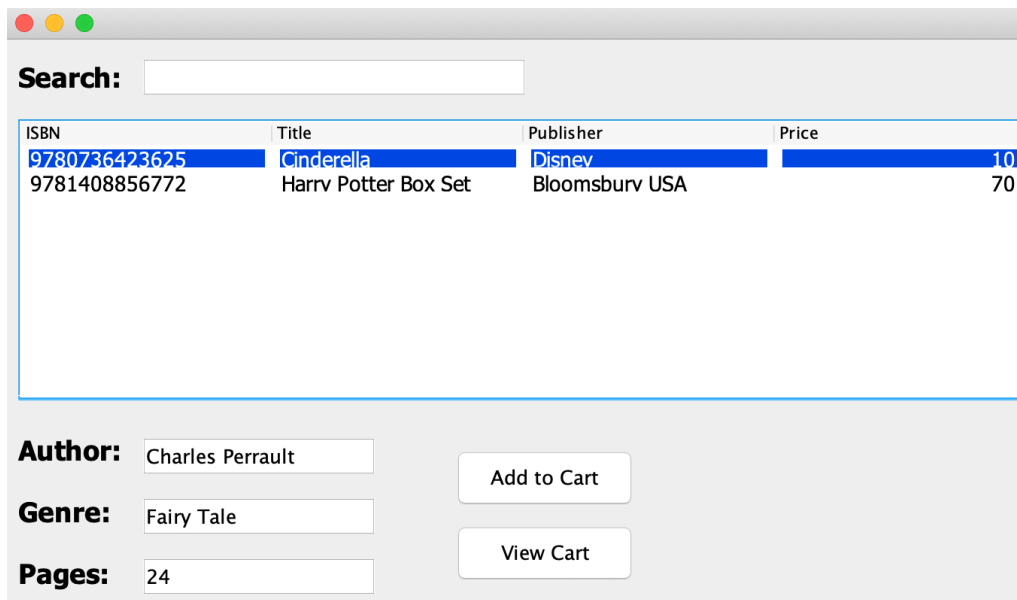
Screenshot 3: Login with registered Email and Password

Screenshot 4: Shows the Bookstore Inventory

The screenshot above shows the bookstore inventory shown to the customers. Customers are able to select a book and Add to Cart.

Search: ci|

ISBN	Title	Publisher	Price
9780736423625	Cinderella	Disnev	10

Author: Charles Perrault

Genre: Fairy Tale

Pages: 24

Add to Cart

View Cart

Screenshot 5: Bonus feature of searching with key words from Title of the Book

Search: bo|

ISBN	Title	Publisher	Price
9781408856772	Harrv Potter Box Set	Bloomsburv USA	70

Author: Charles Perrault

Genre: Fairy Tale

Pages: 24

Add to Cart

View Cart

Screenshot 6: Bonus feature

ISBN	Title	Author	Publisher	Genre	Price	Pages
97814088...	Harry Pott...	J.K Rowling	Bloomsbur...	Fiction	70	3872

Remove

Go for Payment

Back

Screenshot 7: Customer gets this window when View Cart button pressed

Total Price: 70.0
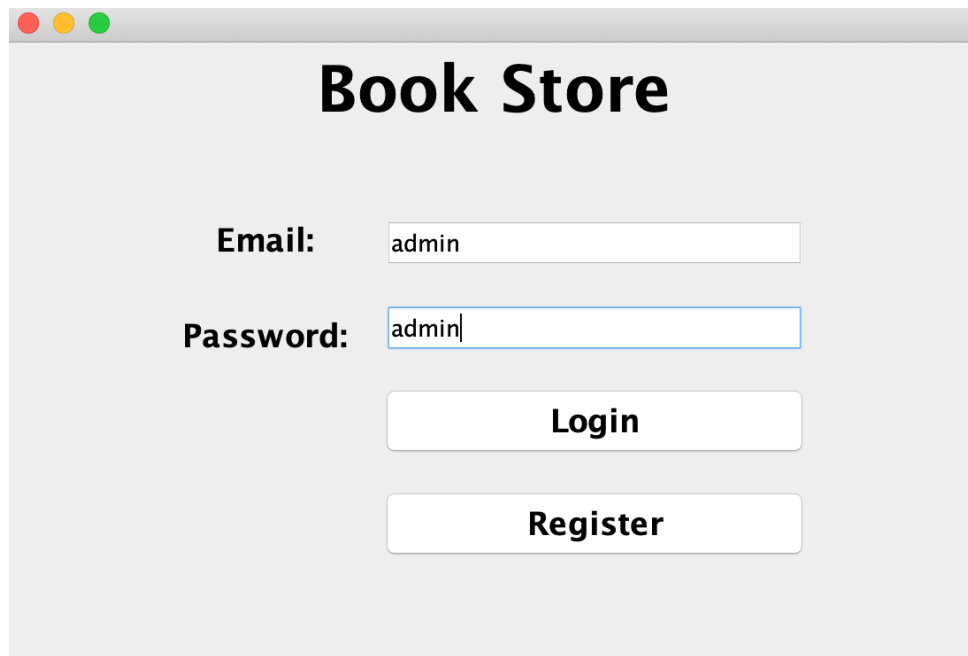
Card No

CVV

Shipping Address

Back   Checkout

Screenshot 8: Go for Payment button brings this window for the customer
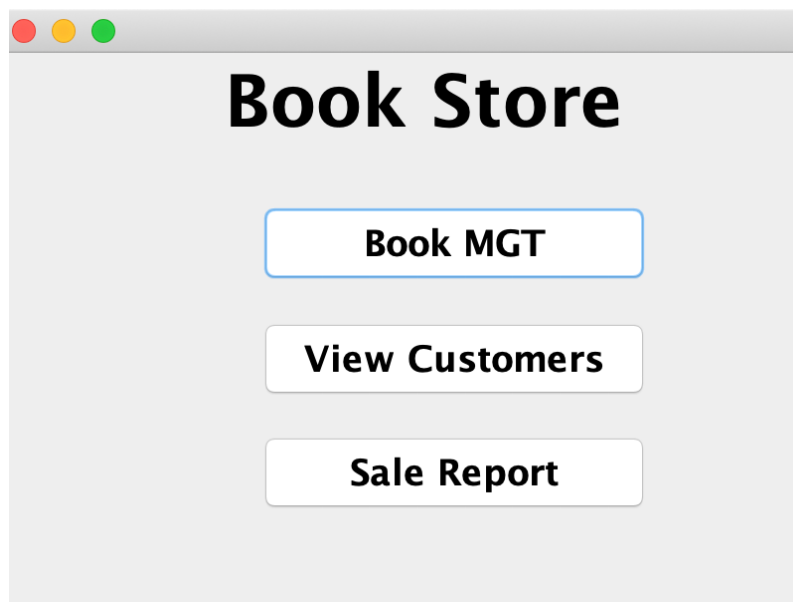
Screenshot 9: For the owner to access the Book Store both email and password is given "admin"

Screenshot 10: The admin is prompted to choose from the above 3 buttons

Add Books

ISBN		Genre		Add
Title		Price		Remove
Author		Pages		Clear
Publisher				

ISBN	Title	Author	Publisher	Genre	Price	Pages
978073642...	Cinderella	Charles Perr...	Disney	Fairy Tale	10	24
978140885...	Harry Potter...	J.K Rowling	Bloomsbury...	Fiction	70	3872

Back to Home

Screenshot 11: Pressing on Book MGT shows this window

The owner can see the inventory using this function. The owner is also able to add or remove book from inventory from here.

First Name	Last Name	Email	Phone No.
Sabah	Samwatin	sabah.samwatin@a...	123456789
sam	wow	samwow@test.com	123456789
test	test	test@email.com	12334
sam	nov	wow@test.com	89217

Back to Home

Screenshot 12: Pressing on View Customers show the customers that have registered.

Screenshot 13: Pressing on Sale Report brings this window.

This window prompts the user to input author or genre name. Inputting either will show the total book sale and the total price.

2.7 GitHub Repository

The GitHub URL has been given below:

https://github.com/sabahsamwatin/LookInnaBook.git

2.8 Appendix I

Availability for December 12, 2022:

- 2.30pm
- 3.30pm
- 4.30pm