Project Documentation

BookSphere

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(Group : AlwaysNeedSleep)

2110215 Programming Methodology

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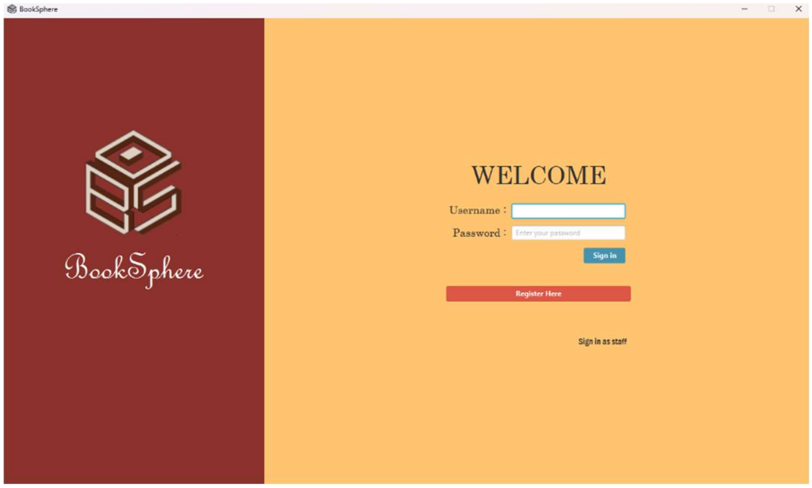
Chulalongkorn University

What is BookSphere? And how to use it?

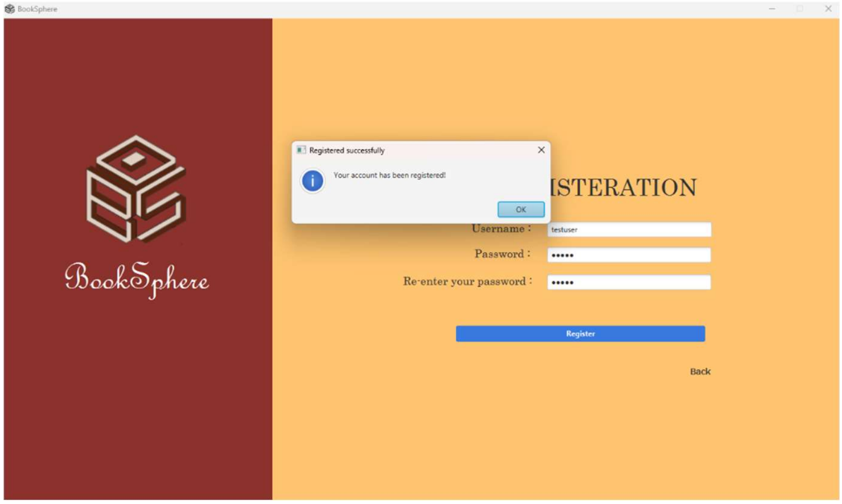
BookSphere is a user-friendly bookstore application platform for both the customers and store staff where they use the same GUI interface to navigate through the application.

For customers, they are required to register an account to access and use the application. To register an account, the customer must click on the red “Register Here” button and the registration interface will show up.



(BookSphere application customer/user login interface)

Customer must register a unique account with at least 5 characters long username and password. If not, the registration throws an error and alerts an error message. When the registration is confirmed, a pop-up window shows up noting that an account has been registered.



Registered successfully

Your account has been registered!

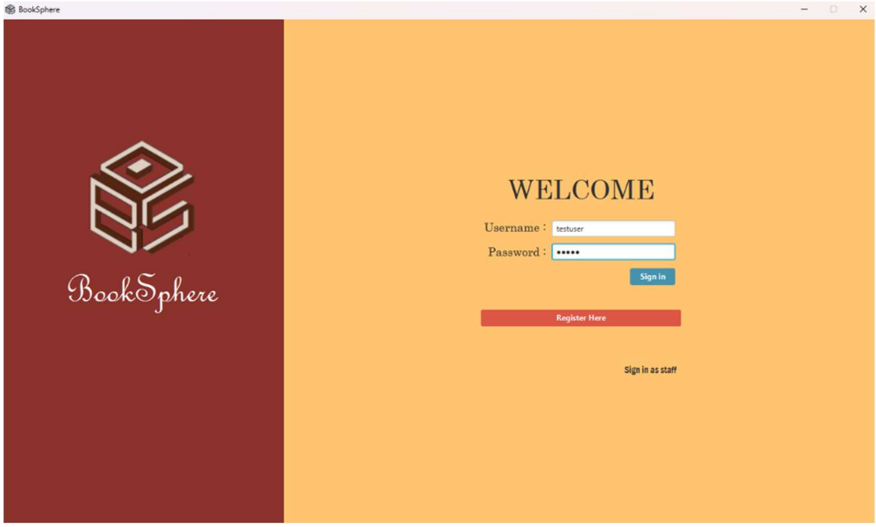
Username : testuser

Password : •••••

Re-enter your password : •••••

(BookSphere application customer/user registration interface)

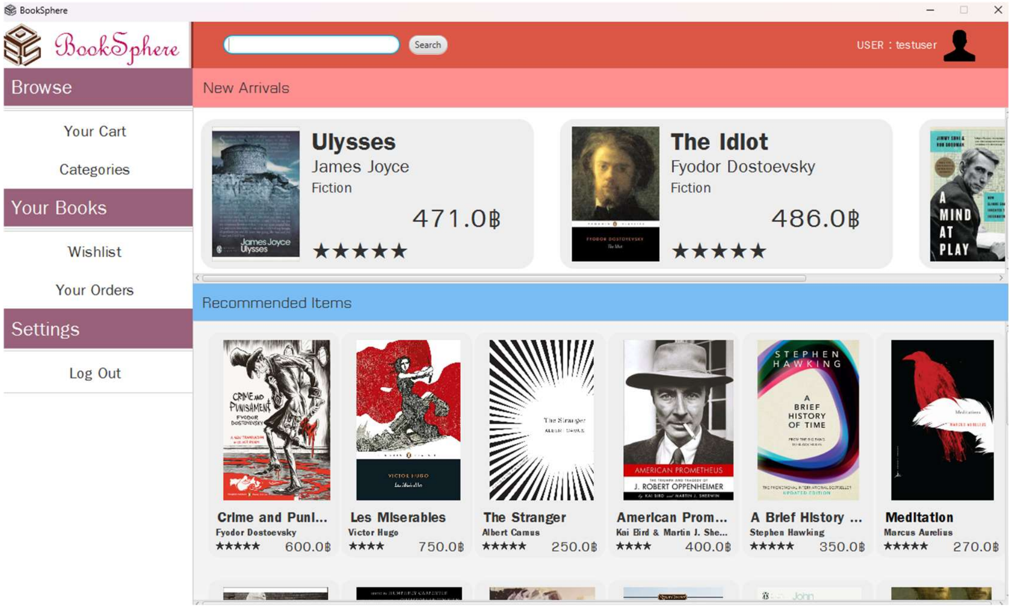
After the customer completes the registration process, the customer can login and access the BookSphere application.



Username : testuser

Password : •••••

After logging into the application, the main customer page will appear. The customer mainpage (as well as any other customer pages) can be divided into three parts namely, from left to right, (1.) the top tab which includes the logo, the BookSphere label, the search bar and the account username label, (2.) the left side of the page is where the browse labels which connects the user mainpage to other pages are located, and (3.) the middle part which contains the main information.



Ulysses
James Joyce
Fiction
471.0฿
★★★★★

The Idlot
Fyodor Dostoevsky
Fiction
486.0฿
★★★★★

Crlme and Punl...
Fyodor Dostoevsky
★★★★★ 600.0฿

Les Mlserables
Victor Hugo
★★★★ 750.0฿

The Stranger
Albert Camus
★★★★★ 250.0฿

Amerlcan Prom...
Kai Bird & Martin J. She...
★★★★ 400.0฿

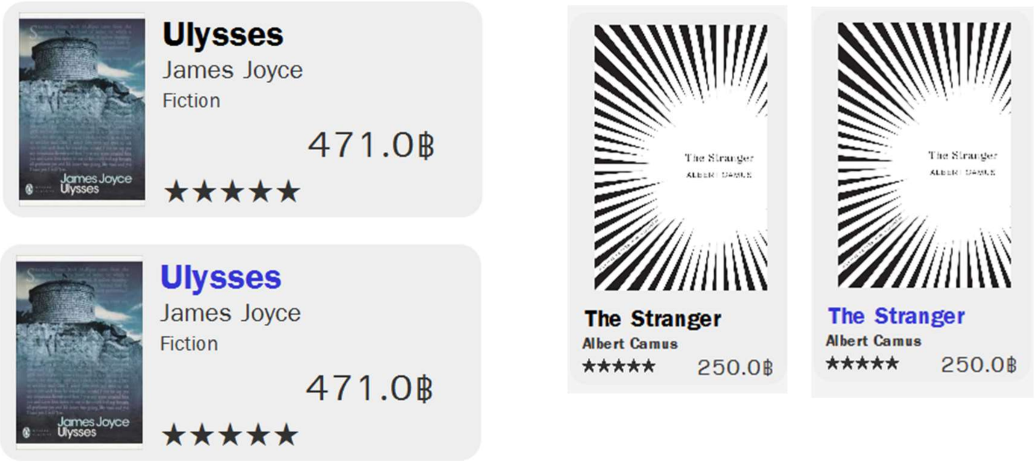
A Brlef Hlstory ...
Stephen Hawking
★★★★★ 350.0฿

Medltatlon
Marcus Aurelius
★★★★★ 270.0฿

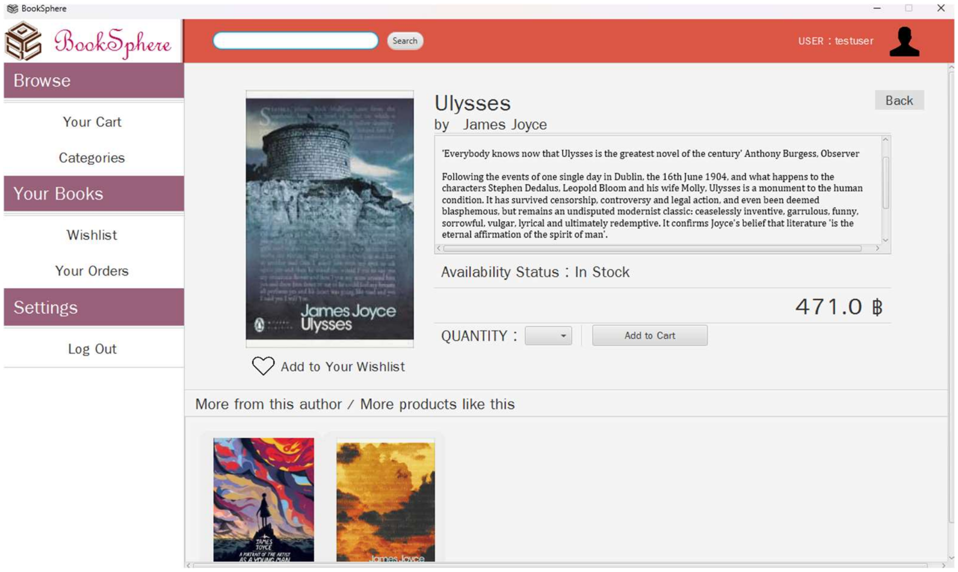
(user mainpage showing New Arrivals books and Recommended Items)

In the customer mainpage, there are two item boxes namely (1.) the "New Arrivals" box and the (2.) "Recommended Items" box that contains a maximum of 18 books to be featured. Store staff can alter and decide which books are to be featured in those boxes.

Customers can inspect each product by clicking on the title of the product. When a mouse pointer is on the title label, it changes color, indicating that clicking on it will redirect to the product page.



The product page contains information about a book/product including title, author/brand, excerpts/reviews, product image, availability, and price. Under the product detail lies a "More from this author/More products like this" box which contains all books/similar items by the same author(s). In this page, customers can add a product to customer's cart by choosing a quantity (maximum of 5 per product per order) and clicking the "Add to Cart" button. Customers can also add a product to their wishlist by clicking on "Add to Your Wishlist" label under the product image.



USER : testuser

Ulysses
by James Joyce

'Everybody knows now that Ulysses is the greatest novel of the century' Anthony Burgess, Observer

Following the events of one single day in Dublin, the 16th June 1904, and what happens to the characters Stephen Dedalus, Leopold Bloom and his wife Molly, Ulysses is a monument to the human condition. It has survived censorship, controversy and legal action, and even been deemed blasphemous, but remains an undisputed modernist classic: ceaselessly inventive, garrulous, funny, sorrowful, vulgar, lyrical and ultimately redemptive. It confirms Joyce's belief that literature 'is the eternal affirmation of the spirit of man'.

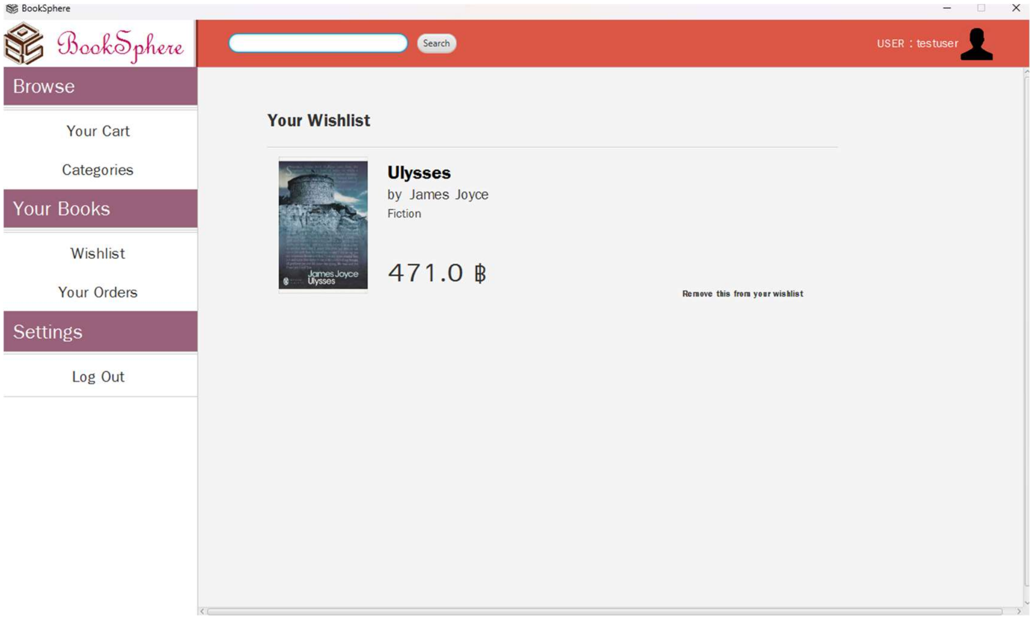
Availability Status : In Stock

471.0 ฿

QUANTITY :

More from this author / More products like this

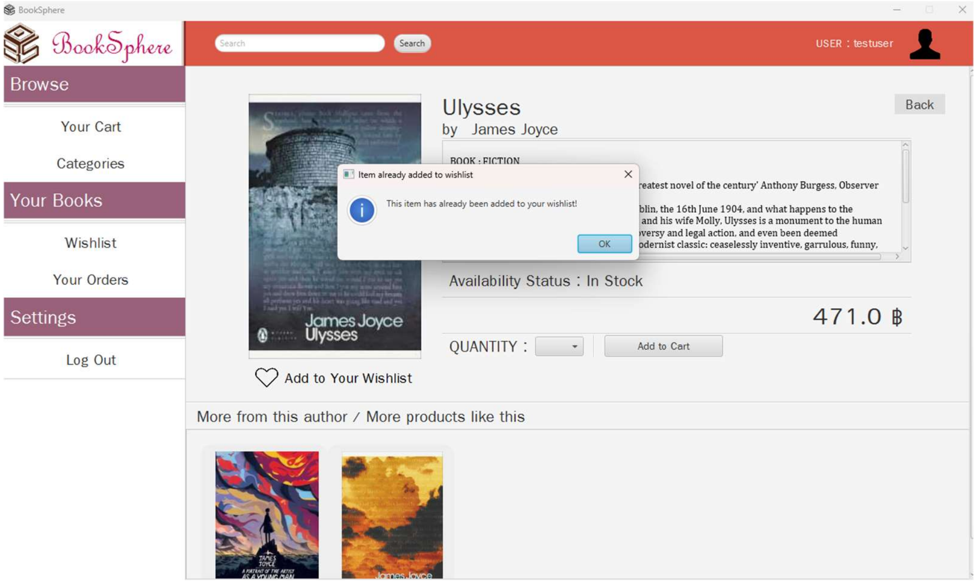
After adding a product to their wishlist, a pop-up alert will show up, indicating that a product has been added to your wishlist, and customers can see their wishlist by going to their wishlist page on the left side of the page.



Your Wishlist

Ulysses
by James Joyce
Fiction
471.0 ฿

If a customer attempts to add the product which has already been in the wishlist again, the pop-up alert will show up telling a customer that a product has already been added to his/her wishlist.



Ulysses
by James Joyce

BOOK : FICTION

reatest novel of the century' Anthony Burgess, Observer

blin, the 16th June 1904, and what happens to the
and his wife Molly, Ulysses is a monument to the human
versy and legal action, and even been deemed
odernist classic: ceaselessly inventive, garrulous, funny,

Item already added to wishlist

This item has already been added to your wishlist!

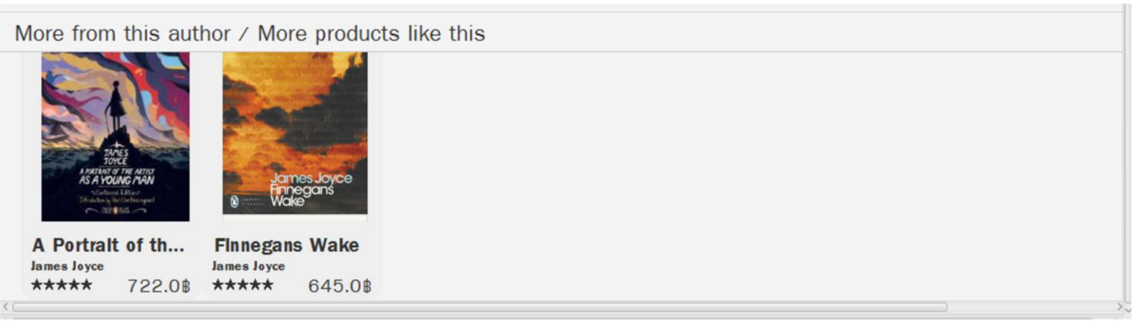
Availability Status : In Stock

471.0 ฿

QUANTITY :

More from this author / More products like this

Customers can also access other related products' page.

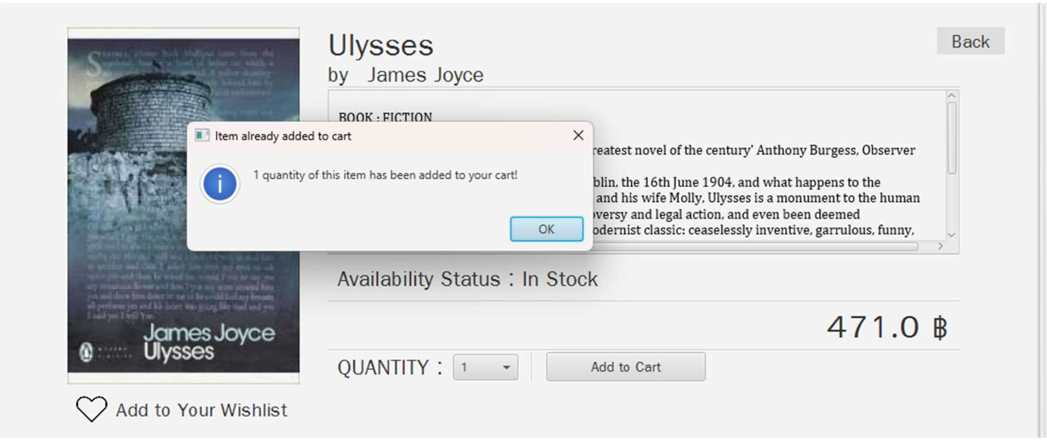


More from this author / More products like this

A Portrait of th...
James Joyce
★★★★★ 722.0฿

Finnegans Wake
James Joyce
★★★★★ 645.0฿

To add a product to a cart, customers must choose a quantity and click on the "add to cart" button.



Ulysses
by James Joyce

BOOK : FICTION

reatest novel of the century' Anthony Burgess, Observer

blin, the 16th June 1904, and what happens to the
and his wife Molly, Ulysses is a monument to the human
versy and legal action, and even been deemed
odernist classic: ceaselessly inventive, garrulous, funny,

Item already added to cart

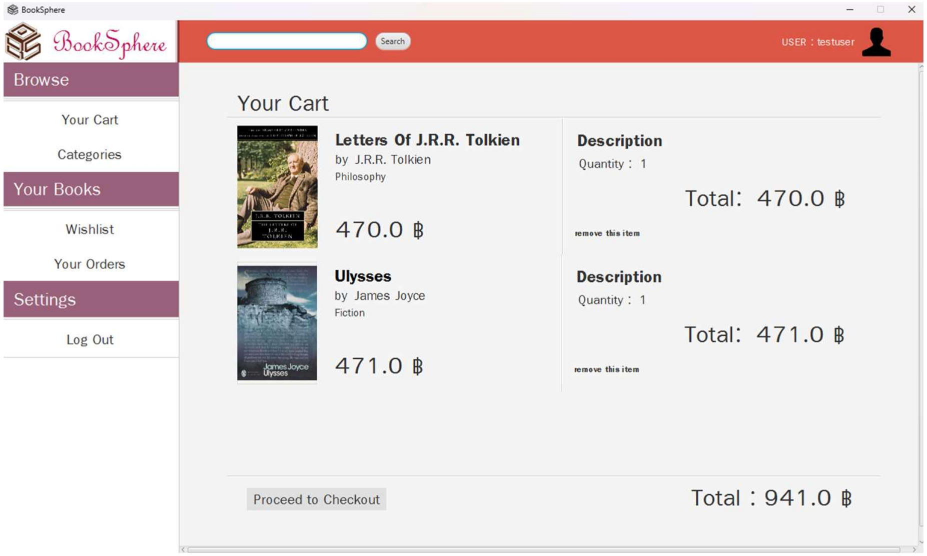
1 quantity of this item has been added to your cart!

Availability Status : In Stock

471.0 ฿

QUANTITY : 1

All added products will be shown on the customer's cart page (which can be accessed by clicking on the label on the left side of the page).



USER : testuser

Your Cart

Letters Of J.R.R. Tolkien
by J.R.R. Tolkien
Philosophy
470.0 ฿

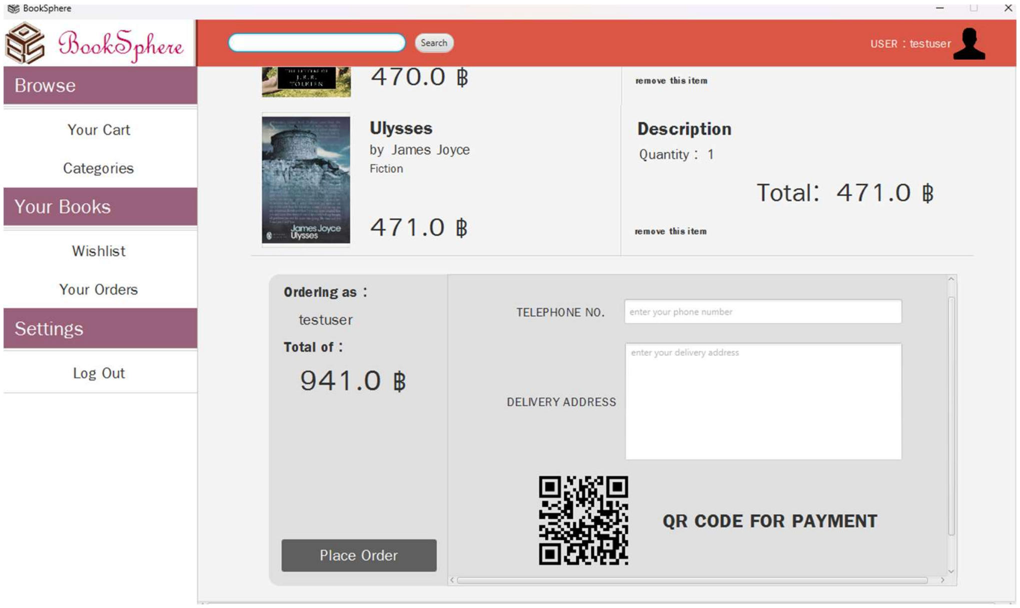
Description
Quantity : 1
Total: 470.0 ฿

Ulysses
by James Joyce
Fiction
471.0 ฿

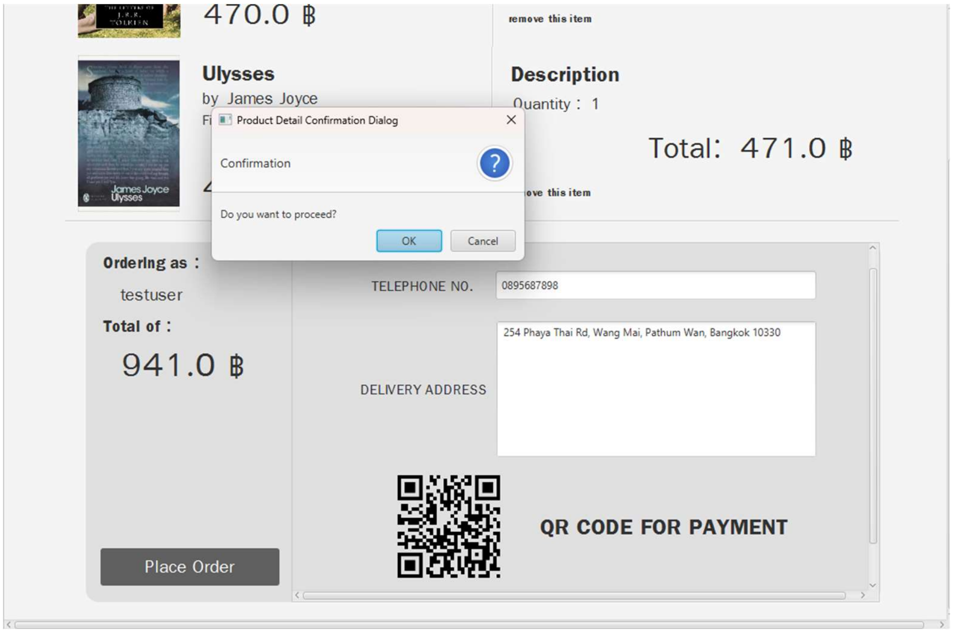
Description
Quantity : 1
Total: 471.0 ฿

Total : 941.0 ฿

To place an order, click the “Proceed to Checkout” label.



A checkout page will show up. Customers are required to complete the form to place an order. Upon clicking the grey “Place Order” label, the confirmation pop-up alert will show up, customers must ensure that their delivery informations are correct.


Product Detail Confirmation Dialog

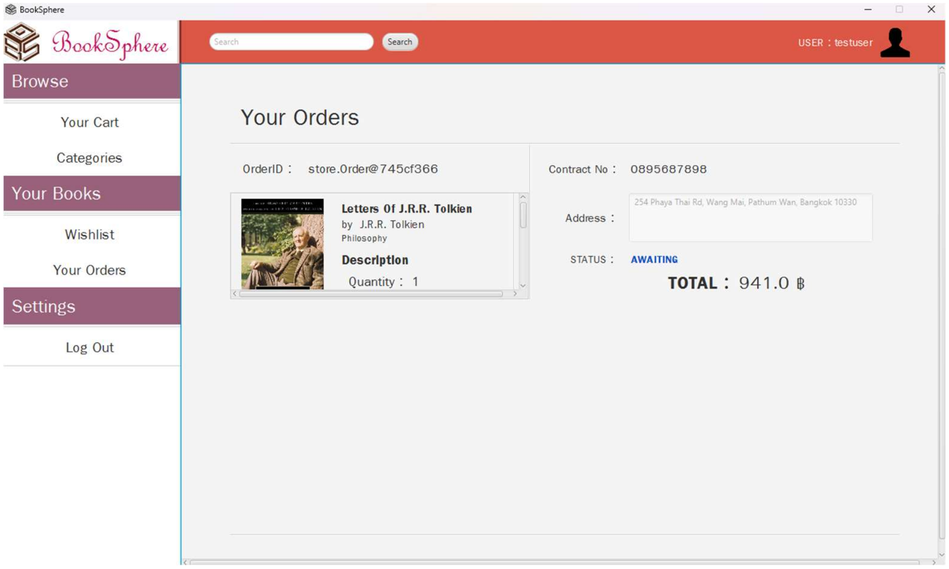
Confirmation

Do you want to proceed?

TELEPHONE NO. 0895687898

DELIVERY ADDRESS 254 Phaya Thai Rd, Wang Mai, Pathum Wan, Bangkok 10330

Customers can look up their order details at the customer order page.



Your Orders

OrderID : store.Order@745cf366

Letters Of J.R.R. Tolkien
by J.R.R. Tolkien
Philosophy
Description
Quantity : 1

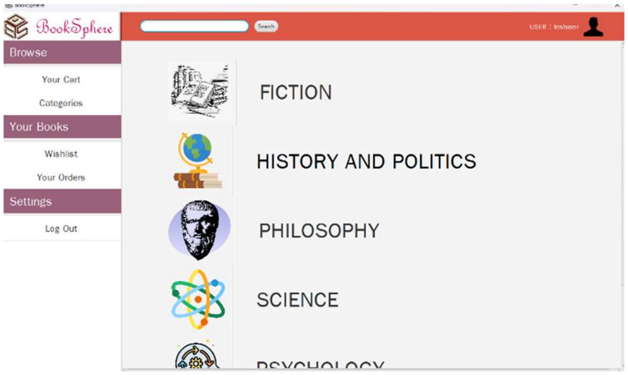
Contract No : 0895687898

Address : 254 Phaya Thai Rd, Wang Mai, Pathum Wan, Bangkok 10330

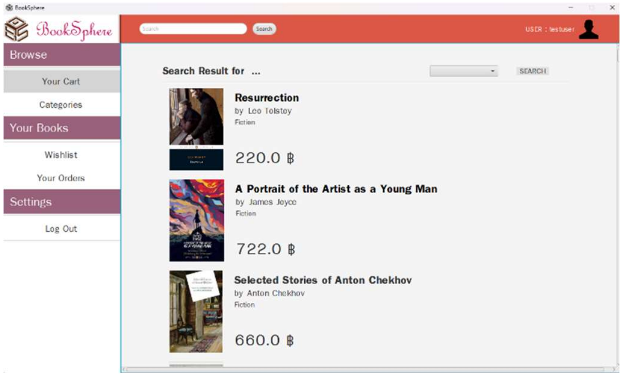
STATUS : AWAITING

TOTAL : 941.0 ฿

Customer can look up products by either navigating through the "Categories" page or by searching a book from the search bar on top of the page. Customers can also filter the products at the top right corner of the product list box.



FICTION
HISTORY AND POLITICS
PHILOSOPHY
SCIENCE
PSYCHOLOGY

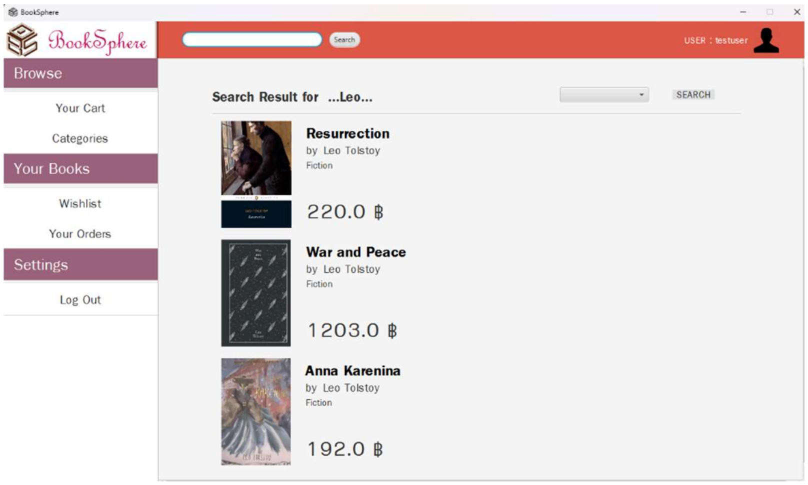


Search Result for ...

Resurrection
by Leo Tolstoy
Fiction
220.0 ฿

A Portrait of the Artist as a Young Man
by James Joyce
Fiction
722.0 ฿

Selected Stories of Anton Chekhov
by Anton Chekhov
Fiction
660.0 ฿



Search Result for ...Leo...

Resurrection
by Leo Tolstoy
Fiction
220.0 ฿

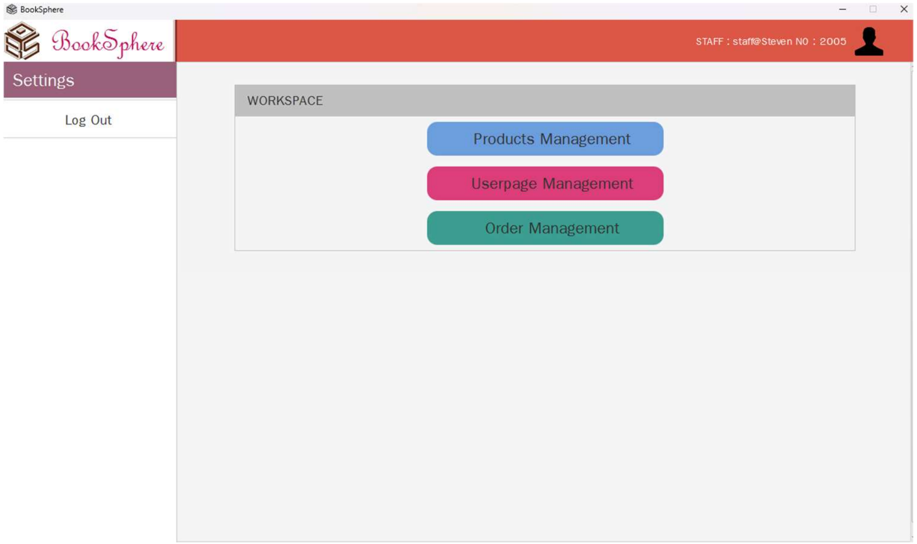
War and Peace
by Leo Tolstoy
Fiction
1203.0 ฿

Anna Karenina
by Leo Tolstoy
Fiction
192.0 ฿

For staff, they cannot register an account on their own. Only the admin (the owner of a bookstore) can add an account for staff. At present, one staff account has already been registered.

Username :	staff@Steven
Password :	12345

After logging in as staff, a staff mainpage will show up.

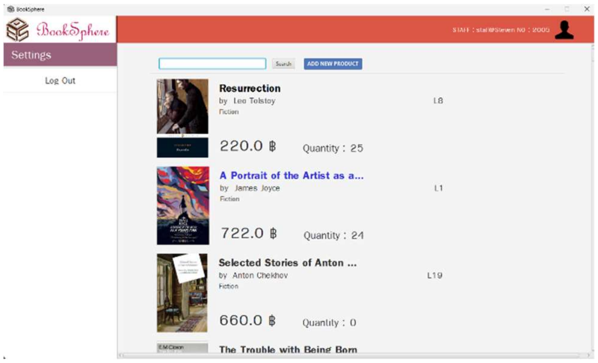


STAFF : staff@Steven N0 : 2005

The layout of the pages is identical to the customer' pages except that the search bar is removed, and the left part of the page only contains "log out" label.

For staff, they can add/remove products, manage customer pages (adding products to recommended items and new arrivals list) and change the customer's order state. To do so, staff must navigate through their pages accordingly. To add/remove products or alter their details, go to "Product Management" page. To manage customer pages, go to "Userpage Management". And lastly, to change the order state, go to "Order Management" page.

To add a product, click the blue "ADD NEW PRODUCT" button on the product management page.

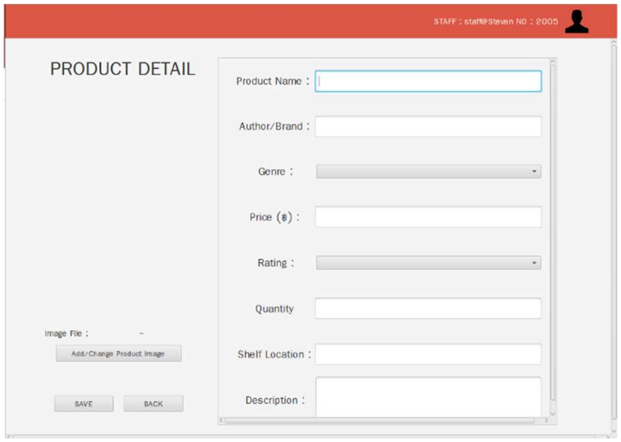


Resurrection
by Leo Tolstoy
Fiction
L8
220.0 ฿ Quantity : 25

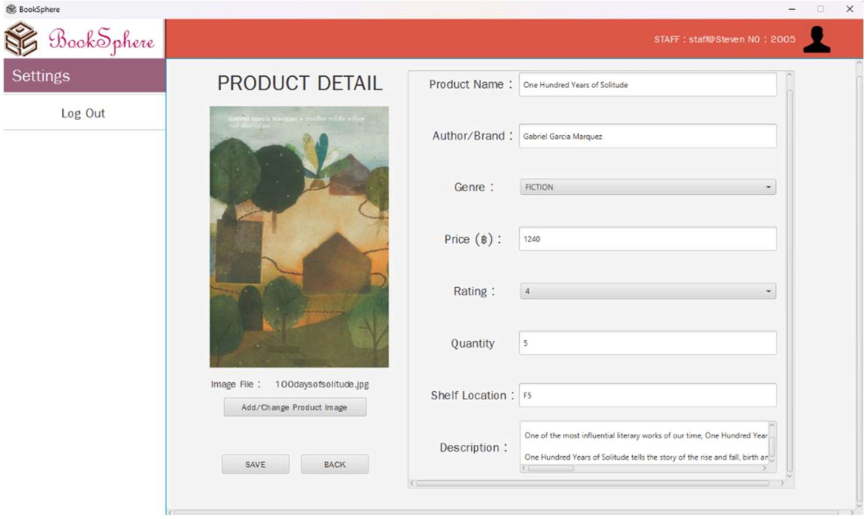
A Portrait of the Artist as a...
by James Joyce
Fiction
L1
722.0 ฿ Quantity : 24

Selected Stories of Anton ...
by Anton Chekhov
Fiction
L19
660.0 ฿ Quantity : 0

The Trouble with Being Born



Complete the form and add an image, then click save to add a product.



Product Name : One Hundred Years of Solitude

Author/Brand : Gabriel Garcia Marquez

Genre : FICTION

Price (฿) : 1240

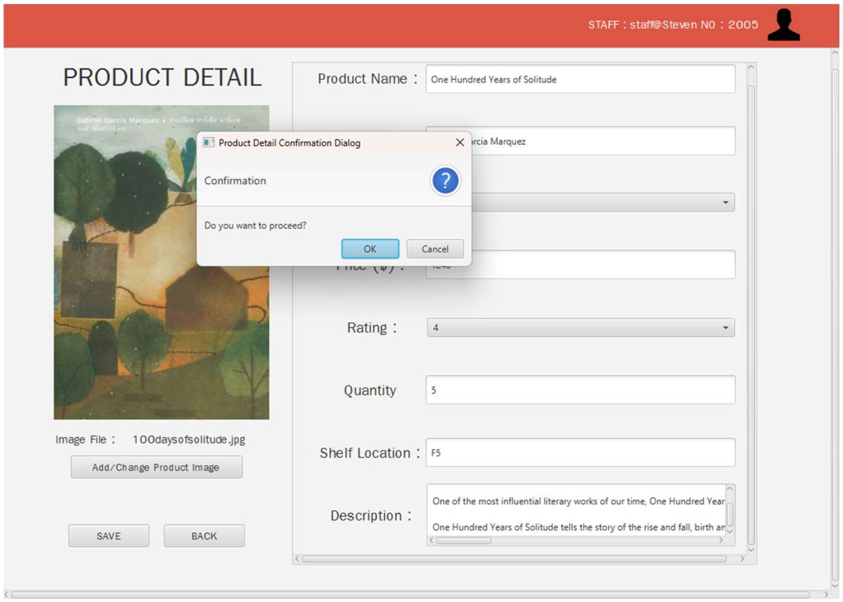
Rating : 4

Quantity 5

Shelf Location : F5

Description : One of the most influential literary works of our time, One Hundred Year
One Hundred Years of Solitude tells the story of the rise and fall, birth ar

Image File : 100daysofsolitude.jpg



Product Detail Confirmation Dialog

Confirmation

Do you want to proceed?

Product Name : One Hundred Years of Solitude

rcia Marquez

Rating : 4

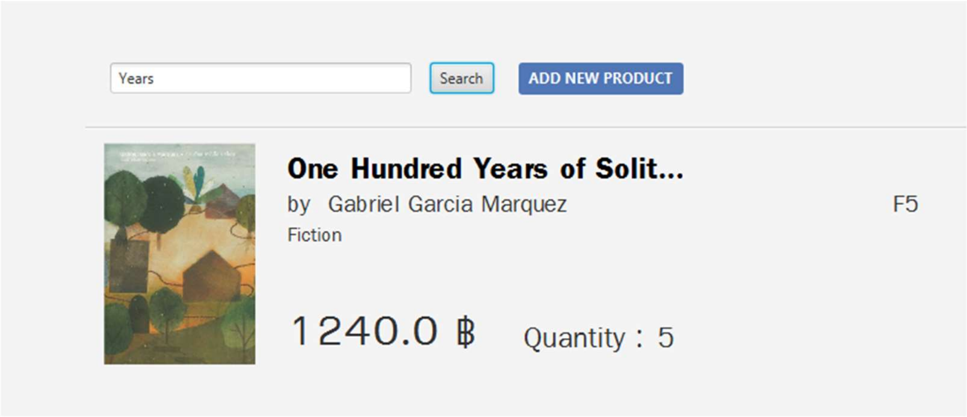
Quantity 5

Shelf Location : F5

Description : One of the most influential literary works of our time, One Hundred Year
One Hundred Years of Solitude tells the story of the rise and fall, birth ar

Image File : 100daysofsolitude.jpg

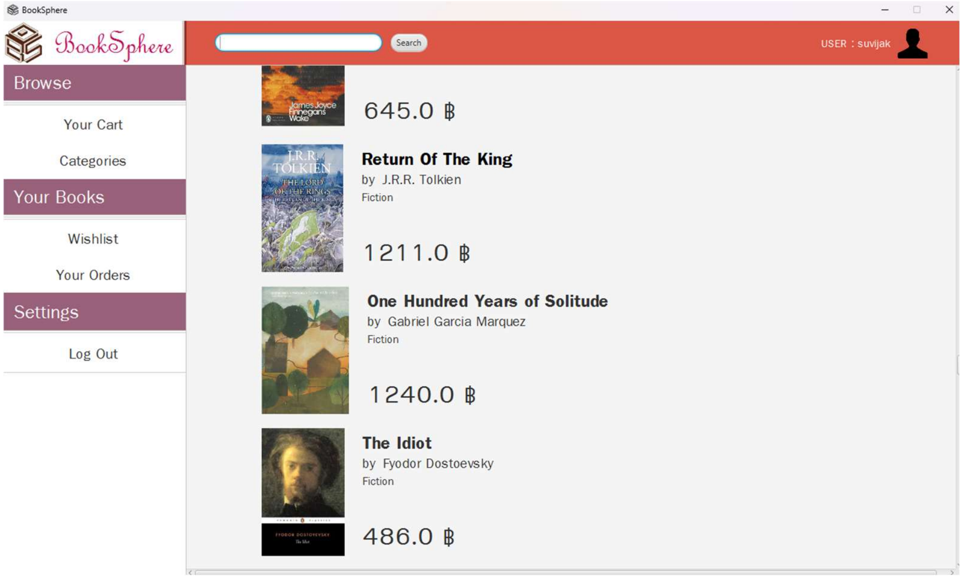
A product has been added to the store.



One Hundred Years of Solit...
by Gabriel Garcia Marquez
Fiction
F5

1240.0 ฿ Quantity : 5

Customers can now see this product on their pages.

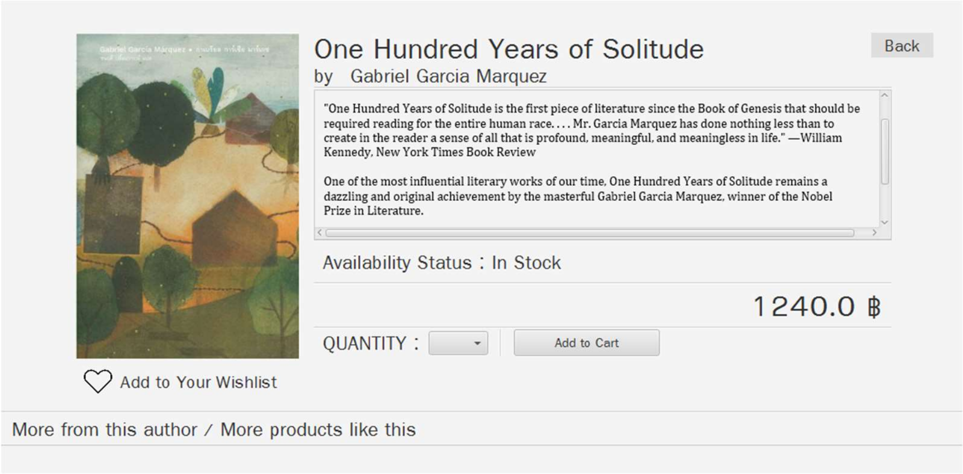


645.0 ฿

Return Of The King
by J.R.R. Tolkien
Fiction
1211.0 ฿

One Hundred Years of Solitude
by Gabriel Garcia Marquez
Fiction
1240.0 ฿

The Idiot
by Fyodor Dostoevsky
Fiction
486.0 ฿



One Hundred Years of Solitude
by Gabriel Garcia Marquez

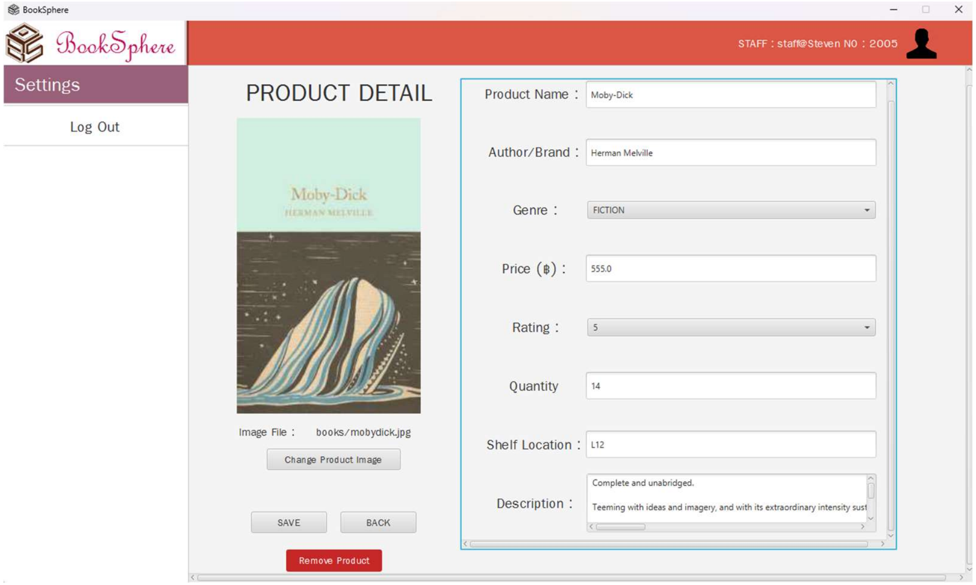
"One Hundred Years of Solitude is the first piece of literature since the Book of Genesis that should be required reading for the entire human race. . . . Mr. Garcia Marquez has done nothing less than to create in the reader a sense of all that is profound, meaningful, and meaningless in life." —William Kennedy, New York Times Book Review

One of the most influential literary works of our time, One Hundred Years of Solitude remains a dazzling and original achievement by the masterful Gabriel Garcia Marquez, winner of the Nobel Prize in Literature.

Availability Status : In Stock

1240.0 ฿

To remove a product, go to the product page by clicking at the title and click the red “remove this product” button.



PRODUCT DETAIL

Image File : books/mobydick.jpg

Product Name : Moby-Dick

Author/Brand : Herman Melville

Genre : FICTION

Price (฿) : 555.0

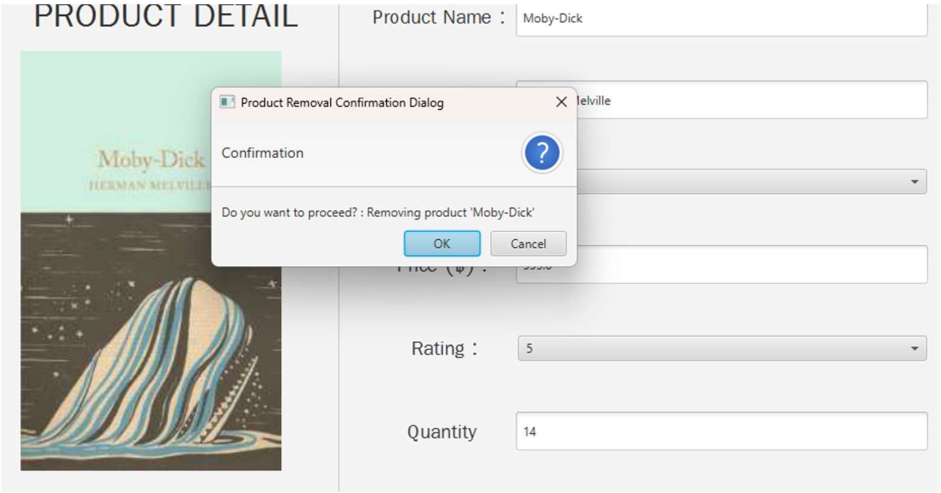
Rating : 5

Quantity 14

Shelf Location : L12

Description : Complete and unabridged.

Teeming with ideas and imagery, and with its extraordinary intensity sust



PRODUCT DETAIL

Product Name : Moby-Dick

Product Removal Confirmation Dialog

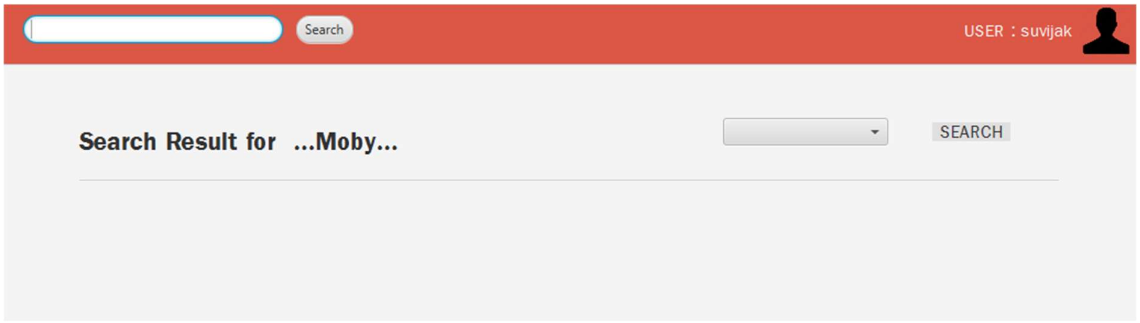
Confirmation

Do you want to proceed? : Removing product 'Moby-Dick'

Rating : 5

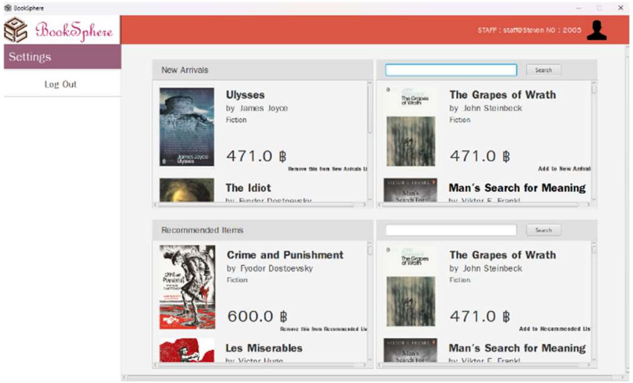
Quantity 14

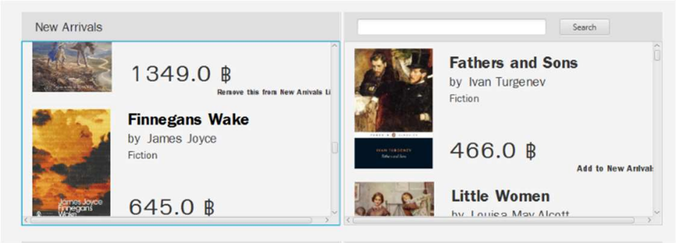
Customers cannot see this item anymore.



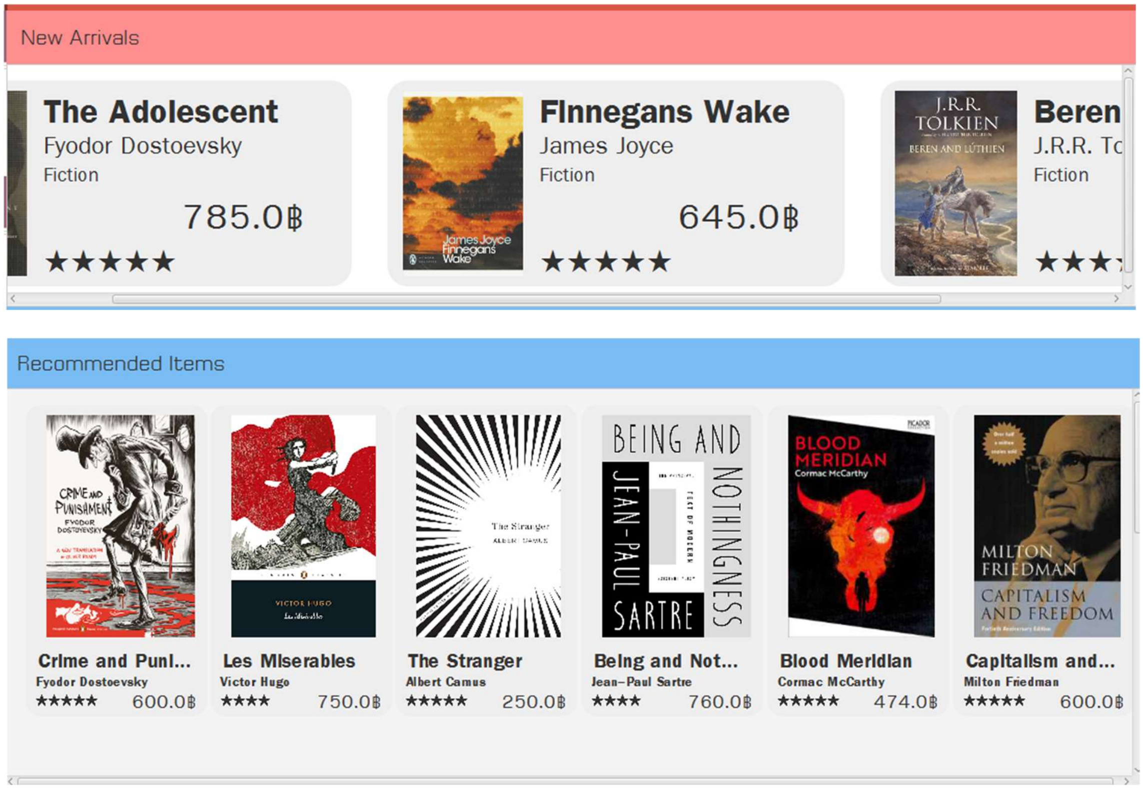
Search Result for ...Moby...

To manage user pages, go to user main page management page.



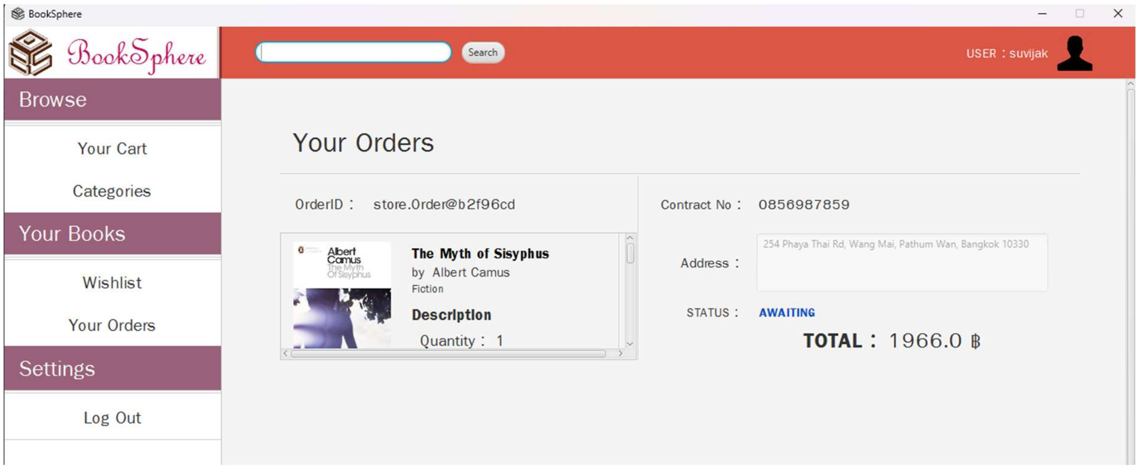


The customer sees the changes in the New Arrivals box and the Recommended Items box (maximum number of items in recommended item box is 18).



To change the order state, navigate to the order management page where staff can change the states (AWAITING, DELIVERED, CONFIRMED).

Normally, the customers see the order to be labelled “AWATING” when it has been placed. Staff can alter the state when necessary.



Your Orders

OrderID : store.Order@b2f96cd

The Myth of Sisyphus
by Albert Camus
Fiction
Description
Quantity : 1

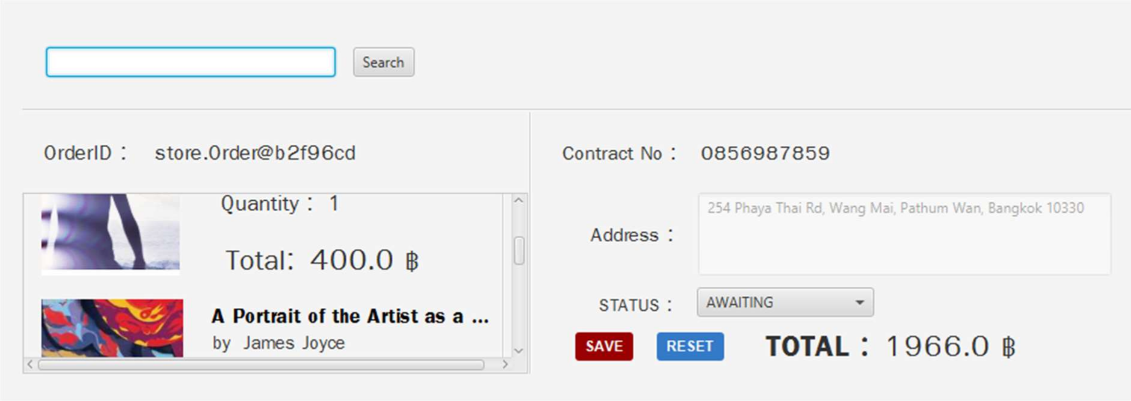
Contract No : 0856987859

Address : 254 Phaya Thai Rd, Wang Mai, Pathum Wan, Bangkok 10330

STATUS : AWAITING

TOTAL : 1966.0 ฿

(As seen in customer's orders page)



OrderID : store.Order@b2f96cd

Quantity : 1

Total: 400.0 ฿

A Portrait of the Artist as a ...
by James Joyce

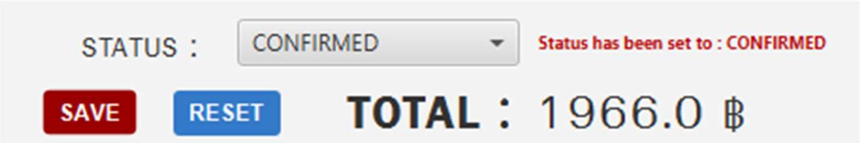
Contract No : 0856987859

Address : 254 Phaya Thai Rd, Wang Mai, Pathum Wan, Bangkok 10330

STATUS : AWAITING

TOTAL : 1966.0 ฿

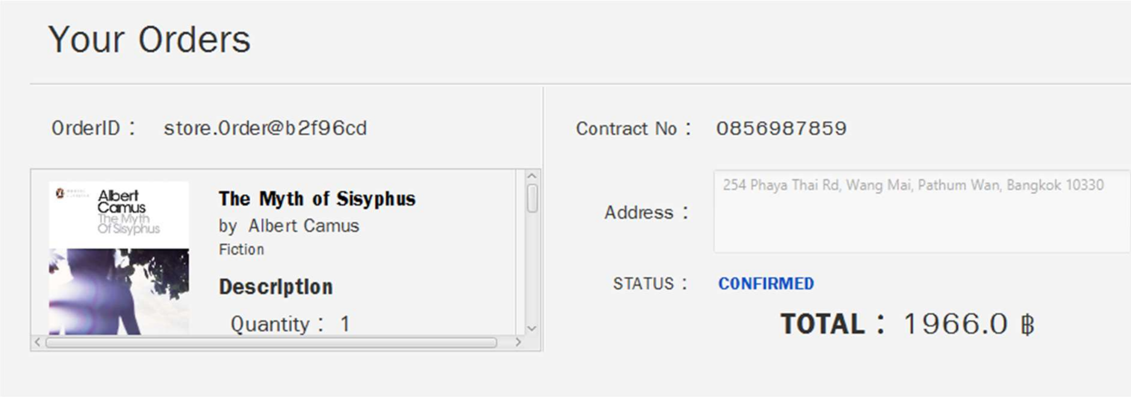
(As seen in staff's orders page)



STATUS : CONFIRMED

Status has been set to : CONFIRMED

TOTAL : 1966.0 ฿



Your Orders

OrderID : store.Order@b2f96cd

The Myth of Sisyphus
by Albert Camus
Fiction
Description
Quantity : 1

Contract No : 0856987859

Address : 254 Phaya Thai Rd, Wang Mai, Pathum Wan, Bangkok 10330

STATUS : CONFIRMED

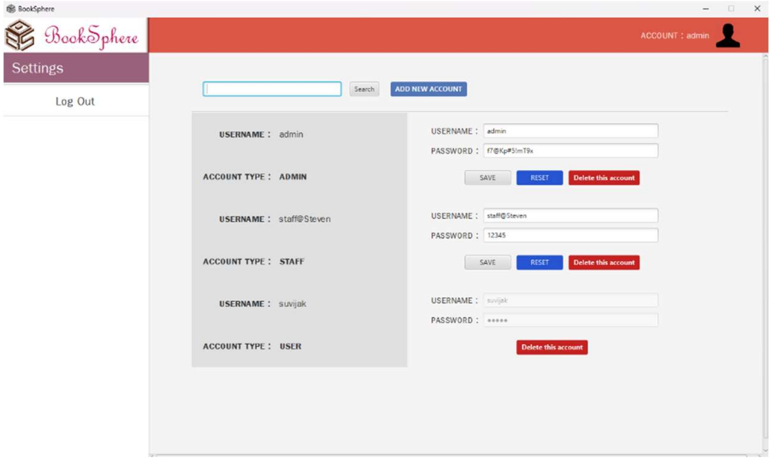
TOTAL : 1966.0 ฿

(Customer sees the state changes to "CONFIRMED")

To login as an admin, use the following username and password through the staff login interface. *** Username and password for admin account is in the Config.java file in package utils.

Username :	admin
Password :	f7@Kp#5!mT9x

After logging in, the admin interface will show up.



ACCOUNT : admin

USERNAME : admin

ACCOUNT TYPE : ADMIN

USERNAME : admin
PASSWORD : f7@Kp#5!mT9x

USERNAME : staff@Steven

ACCOUNT TYPE : STAFF

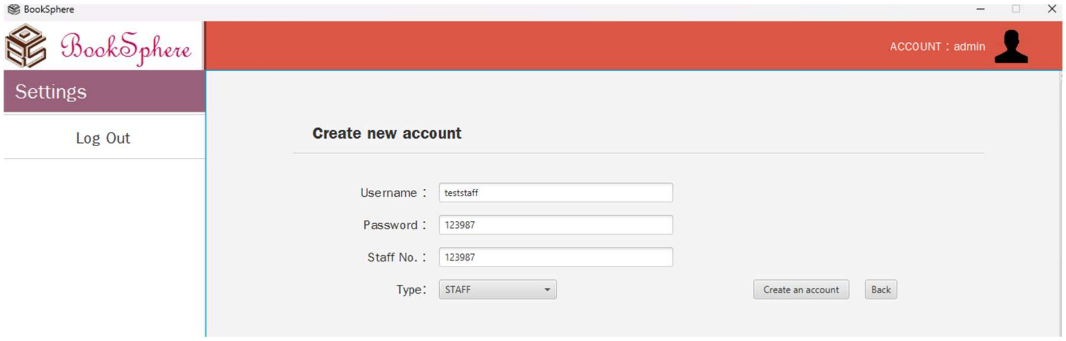
USERNAME : staff@Steven
PASSWORD : 12345

USERNAME : suvijak

ACCOUNT TYPE : USER

USERNAME : suvijak
PASSWORD : •••••

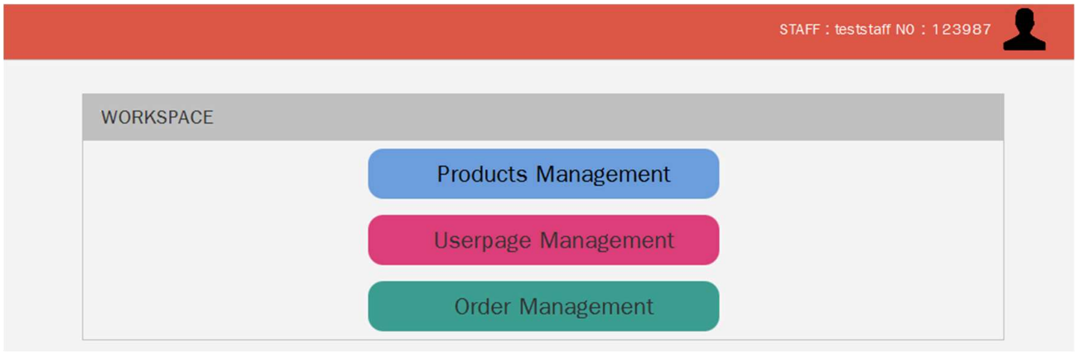
Admin can register an account for both staff and user (if required) but can only change username and password of a staff account. Admin can delete any account except itself. A newly created account can be used to log in.



ACCOUNT : admin

Create new account

Username : teststaff
Password : 123987
Staff No. : 123987
Type: STAFF



STAFF : teststaff NO : 123987

Notes on UML & Jar

Because the UML diagram is too large, the UML is saved as .svg file

It is recommended that the jar file (project-cp-2023-2-alwaysneedsleep.jar) be run with JavaFX 22 (or at least JavaFX 21) as the application is developed with JavaFX 22.

Implementation and Class Details

Noted that Access Modifier Notations can be listed below:
+ (public), # (protected), - (private), underlined (static)

1. **Package usage**

1.1. enum DeliveryStatus

AWAITING, DELIVERED, CONFIRMED

1.2. enum ItemGenre

FICTION, HISTORY, PHILOSOPHY, PSYCHOLOGY, EDUCATION, SCIENCE

1.3. interface Orderable

Methods

Method	Description
boolean isOrderable()	Return a boolean value signifying the availability status of a product.
String getFullDescription()	Return a full description of a product. (a full description contains an indication of a product genre.)

1.4. interface Registrable

Methods

Method	Description
void addAccountToDataBase()	Add an account to the store account database
String getDisplayUsername()	Return a display username of an account. (a display username is a full description of an account)

2. Package base

2.1. abstract class Account

Fields

Name	Description
- String username	Username for account login
- String password	Password for account login

Methods

Method	Description
+ Account(String username, String password)	Constructor. Set username and password to the given parameters
+ String getDisplayUsername()	Return “ACCOUNT : ” followed by the account’s username
+ void setUsername(String username)	Set the account username to the given parameter
+ String getPassword()	Return the account’s password
+ void setPassword(String password)	Set the account password to the given parameter
+ String getAccountType()	Return “ACCOUNT”

+ boolean deleteAccount()	Remove this account out of AccountMap in StoreDataBase, then return true.

2.2. abstract class StoreItem

Fields

Name	Description
- int quantity	Quantity of a product
- String itemLocation	A shelf location where a product is located (for example, “L1”, “PH6”)
- String title	A product’s title
- Image image	An image of a product
- ItemGenre itemGenre	Product’s genre
- double price	Product’s price
- String authorBrand	Product’s brand (ideally, author of a book)
- String imagePath	The relative path (to the system’s resource) of a product’s image
- int rating	Product’s rating
- String description	Product’s description

Methods

Method	Description
+ StoreItem(String title, String authorBrand, ItemGenre itemGenre, double price, int rating, int quantity, String itemLocation, String imageByPath, String description)	Constructor. Set the given fields to the given parameters. For rating, call setRating() For imagePath, call setImageByPath
+ void setRating(int rating)	Set rating to the given parameter. - If the rating is below 1, set it to 1.

	- If the rating is greater than 5, set it to 5
+ String getFullDescription	Return “StoreItem : ” + item’s genre. Skip a line, then add an item’s description.
+ boolean isOrderable()	If a product’s quantity is greater than 0, return true; else, return false.
+ void setImageByPath(String imagePath)	Utilize ClassLoader to retrieve a ClassLoader path and set a product’s image by the retrieved ClassLoader path. If any exception occurs, set the image to the default book image.
+ void removeItself()	Remove this item from - ShelfMap - RecommendedItemList - NewArrivalList in StoreStorage
+ Getters and setters for the remaining field	

3. Package item

3.1. class Book extends StoreItem

Methods

Name	Description
+ Book(String title, String authorBrand, ItemGenre itemGenre, double price, int rating, int quantity, String itemLocation, String imageByPath, String description)	Constructor. Call the super method.
+ String getFullDescription()	Return “BOOK : ” + item’s genre. Skip a line, then add an item’s description.

4. Package person

4.1. class AdminAccount extends Account

Methods

Name	Description
+ AdminAccount()	Constructor. Call the super method and set the username and password to the admin’s username and password. (both the username and password of an admin can be found in Config.java)
+ String getAccountType()	Return “ADMIN”.
+ boolean deleteAccount()	An admin account cannot be deleted. Show an informational alert indicating that this account cannot be deleted.

4.2. class StaffAccount extends Account implements Registrable

Fields

Name	Description
- int staffNumber	Staff’s number

Methods

Name	Description
+ StaffAccount(String username, String password, int staffNumber)	Constructor. Call the super method and set the username and password to the given parameters. Set the staff’s number to the given parameters.
+ String getAccountType()	Return “STAFF”.
+ void addAccountToDataBase()	Add this account to the AccountMap in StoreDataBase
+ int getStaffNumber()	Return a staff’s number

+ String getDisplayUsername()	Return “STAFF : ” followed by the account’s username + “ NO : ” followed by the staff’s number

4.3. class UserAccount extends Account implements Registrable

Fields

Name	Description
- ArrayList<Order> orderList	A list containing user’s orders.
- HashMap<StoreItem, Integer> cartMap	A HashMap mapping a product added to user’s cart to its quantity.
- ArrayList<StoreItem> wishList	A list containing user’s wishlist

Methods

Name	Description
+ UserAccount(String username, String password)	Constructor. Call the super method and set the username and password to the given parameters. Initialize the order list, the cart map, and the wishlist.
+ String getAccountType()	Return “USER”.
+ void addAccountToDataBase()	Add this account to the AccountMap in StoreDataBase
+ String getDisplayUsername()	Return “USER : ” followed by the account’s username
+ Getters and setters for the remaining field	

5. Package store

5.1. class Order

Fields

Name	Description
- String username	A username of a user who places this order.
- HashMap<StoreItem, Integer> orderItems	A HashMap mapping a product ordered to its quantity.
- double totalCost	Total cost of this order
- String telNumber	Order’s contract number
- String deliveryAddress	Order’s delivery address
- DeliveryStatus deliveryStatus	Order’s delivery status

Methods

Name	Description
+ Order(String username, HashMap<StoreItem, Integer> orderItems, double totalCost, String deliveryAddress, String telNumber)	Constructor. Call the super method and set the given fields to the given parameters. Set the delivery status to AWAITING.
+ Getters and setters for the remaining field	

5.2. class ProgramController

This class represents the controller scheme of an application.

Fields

Name	Description
- Account enteredAccount	A username of a user who places this order.
- ProgramController instance	An instance of ProgramController

Methods

Name	Description
+ ProgramController()	Constructor. Set the ProgramController's instance to this.
+ ProgramController getInstance()	If the instance is null, set the instance to this. Return the instance.
+ Account getEnteredAccount()	Getter for enteredAccount.
+ void setEnteredAccount	Setter for enteredAccount

5.3. class StoreDataBase

This class stores and manages accounts.

Fields

Name	Description
- HashMap<String, Account> accountMap	A HashMap which maps an account's username to itself.
- StoreDataBase storeDataBase	An instance of StoreDataBase

Methods

Name	Description
+ StoreDataBase()	Constructor. Initialize the account map. Add an admin account. Add some example user and staff accounts.
+ StoreDataBase getStoreAccountDataBase()	If the storeDataBase is null, set it to this. Return storeDataBase.

+ HashMap<String, Account> getAccountMap()	Getter for account map.

5.4. class StoreStorage

This class stores and manages store products.

Fields

Name	Description
- HashMap<StoreItem, String> shelfMap	This HashMap maps a product to its shelf location
- StoreStorage storeStorage	An instance of StoreStorage

Methods

Name	Description
+ StoreStorage()	Constructor. Initialize shelf map, new arrival list, recommended item list, order list.
+ StoreStorage getStorage()	If the storeStorage is null, set it to this. Return storeStorage.
+ Getters for the remaining fields.	

6. Package utils

6.1. class Config

This class contains admin username and password, and other necessary paths.

Fields

Name	Description
+ String adminUsername	Admin’s username
+ String adminPassword	Admin’s password
+ String profileImage	Profile image’s path
+ String logoImage1	Logo image’s path

+ String logoImage2	Logo image’s path

6.2. class DatabaseInitializer

This class is a utility class which appends books to the store storage.

Methods

Name	Description
+ void initiallizeDataBase()	Initialize database for store products. There are 75 books added.

6.3. class GetAccess

This class is a utility class which manages login process.

Methods

Name	Description
+ boolean validateLogin(String username, String password)	Return true is the login is valid. Else, return false.
+ boolean isAccountExist(String username)	Return true if a username exists.

7. Package application

7.1. class Main extends Application

Fields

Name	Description
- Stage stg	Stage of an application.
- static Main instance	An instance of this class

Methods

Name	Description
+ void main(String[] args)	Main class.
+ void start(Stage primaryStage) throws Exception	Set the application’s stage to primaryStage. Set the class’s instance to this. Initialize a local pane and load the template from LoginInterface.fxml, then set the root of the stage to the pane. After that, set a scene. Set the icon image. Set stage’s title to “Booksphere” Set Resizable to false. Show a stage. Set logo image in the login page. Initialize database.
+ Main getInstance()	Return the instance of this class.
+ void changeScene(String fxml)	Initialize a local pane from given FXML files via its given path, then set the root of the stage to the pane.

8. Package page

8.1. Package adminpage

This package contains all java classes and FXML files relevant to admin page interface.

8.1.1. AdminMainPage.fxml

This fxml file is the GUI template for the admin mainpage.

8.1.2. class AdminMainPageController

This java class works collaboratively with AdminMainPage.fxml

Fields

Name	Description
@FXML - Label logOutLabel	The logout label on the left side of the page.
@FXML - ImageView profileAvatarIcon	The avatar icon on the top right corner of the page.
@FXML - Label usernameLabel	The full username of the user located on the top right corner of the page.
@FXML - ImageView topLeftIconLogo	The logo on the top left corner of the page
@FXML - VBox accountBox	A VBox which contains account detail cards.
@FXML - TextField searchTextField	A search bar for searching account via its username or type.
- AdminMainPageController instance	An instance of AdminMainPageController

Methods

Name	Description
+ AdminMainPageController()	Constructor. Set AdminMainPageController's instance to this.
+ AdminMainPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage(String input)	Set the username label's text to logged in user's display username

	Set the avatar Icon Set the top left logo Call setAccountBox with the given parameter.
+ void setAccountBox(String input)	If the input is empty, - clear the account box, - For all existing account from the store database, create a account card by calling FXMLLoader to load a template from AccountDetailCard.fxml - Then add all the cards to the account box. Else, - clear the accountBox, - For all existing account from the store database of which the input contains their username or type, create an account card by calling FXMLLoader to load a template from AccountDetailCard.fxml - Then add all the cards to the account box.
+ void onSetSearchBoxClicked()	On mouse clicked, call the setPage() with an input as the text retrieved from the search textfield.
+ void onAddNewAccountButtonClicked()	On mouse clicked, redirect to new account registration page for admin.
+ VBox getAccountBox()	Return accountBox

+ void logOutLabelClicked()	Return to login interface.
+ void onMouseEnterLogOutButton()	On mouse pointer enters the label, set the background of the logout label to #D4D4D4
+ void onMouseExitLogOutButton()	On mouse pointer exits the label, set the background of the logout label to #FFFFFF

8.1.3. NewAccountPage.fxml

This fxml file is the GUI template for the new account registration page, where admin can register a new account for both user and staff.

8.1.4. class NewAccountPageController

This java class works collaboratively with NewAccountPage.fxml

Fields

Name	Description
@FXML - Label logOutLabel	The logout label on the left side of the page.
@FXML - ImageView profileAvatarIcon	The avatar icon on the top right corner of the page.
@FXML - Label usernameLabel	The full username of the user located on the top right corner of the page.
@FXML - ImageView topLeftIconLogo	The logo on the top left corner of the page
@FXML - TextField usernameTextField	A textfield for username of an account to be registered.
@FXML - TextField passwordTextField	A textfield for password of an account to be registered.
@FXML - TextField staffNumberTextField	A textfield for staff number of a staff account to be registered.

@FXML - ChoiceBox<String> accountTypeBox	A drop-down choice box for admin to choose which type of account to be registered.
- NewAccountPageController instance	An instance of NewAccountPageController

Methods

Name	Description
+ NewAccountPageController ()	Constructor. Set NewAccountPageController’s instance to this.
+ NewAccountPageController getInstance()	If the instance is null, set it to this. Return instance
+ void setPage(String input)	Set the username label’s text to logged in user’s display username Set the avatar Icon Set the top left logo Set the choice box.
+ void onCreateAccountButtonClicked()	If the choice box’s value is “USER”, - For username and password textfields, if any of them is empty, show an alert. Else, create a user account and add the created account to the database. If the choice box’s value is “STAFF”, - For username, password, and staff no. textfields, if any of them is empty, show an alert. Else, create a staff account and add

	the created account to the database. If no choice is selected, show an alert asking the admin to select an account type.
+ void backToAdminMainPage()	Return to admin main page.
+ void logOutLabelClicked()	Return to login interface.
+ void onMouseEnterLogOutButton()	On mouse pointer enters the label, set the background of the logout label to #D4D4D4
+ void onMouseExitLogOutButton()	On mouse pointer exits the label, set the background of the logout label to #FFFFFF

8.1.5. Package admincard

8.1.5.1. AccountDetailCard.fxml

This fxml file is the GUI template for the account information card.

8.1.5.2. class AccountDetailCardController

This java class works collaboratively with AccountDetailCard.fxml

Fields

Name	Description
@FXML - Label usernameLabel	The account's username on the left part of the card
@FXML - Label accountTypeLabel	The account's type on the left part of the card
@FXML - TextField usernameTextField	A textfield for username of an account on the right part of the card
@FXML - HBox passwordHBox	A box that contains a password textfield on the right part of the card

@FXML - HBox buttonBox	A box that contains interactive save, reset and delete card buttons
@FXML - Button saveButton	A save button used for changing account’s info
@FXML - Button resetButton	A reset button used for retrieve account’s initial info.
@FXML - Hbox cardBox	The entire card
- Account account	Card’s unique account

Methods

Name	Description
+ void setCard(Account account)	Set card’s account to the given parameter. Set the usernameLabel, accountTypeLabel and usernameTextField to the account’s info. If the account is a user account, - Disable the usernameTextField. - Create a PasswordField, set the pref width and pref height to 310 and 25, respectively. - Set the password field’s text to account’s password. - Disable the password field, then add a new PasswordField to the password HBox. - Remove the saveButton and resetButton from buttonBox.

	Else, if the account is a staff account, - Create a new TextField - Set the pref width and pref height to 310 and 25, respectively. - Set its text to account’s password. - Add it to the password HBox.
+ void onSaveButtonClicked()	Show a confirmation alert asking the admin whether to proceed with the alteration of account’s info. If the admin click OK, - Remove this account from AccountMap in StoreDataBase. - set the account’s username and password to the texts in both the username textfield and the password textfield. - Add this account back to the map. Else, do nothing.
+ void onResetButtonClicked()	Set the username textfield to account’s username. Set the password textfield to account’s password.
+ void onDeleteButtonClicked()	Show a confirmation alert asking the admin whether to confirm the removal of an account. If the admin clicks OK, delete the account and remove the card from

	AdminMainPageController's accountBox. Else, do nothing.

8.2. Package card

8.2.1. Card.fxml

This fxml file is a GUI template of a normal vertical product card.

8.2.2. class CardController

This java class works collaboratively with Card.fxml

Fields

Name	Description
@FXML - ImageView itemImage	Item/product/storeItem's image
@FXML - Label authorBrandLabel	A label of the product's brand or author
@FXML - Label titleLabel	A label for product's title
@FXML - Label starLabel	A label for product's rating.
@FXML - Label priceLabel	A label for product's price
- StoreItem storeItem	A card's item/product

Methods

Name	Description
+ void setCard(StoreItem storeItem)	Set the card's image, title label, star label, author/brand label and price label to the storeItem's info. Set the storeItem to the given parameter.
+ StoreItem getStoreItem()	Return card's storeItem
+ void setStarLabel(int starRate)	Set the star label's text with the item's rating number of ★. That is, an item with rating n shall have a number of n star.
+ void setPriceLabel(double price)	Set the price label's text to item/product's price + " ฿"
+ void onMouseClickTitleLabel()	Redirect to item's page (bookpage), then set the item's page and its similar products with card's item.
+ void onEnterTitleLabel()	Set the title label color to "#3737D5"
+ void onExitTitleLabel()	Set the title label color to black.
Setters for the remaining fields.	

8.2.3. CartCard.fxml

This fxml file is a GUI template of a cart card.

8.2.4. class CartCardController

This java class works collaboratively with CartCard.fxml

Fields

Name	Description
@FXML - ImageView itemImage	Item/product/storeItem's image

@FXML - Label authorBrandLabel	A label of the product’s brand or author
@FXML - Label titleLabel	A label for product’s title
@FXML - Label genreLabel	A label for product’s genre
@FXML - Label quantityLabel	A label for product’s quantity added to the cart.
@FXML - Label unitPriceLabel	A label for product’s price
@FXML - Label totalPriceLabel	A label for the total price; that is, product’s unit price times its quantity.
@FXML - HBox cardBox	The entire card
- StoreItem storeItem	A card’s item/product

Methods

Name	Description
+ void setCard(StoreItem storeItem, int quantity)	Set the storeItem to the given parameter. Set the card’s image, title label, star label, author/brand label and unit price label (followed by “ ฿”) to the storeItem’s info. Set the quantityLabel to the given parameter. Set the total price label (followed by “ ฿”) from the given parameter.

+ void setGenreLabel(ItemGenre itemGenre)	If the genre is FICTION - Set the genre label to “Fiction” If the genre is EDUCATION - Set the genre label to “Education” If the genre is HISTORY - Set the genre label to “History & Politics” If the genre is SCIENCE - Set the genre label to “Science” If the genre is PSYCHOLOGY - Set the genre label to “Psychology” If the genre is PHILOSOPHY - Set the genre label to “Philosophy”
+ void onDeleteLabelClicked()	Remove storeItem from user’s cartMap. Remove cart card from user’s cart page. Update the total price in user’s cart page.
+ void onMouseClickTitleLabel()	Redirect to item’s page (bookpage), then set the item’s page and its similar products with card’s item.
+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.
Setters for the remaining fields.	

8.2.5. CategoriesCard.fxml

This fxml file is a GUI template of a category card.

8.2.6. class CategoriesCardController

This java class works collaboratively with CategoriesCard.fxml

Fields

Name	Description
@FXML - Label genreLabel	Item/product/storeItem's image
@FXML - ImageView genreIcon	A label of the product's brand or author

Methods

Name	Description
+ void setCard(String genreIconPath, String genreLabel)	Set the genre label to the given parameter. Set the genreIcon with the given genre icon path using ClassLoader.
+ void onGenreLabelClicked()	Redirect to user's search page and set the search page to the retrieved text from this card's genre label.
+ void onEnterGenreLabel()	Set the genre label color to "#3737D5"
+ void onExitGenreLabel()	Set the genre label color to black.

8.2.7. ExclusiveCard.fxml

This fxml file is a GUI template for the large horizontal item card.

8.2.8. class ExclusiveCardController

This java class works collaboratively with ExclusiveCard.fxml

Fields

Name	Description
@FXML - ImageView itemImage	Item/product/storeItem's image
@FXML - Label authorBrandLabel	A label of the product's brand or author
@FXML - Label itemTitleLabel	A label for product's title
@FXML - Label starLabel	A label for product's rating.
@FXML - Label priceLabel	A label for product's price
@FXML - Label genreLabel	A label for product's genre
- StoreItem storeItem	A card's item/product

Methods

Name	Description
+ void setCard(StoreItem storeItem)	Set the card's image, title label, star label, author/brand label, genre label and price label to the storeItem's info. Set the storeItem to the given parameter.
+ void onMouseClickTitleLabel()	Redirect to item's page (bookpage), then set the item's page and its similar products with card's item.
+ void setGenreLabel(ItemGenre itemGenre)	If the genre is FICTION - Set the genre label to "Fiction" If the genre is EDUCATION - Set the genre label to "Education" If the genre is HISTORY

	- Set the genre label to “History & Politics” If the genre is SCIENCE - Set the genre label to “Science” If the genre is PSYCHOLOGY - Set the genre label to “Psychology” If the genre is PHILOSOPHY Set the genre label to “Philosophy”
+ void setStarLabel(int starRate)	Set the star label’s text with the item’s rating number of ★. That is, an item with rating n shall have a number of n star.
+ StoreItem getStoreItem()	Return card’s storeItem
+ void onMouseClickTitleLabel()	Redirect to item’s page (bookpage), then set the item’s page and its similar products with card’s item.
+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.
Setters for the remaining fields.	

8.2.9. OrderCard.fxml

This fxml file is a GUI template for order card.

8.2.10. class OrderCardController

This class works collaboratively with OrderCardController.fxml

Fields

Name	Description
@FXML - VBox detailBox	The entire card
@FXML - Label orderIDLabel	A label for order id

@FXML - Label telephoneLabel	A label for telephone/contract no.
@FXML - TextArea addressTextArea	A textarea for delivery address
@FXML - Label priceLabel	A label for order’s total cost
@FXML - Label statusLabel	A label for order’s delivery status
- Order order	A card’s order

Methods

Name	Description
+ void setCard(Order order)	Set the fields to the order’s info. For price label, the total cost is followed by “ ฿” Disable the addressTextArea Create an order detail card for each product of the order.

8.2.11. OrderDetailCard.fxml

This fxml file is a GUI template for order detail card.

8.2.12. class OrderDetailCardController

This class works collaboratively with OrderDetailCard.fxml

Fields

Name	Description
@FXML - ImageView itemImage	Item/product/storeItem’s image
@FXML - Label authorBrandLabel	A label of the product’s brand or author
@FXML - Label titleLabel	A label for product’s title
@FXML - Label genreLabel	A label for product’s genre
@FXML - Label quantityLabel	A label for product’s quantity added to the cart.
@FXML - Label totalPriceLabel	A label for the total price; that is, product’s unit price times its quantity.
- StoreItem storeItem	Card’s item

Methods

Name	Description
+ void setCard(StoreItem storeItem, int quantity)	Set storeItem to the given parameter. Set the card’s image, title label, genre label and author/brand label to the storeItem’s info. Set the quantityLabel to the given parameter. Set the total price label (followed by “ ฿”) from the given parameter.
+ void setGenreLabel(ItemGenre itemGenre)	If the genre is FICTION - Set the genre label to “Fiction” If the genre is EDUCATION

	- Set the genre label to “Education” If the genre is HISTORY - Set the genre label to “History & Politics” If the genre is SCIENCE - Set the genre label to “Science” If the genre is PSYCHOLOGY - Set the genre label to “Psychology” If the genre is PHILOSOPHY Set the genre label to “Philosophy”
+ void onMouseClickTitleLabel()	Redirect to item’s page (bookpage), then set the item’s page and its similar products with card’s item.
+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.

8.2.13. SearchCard.fxml

This fxml is a GUI template for search card.

8.2.14. class SearchCardController

This class works collaboratively with SearchCardController.fxml

Fields

Name	Description
@FXML - ImageView itemImage	Item/product/storeItem’s image
@FXML - Label authorBrandLabel	A label of the product’s brand or author
@FXML - Label titleLabel	A label for product’s title
@FXML	A label for product’s genre

- Label genreLabel	
@FXML - Label unitPriceLabel	A label for a product’s price.
- StoreItem storeItem	Card’s item

Methods

Name	Description
+ void setCard(StoreItem storeItem)	Set storeItem to the given parameter. Set the card’s image, title label, the unit price (followed by “ ฿”) and author/brand label to the storeItem’s info.
+ void setGenreLabel(ItemGenre itemGenre)	If the genre is FICTION - Set the genre label to “Fiction” If the genre is EDUCATION - Set the genre label to “Education” If the genre is HISTORY - Set the genre label to “History & Politics” If the genre is SCIENCE - Set the genre label to “Science” If the genre is PSYCHOLOGY - Set the genre label to “Psychology” If the genre is PHILOSOPHY Set the genre label to “Philosophy”
+ void onMouseClickTitleLabel()	Redirect to item’s page (bookpage), then set the item’s page and its similar products with card’s item.

+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.

8.2.15. WishlistCard.fxml

This fxml file is a GUI template for wishlist card.

8.2.16. class WishlistCardController

This class works collaboratively with WishlistCard.fxml

Fields

Name	Description
@FXML - ImageView itemImage	Item/product/storeItem’s image
@FXML - Label authorBrandLabel	A label of the product’s brand or author
@FXML - Label titleLabel	A label for product’s title
@FXML - Label genreLabel	A label for product’s genre
@FXML - Label unitPriceLabel	A label for a product’s price.
@FXML - HBox cardBox	The entire card
- StoreItem storeItem	Card’s item

Methods

Name	Description
+ void setCard(StoreItem storeItem)	Set storeItem to the given parameter.

	Set the card’s image, title label, the unit price (followed by “ ฿”) and author/brand label to the storeItem’s info.
+ void setGenreLabel(ItemGenre itemGenre)	If the genre is FICTION - Set the genre label to “Fiction” If the genre is EDUCATION - Set the genre label to “Education” If the genre is HISTORY - Set the genre label to “History & Politics” If the genre is SCIENCE - Set the genre label to “Science” If the genre is PSYCHOLOGY - Set the genre label to “Psychology” If the genre is PHILOSOPHY Set the genre label to “Philosophy”
+ void onMouseClickTitleLabel()	Redirect to item’s page (bookpage), then set the item’s page and its similar products with card’s item.
+ void onDeleteLabelClicked()	Remove card’s store item from user’s wishlist Remove the card from WishlistBox in WishListPageController.
+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.

8.3. Package login

8.3.1. LoginInterface.fxml

This fxml is a GUI template for login interface.

8.3.2. class LoginController

This class works collaboratively with LoginInterface.fxml

Fields

Name	Description
@FXML - TextField usernameTextField	A textfield for user's username
@FXML - PasswordField logInPasswordField	A passwordfield for user's password
@FXML - Label signInAsStaffLabel	A label for redirecting to staff login interface
@FXML - Label logInMessageLabel	An alert label responding to an attempt to login.
@FXML - ImageView displayLogoImage	A logo image.
- LoginController instance	An instance of LoginController

Methods

Name	Description
+ LoginController()	Set the instance to this.
+ LoginController getInstance()	If the instance is null, set it to this. Return instance
+ void setLogoImage()	Set the logo image.
+ void signInButtonClicked()	If an attempt to login is from a UserAccount, validate the login - if the login is valid, redirect to user's mainpage

	- else, alert the user that a login attempt is invalid. Else, alert the user that a login attempt is invalid.
+ void setSignInAsStaffLabelClicked()	Redirect to staff login interface.
+ void registerButtonClicked()	Redirect to registration interface.
+ void onMouseEnterSignInAsStaffLabel()	Set signInAsStaffLabel's pref width to 105.
+ void onMouseExitSignInAsStaffLabel()	Set signInAsStaffLabel's pref width to 95.

8.3.3. RegistrationInterface.fxml

This fxml file is a GUI template for registration interface.

8.3.4. class RegistrationController

This class works collaboratively with RegistrationInterface.fxml

Fields

Name	Description
@FXML - TextField usernameTextField	A textfield for user's username
@FXML - PasswordField passwordField	A passwordfield for user's password
@FXML - PasswordField passwordValidateField	A passwordfield for user's password validation.
@FXML - Label backLabel	A back label for redirecting back to user login interface
@FXML - Label messageAlert	An alert label responding to an attempt to register an account.
@FXML - ImageView displayLogoImage	A logo image.
- RegistrationController instance	An instance of RegistrationController

Methods

Name	Description
+ RegistrationController()	Set the instance to this.
+ RegistrationController getInstance()	If the instance is null, set it to this. Return instance
+ void setLogoImage()	Set the logo image.
+ void createNewUserAccount()	If any of the three textfields is empty, set an alert message label to “Some information is missing. Please recheck your username and password”, Else, validate the registration (the password and passwordValidate textfield must have the same text). If the registration is valid, create a new UserAccount with the parameters from the textfields, else alert that user that passwords do not match,
+ void backLabelClicked()	Redirect back to login interface.
+ void onMouseEnterBackLabel()	Set backLabel’s pref width to 105.
+ void onMouseExitBackLabel()	Set backLabel’s pref width to 95.

8.3.5. StaffLoginInterface.fxml

This fxml file is a GUI template for staff login interface.

8.3.6. class StaffLogInInterface

This class works collaboratively with StaffLoginInterface.fxml

Fields

Name	Description
@FXML - TextField usernameTextField	A textfield for user's username
@FXML - PasswordField logInPasswordField	A passwordfield for user's password
@FXML - Label signInAsUserLabel	A label for redirecting to user login interface
@FXML - Label staffLogInMessageLabel	An alert label responding to an attempt to login.
@FXML - ImageView displayLogoImage	A logo image.
- StaffLogInController instance	An instance of StaffLogInController

Methods

Name	Description
+ StaffLogInController ()	Set the instance to this.
+ StaffLogInController getInstance()	If the instance is null, set it to this. Return instance
+ void setLogoImage()	Set the logo image.
+ void staffSignInButtonClicked()	If an attempt to login is from a StaffAccount, validate the login - if the login is valid, redirect to staff's mainpage - else, alert the staff that a login attempt is invalid. Else, alert the user that a login attempt is invalid.
+ void setSignInAsUserLabelClicked()	Redirect to user login interface.
+ void onMouseEnterSignInAsUserLabel()	Set signInAsUserLabel's pref width to 105.

+ void onMouseExitSignInAsUserLabel()	Set signInAsUserLabel’s pref width to 95.

8.4. Package staffpage

8.4.1. abstract class StaffPage

Methods

Name	Description
+ void logOutLabelClicked()	Redirect to the login interface.
+ void topLeftLabelClicked()	Redirect to the staff mainpage.
+ void goToProductManagementPage()	Redirect to the product management page.
+ void goToUserPageManagementPage()	Redirect to the user management page.
+ void goToOrderManagementPage()	Redirect to the order management page.

8.4.2. ItemStaffPage.fxml

This fxml file is a GUI template for staff’s product page, where they can change product’s info.

8.4.3. class ItemStaffPageController extends StaffPage

Fields

Name	Description
@FXML - Label logOutLabel	A label for logging out.
@FXML - ImageView profileAvatarIcon	A profile avatar icon.
@FXML - Label usernameLabel	A label for staff’s username.
@FXML	A top left icon logo.

- ImageView topLeftIconLogo	
@FXML - ImageView itemImage	An item’s image
@FXML - TextField productTextField	A textfield for product’s title.
@FXML - TextField authorBrandTextField	A textfield for product’s author
@FXML - TextField priceTextField	A textfield for product’s price
@FXML - TextField quantityTextField	A textfield for product’s quantity
@FXML - TextField locationTextField	A textfield for product’s location
@FXML - TextField descriptionTextArea	A textfield for product’s description
@FXML - Label imagePathLabel	A label for image path.
@FXML - ChoiceBox<ItemGenre> genreChoiceBox	A choicebox for product’s genres
@FXML - ChoiceBox<String> ratingChoiceBox	A choicebox for product’s rating
- StoreItem storeItem	Page’s item
- ItemStaffPageController instance	An instance of ItemStaffPageController

Methods

Name	Description
+ ItemStaffPageController ()	Set the instance to this.
+ ItemStaffPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage(StoreItem item)	Set the username label.

	Set storeItem to the given parameter. Set avatar icon. Set top left logo. Set genre choicebox and rating choicebox Set item image, product, authorbrand, price, quantity, location, choiceboxes, image path and description to storeIem's info.
+ void onChangeImageButtonClicked()	Open a filechooser and allows only .png and .jpg files. If the selected file is not null, then set the itemImage to the selected file. Else, do nothing.
+ void onSaveButtonClicked()	Show a confirmation alert asking the staff whether to proceed with the alteration or not. If yes, then set the storeItem to the given parameters from all textfields and choiceboxes. Then redirect to product management page. If no, close the alert and do nothing.
+ void onDeleteProductButtonClicked()	Show a confirmation alert asking the staff whether to proceed or not.

	If yes, remove storeItem and redirec to product management page. If no, close the alert and do nothing.
+ void logOutLabelClicked()	Call super method.
+ void topLeftLabelClicked()	Call super method.
+ void backButtonClicked()	Redirect to product management page.
+ void onMouseEnterLogOutButton()	Set logOutLabel to “#D4D4D4”
+ void onMouseExitLogOutButton()	Set logOutLabel to white

8.4.4. NewItemPage.fxml

This fxml file is a GUI template for NewItemPage, where staff can add new product to the store.

8.4.5. class NewItemPageController extends ItemStaffPageController

This class works collaboratively with NewItemPage.fxml

Fields

Name	Description
@FXML - Label logOutLabel	A label for logging out.
@FXML - ImageView profileAvatarIcon	A profile avatar icon.
@FXML - Label usernameLabel	A label for staff’s username.
@FXML - ImageView topLeftIconLogo	A top left icon logo.
@FXML - ImageView itemImage	An item’s image
@FXML - TextField productTextField	A textfield for product’s title.
@FXML - TextField authorBrandTextField	A textfield for product’s author

@FXML - TextField priceTextField	A textfield for product's price
@FXML - TextField quantityTextField	A textfield for product's quantity
@FXML - TextField locationTextField	A textfield for product's location
@FXML - TextField descriptionTextArea	A textfield for product's description
@FXML - Label imagePathLabel	A label for image path.
@FXML - ChoiceBox<ItemGenre> genreChoiceBox	A choicebox for product's genres
@FXML - ChoiceBox<String> ratingChoiceBox	A choicebox for product's rating
- StoreItem storeItem	Page's item
- NewItemPageController instance	An instance of NewItemPageController

Methods

Name	Description
+ NewItemPageController ()	Set the instance to this.
+ NewItemPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage(StoreItem item)	Set the username label. Set storeItem to the given parameter. Set avatar icon. Set top left logo.

	Set genre choicebox and rating choicebox
+ void onSaveButtonClicked()	Show a confirmation alert asking the staff whether to proceed with the alteration or not. If yes, then create a new book with parameters from all textfields and choiceboxes. If itemImage's image is null, set it to default book image. Then add the book to the ShelfMap in StoreStorage (If there occurs any error parsing quantity or price, set it to 0) If no, close the alert and do nothing.
+ void onChangeImageButtonClicked()	Call super method.
+ void logOutLabelClicked()	Call super method.
+ void topLeftLabelClicked()	Call super method.
+ void backButtonClicked()	Call super method.
+ void onMouseEnterLogOutButton()	Set logOutLabel to "#D4D4D4"
+ void onMouseExitLogOutButton()	Set logOutLabel to white

8.4.6. OrderManagementPage.fxml

This fxml file is a GUI template for order management page.

8.4.7. class OrderManagementPageController extends StaffPage

This class works collaboratively with OrderManagementPage.fxml

Fields

Name	Description
@FXML - VBox ordersBox	A VBox containing all orders.
@FXML	A label for logout.

- Label logOutLabel	
@FXML - ImageView profileAvatarIcon	A profile avatar icon.
@FXML - Label usernameLabel	A label for staff’s username.
@FXML - ImageView topLeftIconLogo	A top left icon logo.
@FXML - TextField searchTextField	A search textfield on the top of the page.
- OrderManagementPageController instance	An instance of OrderManagementPageController

Methods

Name	Description
+ OrderManagementPageController ()	Set the instance to this.
+ OrderManagementPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage(String input)	Set the username label. Set storeItem to the given parameter. Set avatar icon. Set top left logo. Set order order box with the given parameter
+ void setOrderBox(String input)	If input is empty: - clear the orderBox’s children - For every order in the store storage, create an order card for

	it and add it to orderBox's children. Else: - clear the orderBox's children - For every order in the store storage, if an order's id, tel no, or username contains text retrieved from the parameter, create an order card for it and add it to orderBox's children. - Else, do nothing
+ void onSetSearchBoxClicked()	Call setOrderBox with searchTextField's text as input.
+ void logOutLabelClicked()	Call super method.
+ void topLeftLabelClicked()	Call super method.
+ void onMouseEnterLogOutButton()	Set logOutLabel to "#D4D4D4"
+ void onMouseExitLogOutButton()	Set logOutLabel to white

8.4.8. ProductManagementPage.fxml

This fxml is a GUI template for product management page.

8.4.9. class ProductManagementPageController extends StaffPage

This class works collaboratively with ProductManagementPage.fxml

Fields

Name	Description
@FXML - Label logOutLabel	A label for logout.
@FXML - ImageView profileAvatarIcon	A profile avatar icon.
@FXML - Label usernameLabel	A label for staff's username.
@FXML	A top left icon logo.

- ImageView topLeftIconLogo	
@FXML - TextField searchTextField	A search textfield on the top of the page.
@FXML - VBox productBox	A VBox containing all products.
- ProductManagementController instance	An instance of ProductManagementController

Methods

Name	Description
+ ProductManagementController()	Set the instance to this.
+ ProductManagementController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage(String input)	Set the username label. Set storeItem to the given parameter. Set avatar icon. Set top left logo. Set product box with the given parameter.
+ void setProductBox(String input)	If input is empty: - clear the productBox's children - For every product in the store storage, create a product card for it and add it to productBox's children. Else: - clear the productBox's children

	- For every product in the store storage, if a product’s author or title contains text from the parameter, create an product card for it and add it to productBox’s children. - Else, do nothing
+ void onSetSearchBoxClicked()	Call setPage with searchTextField’s text as input.
+ void addNewProductButtonClicked()	Redirect to NewItemPage page.
+ void logOutLabelClicked()	Call super method.
+ void topLeftLabelClicked()	Call super method.
+ void onMouseEnterLogOutButton()	Set logOutLabel to “#D4D4D4”
+ void onMouseExitLogOutButton()	Set logOutLabel to white

8.4.10 StaffMainPage.fxml

This fxml is a GUI template for staff main page.

8.4.11 class StaffMainPageController extends StaffPage

This class works collaboratively with StaffMainPage.fxml

Fields

Name	Description
@FXML - Label logOutLabel	A label for logout.
@FXML - ImageView profileAvatarIcon	A profile avatar icon.
@FXML - Label usernameLabel	A label for staff’s username.
@FXML - ImageView topLeftIconLogo	A top left icon logo.
@FXML - Label productManagementLabel	A label for redirecting to product management page.

@FXML - Label userpageManagementLabel	A label for redirecting to userpage management page.
@FXML - Label orderManagementLabel	A label for redirecting to order management page.
- StaffMainPageController instance	An instance of StaffMainPageController

Methods

Name	Description
+ StaffMainPageController()	Set the instance to this.
+ StaffMainPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage(String input)	Set the username label. Set storeItem to the given parameter. Set avatar icon. Set top left logo.
+ void logOutLabelClicked()	Call super method.
+ void goToUserPageManagementPage()	Call super method.
+ void goToOrderManagementPage()	Call super method.
+ void goToProductManagementPage()	Call super method.
+ void onMouseEnterLogOutButton()	Set logOutLabel to “#D4D4D4”
+ void onMouseExitLogOutButton()	Set logOutLabel to white
+ void onEnterProductLabel()	Set productManagementLabel’s textfill to white.
+ void onExitProductLabel()	Set productManagementLabel’s textfill to black.
+ void onEnterOrderLabel()	Set orderManagementLabel’s textfill to white.

+ void onExitOrderLabel()	Set orderManagementLabel's textfill to black
+ void onEnterUserLabel()	Set userpageManagementLabel's textfill to white.
+ void onExitUserLabel()	Set userpageManagementLabel's textfill to black

8.4.12. UserPageManagement.fxml

This fxml is a GUI template for userpage management page.

8.4.13. class UserPageManagementController extends StaffPage

This class works collaboratively with UserPageManagement.fxml

Fields

Name	Description
@FXML - Label logOutLabel	A label for logout.
@FXML - ImageView profileAvatarIcon	A profile avatar icon.
@FXML - Label usernameLabel	A label for staff's username.
@FXML - ImageView topLeftIconLogo	A top left icon logo.
@FXML - TextField newArrivalSearchTextField	A search textfield for new arrival management
@FXML - TextField recommTextField	A search textfield for recommended items management
@FXML - VBox newArrivalBox	A VBox containing all items set to new arrival.
@FXML - VBox newArrivalSearchBox	A VBox containing all items ready to set the new arrival box
@FXML - VBox recommBox	A VBox containing all items set to recommended items

@FXML - VBox newArrivalSearchBox	A VBox containing all items ready to set the recommended items
- UserPageMangementController instance	An instance of UserPageMangementController

Methods

Name	Description
+ UserPageMangementController()	Set the instance to this.
+ UserPageMangementController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage(String input)	Set the username label. Set storeItem to the given parameter. Set avatar icon. Set top left logo. Reload recommended item and new arrival boxes
+ void reloadNewArrivalBox(String input)	Clear all the children in newArrivalSearchBox and newArrivalBox For every item in new arrival list, create a card for each of them and put them in newArrivalBox. Then, if the input is empty - For every item in store storage, create a card for each of them

	and put them in newArrivalSearchBox. Else:
+ void reloadRecommBox(String input)	- For every item in store storage, if item’s author or title contains text from the parameter, create a card for each of them and put them in newArrivalSearchBox.
	Clear all the children in recommSearchBox and recommBox For every item in recommemded list, create a card for each of them and put them in recommBox. Then, if the input is empty - For every item in store storage, create a card for each of them and put them in recommSearchBox. Else: - For every item in store storage, if item’s author or title contains text from the parameter, create a card for each of them and put them in recommSearchBox.
+ void onNewArrivalSearchButtonClicked()	Reload the new arrival box with text from new arrival search textfield
+ void onRecommSearchButtonClicked()	Reload the recommended items box with text from recomm search textfield
+ VBox getNewArrivalBox	Return newArrivalBox
+ VBox getRecommBox	Return recommBox
+ void logOutLabelClicked()	Call super method.

+ void topLeftLabelClicked()	Call super method.
+ void onMouseEnterLogOutButton()	Set logOutLabel to “#D4D4D4”
+ void onMouseExitLogOutButton()	Set logOutLabel to white

8.4.14 Package staffcard

8.4.14.1. ItemCard.fxml

This fxml file is a GUI template for staff’s item card.

8.4.14.2. class ItemCardController extends WishlistCardController

This class works collaboratively with ItemCard.fxml

Fields

Name	Description
@FXML - Label titleLabel	A label for product’s title
@FXML - Label shelfLabel	A label for product’s location
@FXML - Label quantityLabel	A label for a product’s quantity.
- StoreItem storeItem	Card’s item

Methods

Name	Description
+ void setCard(StoreItem storeItem)	Call super method. Set storeItem to the given parameter. Set shelfLabel’s text to storeItem’s location.

	Set quantityLabel’s text to storeItem’s quantity.
+ void onMouseClickTitleLabel()	Redirect to staff’s item page.
+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.

8.4.14.3. NewArrivalCard.fxml

This fxml file is a GUI template for staff’s new arrival card.

8.4.14.4. class NewArrivalCardController extends WishlistCardController

This class works collaboratively with NewArrivalCard.fxml

Fields

Name	Description
@FXML - Label titleLabel	A label for product’s title
@FXML - HBox cardBox	The entire card
- StoreItem storeItem	Card’s item

Methods

Name	Description
+ void setCard(StoreItem storeItem)	Call super method. Set storeItem to the given parameter.
+ void onMouseClickTitleLabel()	Redirect to staff’s item page.
+ void removeFromNewArrivals()	Remove storeItem out of store’s new arrival list. Remove the card from new arrival box in userpage management page.

+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.

8.4.14.5. NewArrivalSearchCard.fxml

This fxml file is a GUI template for staff’s new arrival search card.

8.4.14.6. class NewArrivalSearchCardController extends NewArrivalCardController

This class works collaboratively with NewArrivalSearchCard.fxml

Fields

Name	Description
@FXML - Label titleLabel	A label for product’s title
- StoreItem storeItem	Card’s item

Methods

Name	Description
+ void setCard(StoreItem storeItem)	Call super method. Set storeItem to the given parameter.
+ void onMouseClickTitleLabel()	Redirect to staff’s item page.
+ void addToNewArrivals()	If store’s new arrival list does not contain card’s item, add the card’s item to the new arrival list. Then create a staff’s new arrival card and add it to the staff’s new arrival box.
+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.

8.4.14.7. RecommCard.fxml

This fxml file is a GUI template for staff’s recommended item card.

8.4.14.8. class RecommCardController extends WishlistCardController

This class works collaboratively with RecommCard.fxml

Fields

Name	Description
@FXML - Label titleLabel	A label for product’s title
@FXML - HBox cardBox	The entire card
- StoreItem storeItem	Card’s item

Methods

Name	Description
+ void setCard(StoreItem storeItem)	Call super method. Set storeItem to the given parameter.
+ void onMouseClickTitleLabel()	Redirect to staff’s item page.
+ void removeFromRecomm()	Remove storeItem out of store’s recommended item list. Remove the card from recommended items box in userpage management page.
+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.

8.4.14.9. RecommSearchCard.fxml

This fxml file is a GUI template for staff’s recommended item search card.

8.4.14.10. class RecommSearchCardController extends RecommCardController

This class works collaboratively with RecommSearchCard.fxml

Fields

Name	Description
@FXML - Label titleLabel	A label for product’s title
- StoreItem storeItem	Card’s item

Methods

Name	Description
+ void setCard(StoreItem storeItem)	Call super method. Set storeItem to the given parameter.
+ void onMouseClickTitleLabel()	Redirect to staff’s item page.
+ void addToRecomm()	If store’s recommended items list does not contain card’s item, add the card’s item to the recommended items list. Then create a staff’s recommended item card and add it to the staff’s recommended items box.
+ void onEnterTitleLabel()	Set the title label color to “#3737D5”
+ void onExitTitleLabel()	Set the title label color to black.

8.4.14.11. StaffOrderCard.fxml

This fxml file is a GUI template for staff’s order card.

8.4.14.12. class StaffOrderCardController

This class works collaboratively with StaffOrderCard.fxml

Fields

Name	Description
- Order order	Card's order
@FXML - ChoiceBox<DeliveryStatus>	A choicebox for changing delivery status.
@FXML - Label newStatusAlertLabel	A message alerting staff that order's delivery status has been changed.
@FXML - Label orderIDLabel	A label showing order's id
@FXML - Label telephoneLabel	A label showing contract no.
@FXML - TextArea addressTextArea	A textarea which contains delivery address
@FXML - Label priceLabel	A label showing order's total price
@FXML - VBox detailBox	A VBox containing order's product(s)

Methods

Name	Description
+ void setCard(Order order)	Set card's order to the given parameter. Set up a delivery status choicebox. Set the labels and textareas to order's info. Set the detail box by creating a staff's order card for every order there is and put it in detail box's children.

	Set the status choice box to order’s current delivery status.
+ void onSaveButtonClicked()	Set the order’s delivery status to the status retrieved from choicebox. Set the new status alert label to "Status has been set to : " followed by order’s new status.
+ void onResetButtonClicked()	Set the choicebox value to order’s current delivery status.

8.5. Package userpage

8.5.1 Package components

8.5.1.1. SearchFilter.fxml

This fxml is a GUI template for filter.

8.5.1.2. class SearchFilter

This class works collaboratively with SearchFilter.fxml

Fields

Name	Description
@FXML - ChoiceBox<String> filterChoiceBox	A choicebox for filter
@FXML - Label searchLabel	A label for filtering items
- SearchFilter instance	An instance of SearchFilter

Methods

Name	Description

+ SearchFilter()	Set the instance to this.
+ SearchFIlter getInstance()	If the instance is null, set it to this. Return instance.
+ void setFilterChoiceBox()	Set the filter choicebox. ({"Default", "Price: Low to High", "Price: High to Low", "Rating"})
+ void onSearchFilterClicked()	Set the search page’s search box by an arraylist obtained from getFilteredListOfStoreItems()
+ ArrayList<StoreItem> getFilteredListOfStoreItem()	Create a local arraylist which stores all item obtained from getSearchedStoreItems() accordingly : - If the choice selected is “Price: Low to High”, return the sorted arraylist in ascending order based on price. - Else if the choice selected is “Price: High to Low”, return the sorted arraylist in descending order based on price. - Else if the choice is “Rating”, return the sorted arraylist in descending order based on rating. - Else if the choice is “default”, return the local arraylist.
+ void onEnterSearchLabel()	On mouse enter, set searchLabel’s background to “#606060”
+ void onExitSearchLabel()	On mouse enter, set searchLabel’s background to “#E0E0E0”

8.5.2. class UserPage

Methods

Name	Description
+ void setPage()	Do nothing.
+ void setPage(String searchInput)	Do nothing.
+ void setPage(StoreItem storeItem)	Do nothing.
+ void userCartLabelClicked()	Redirect to user’s cart
+ void logOutLabelClicked()	Redirect to login interface
+ void onUserOrderLabelClicked()	Redirect to to user’s order page
+ void onWishlistLabelClicked()	Redirect to user’s wishlist page
+ void categoriesLabelClicked()	Redirect to categories page
+ void returnToUserMainPage()	Redirect to user mainpage

8.5.3. BookPageInterface.fxml

This fxml file is a GUI template for user’s book page.

8.5.4. class BookPageController extends UserPage

This class works collaboratively with BookPageInterface.fxml

Fields

Name	Description
@FXML - ImageView wishlistIcon	A transparent heart icon.
@FXML - HBox moreFromThisBox	A HBox underneath the product’s info where similar products will be located.
@FXML - ImageView storeItemImage	A product’s image
@FXML - Label titleLabel	A label for product’s title
@FXML	A label for product’s author

- Label authorBrandLabel	
@FXML - Text descriptionText	A Text for product’s description
@FXML - Label availableLabel	A label for displaying availability
@FXML - ChoiceBox<String> quantityBox	A choicebox for quantity
@FXML - Label priceLabel	A label for product’s price
@FXML - Label usernameLabel	A label for user’s username
@FXML - Label logOutLabel	A label for logging out
@FXML - Label cartLabel	A label for redicting to user’s cart
@FXML - Label categoriesLabel	A label for redicting to categories page
@FXML - Label wishlistLabel	A label for redicting to user’s wishlist page
@FXML - Label userOrdersLabel	A label for redicting to user’s orders page.
@FXML - ImageView profileAvatarIcon	A profile avatar icon
@FXML - ImageView topLeftIconLogo	A logo image
@FXML - Label backLabel	A label for redirecting to user’s mainpage
@FXML - Label quantityBoxAlert	A label for product’s quantity
@FXML - TextField searchTextField	A textfield for product searching on top fo the page

@FXML - Label addToWishlistLabel	A label for adding product to user's wishlist
- final String[] quantity = {“1”,”2”,”3”,”4”,”5”}	Quantity choices
- StoreItem storeItem	Page's item
- BookPageController instance	An instance of BookPageController

Methods

Name	Description
+ BookPageController()	Set the instance to this.
+ BookPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage(StoreItem storeItem)	Set storeItem to the given parameter Set usernameLabel to user's display username Set the avatar icon, transparent heart icon and logo From item's details, set them to all relavent labels and imageview. For quantity, if the item is orderable, set availableLabel to “In stock”; else, set it to “Out of Stock”. Set add choices to quantityBox.
+ void setMoreFromThisBox(StoreItem storeItemOfThisPage)	For all products in store storage, - if the product's author is the same with page's product's author

	- and product is not the same as page’s product, ➔ create a card for it and add the card to moreFromThisBox’s children.
+ void userCartLabelClicked()	Call super method.
+ void returnToUserMainPage()	Call super method.
+ void onUserOrderLabelClicked()	Call super method.
+ void onWishlistLabelClicked()	Call super method.
+ void logOutLabelClicked()	Call super method.
+ void categoriesLabelClicked()	Call super method.
+ void onSearchButtonClicked()	Retieve a text from searchTextField and redirect to search page that is set with the aforementioned text.
+ void onQuantityBoxSelected()	If the choicebox’s value is null, ask the user to select a quantity. Else, if the product is orderable and has not alredy been added to user’s cart, add that product with quantity to user’s cart and show an informational alert. In case, the product is orderable and has already been added to the cart, add that product with quantity to the initial quantity in user’s cart and show an informational alert. However, a product added to the cart cannot be ordered more than 5 quantity per order.

	In case, the product is not orderable, set quantityBoxAlert to show the remaining quantity.
+ void onAddToWishlistLabelClicked()	If the product has already been added to wishlist, alert the user that it has already been there. Else, add it to user’s wishlist and show an alert that it has been added.
+ void onEnterAddToWIshListLabel()	Set addToWishlistLabel textfill to “#3737D5”
+ void onExitAddToWIshListLabel()	Set addToWishlistLabel textfill to black.
+ void onMouseEnterBackLabel()	Set backLabel’s background to “#606060”
+ void onMouseExitBackLabel()	Set backLabel’s background to “#DFDFDF”
+ void onMouseEnterLogOutButton()	Set logOutLabel’s background to “#D4D4D4”
+ void onMouseExitLogOutButton()	Set logOutLabel’s background to “#FFFFFF”
+ void onMouseEnterCartButton()	Set cartLabel’s background to “#D4D4D4”
+ void onMouseExitCartButton()	Set cartLabel’s background to “#FFFFFF”
+ void onMouseEnterCategoriesButton()	Set categoriesLabel’s background to “#D4D4D4”
+ void onMouseExitCategoriesButton()	Set categoriesLabel’s background to “#FFFFFF”
+ void onMouseEnterWishListButton()	Set wishlistLabel’s background to “#D4D4D4”
+ void onMouseExitWishListButton()	Set wishlistLabel’s background to “#FFFFFF”

+ void onMouseEnterUserOrdersButton()	Set userOrdersLabel’s background to “#D4D4D4”
+ void onMouseExitUserOrdersButton()	Set userOrdersLabel’s background to “#FFFFFF”

8.5.5. CartPageInterface.fxml

This fxml file is a GUI template for user’s cart page.

8.5.6. class CartPageController extends UserPage

This class works collaboratively with CartPageInterface.fxml

Fields

Name	Description
@FXML - Label usernameLabel	A label for user’s username
@FXML - Label logOutLabel	A label for logging out
@FXML - Label cartLabel	A label for redicting to user’s cart
@FXML - Label categoriesLabel	A label for redicting to categories page
@FXML - Label wishlistLabel	A label for redicting to user’s wishlist page
@FXML - Label userOrdersLabel	A label for redicting to user’s orders page.
@FXML - ImageView profileAvatarIcon	A profile avatar icon
@FXML - ImageView topLeftIconLogo	A logo image
@FXML - VBox cartBox	A VBox containing user’s order(s)

@FXML - Label totalPriceLabel	A label for total price of all products in user’s cart
@FXML - TextField searchTextField	A textfield for product searching on top fo the page
@FXML - Label proceedToCheckOutLabel	A label for redirecting to checkout page
- CartPageController instance	An instance of CartPageController

Methods

Name	Description
+ CartPageController()	Set the instance to this.
+ CartPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage()	Set storeItem to the given parameter Set usernameLabel to user’s display username Set the avatar icon and logo Reload the cart box.
+ VBox getCartBox()	Return cartBox
+ Label getTotalPriceLabel()	Return totalPriceLabel
+ void reloadCartBox()	If user’s cartMap is not empty, create a cart card for each products added to user’s cart, then add it to cardBox’s children.
+ void onProceedToCheckOutLabelClicked()	If the cartBox’s children is not empty, redirect to checkout page
+ void userCartLabelClicked()	Call super method.
+ void returnToUserMainPage()	Call super method.
+ void onUserOrderLabelClicked()	Call super method.

+ void onWishlistLabelClicked()	Call super method.
+ void logOutLabelClicked()	Call super method.
+ void categoriesLabelClicked()	Call super method.
+ void onSearchButtonClicked()	Retieve a text from searchTextField and redirect to search page that is set with the aforementioned text.
+ void onMouseEnterCheckOutLabel()	Set proceedToCheckOutLabel’s background to “#D4D4D4”
+ void onMouseExitCheckOutLabel()	Set proceedToCheckOutLabel’s background to “#FFFFFF”
+ void onMouseEnterLogOutButton()	Set logOutLabel’s background to “#D4D4D4”
+ void onMouseExitLogOutButton()	Set logOutLabel’s background to “#FFFFFF”
+ void onMouseEnterCartButton()	Set cartLabel’s background to “#D4D4D4”
+ void onMouseExitCartButton()	Set cartLabel’s background to “#FFFFFF”
+ void onMouseEnterCategoriesButton()	Set categoriesLabel’s background to “#D4D4D4”
+ void onMouseExitCategoriesButton()	Set categoriesLabel’s background to “#FFFFFF”
+ void onMouseEnterWishListButton()	Set wishlistLabel’s background to “#D4D4D4”
+ void onMouseExitWishListButton()	Set wishlistLabel’s background to “#FFFFFF”
+ void onMouseEnterUserOrdersButton()	Set userOrdersLabel’s background to “#D4D4D4”
+ void onMouseExitUserOrdersButton()	Set userOrdersLabel’s background to “#FFFFFF”

8.5.5. CategoriesPage.fxml

This fxml file is a GUI template for user’s categories page.

8.5.6. class CategoriesPageController extends UserPage

This class works collaboratively with CategoriesPage.fxml

Fields

Name	Description
@FXML - Label usernameLabel	A label for user’s username
@FXML - Label logOutLabel	A label for logging out
@FXML - Label cartLabel	A label for redicting to user’s cart
@FXML - Label categoriesLabel	A label for redicting to categories page
@FXML - Label wishlistLabel	A label for redicting to user’s wishlist page
@FXML - Label userOrdersLabel	A label for redicting to user’s orders page.
@FXML - ImageView profileAvatarIcon	A profile avatar icon
@FXML - ImageView topLeftIconLogo	A logo image
@FXML - TextField searchTextField	A textfield for product searching on top fo the page
@FXML - VBox categoriesBox	A VBox containing all categories
- <u>CategoriesPageController instance</u>	An instance of CategoriesPageController

Methods

Name	Description
+ CategoriesPageController()	Set the instance to this.
+ CategoriesPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage()	Set storeItem to the given parameter Set usernameLabel to user’s display username Set the avatar icon and logo For all 6 categories, create a categories card for each individual category. Add all of them to categoriesBox’s children
+ void userCartLabelClicked()	Call super method.
+ void returnToUserMainPage()	Call super method.
+ void onUserOrderLabelClicked()	Call super method.
+ void onWishlistLabelClicked()	Call super method.
+ void logOutLabelClicked()	Call super method.
+ void categoriesLabelClicked()	Call super method.
+ void onSearchButtonClicked()	Retieve a text from searchTextField and redirect to search page that is set with the aforementioned text.
+ void onMouseEnterLogOutButton()	Set logOutLabel’s background to “#D4D4D4”
+ void onMouseExitLogOutButton()	Set logOutLabel’s background to “#FFFFFF”

+ void onMouseEnterCartButton()	Set cartLabel’s background to “#D4D4D4”
+ void onMouseExitCartButton()	Set cartLabel’s background to “#FFFFFF”
+ void onMouseEnterCategoriesButton()	Set categoriesLabel’s background to “#D4D4D4”
+ void onMouseExitCategoriesButton()	Set categoriesLabel’s background to “#FFFFFF”
+ void onMouseEnterWishListButton()	Set wishlistLabel’s background to “#D4D4D4”
+ void onMouseExitWishListButton()	Set wishlistLabel’s background to “#FFFFFF”
+ void onMouseEnterUserOrdersButton()	Set userOrdersLabel’s background to “#D4D4D4”
+ void onMouseExitUserOrdersButton()	Set userOrdersLabel’s background to “#FFFFFF”

8.5.7. SearchPageInterface.fxml

This fxml file is a GUI template for user’s search page.

8.5.8. class SearchPageController extends UserPage

This class works collaboratively with SearchPageInterface.fxml

Fields

Name	Description
@FXML - Label usernameLabel	A label for user’s username
@FXML - Label logOutLabel	A label for logging out
@FXML	A label for redicting to user’s cart

- Label cartLabel	
@FXML - Label categoriesLabel	A label for redicting to categories page
@FXML - Label wishlistLabel	A label for redicting to user’s wishlist page
@FXML - Label userOrdersLabel	A label for redicting to user’s orders page.
@FXML - ImageView profileAvatarIcon	A profile avatar icon
@FXML - ImageView topLeftIconLogo	A logo image
@FXML - TextField searchTextField	A textfield for product searching on top fo the page
@FXML - Label searchResultAlert	A label showing what has been searched
@FXML - HBox topHBox	A HBox containing searchResultAlert and filter.
- ArrayList<StoreItem> searchStoreItems	An arraylist containing searched items
- SearchPageController instance	An instance of SearchPageController

Methods

Name	Description
+ SearchPageController()	Set the instance to this.
+ SearchPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage(String searchInput)	Set storeItem to the given parameter Set usernameLabel to user’s display username

	Set the avatar icon and logo Add a filter box by loading it from SearchFilter.fxml and add it to topHBox Set searchBox with the given parameter.
+ void setSearchBox(String searchInput)	If the searchInput is one of the six categories, set the searchResultAlert to the searchInput. Then create a card for each product which has the same genre as the input. Finally, put the card to searchBox and add an item to searchStoreItems. In case the search input is not one of the search, for every product there is, if the product's author or title contains searchInput, then create a card for each one and put the card to searchBox. Finally, add an item to searchStoreItems.
+ void setSearchBoxByArrayList(ArrayList<StoreItem> storeItems)	Clear the searchBox's children, except the topHBox and the separator. Then create a search card for every product in the given

	parameter, and add the card to searchBox
+ ArrayList<StoreItem> getSearchedStoreItems()	Return searchedStoreItems
+ void userCartLabelClicked()	Call super method.
+ void returnToUserMainPage()	Call super method.
+ void onUserOrderLabelClicked()	Call super method.
+ void onWishlistLabelClicked()	Call super method.
+ void logOutLabelClicked()	Call super method.
+ void categoriesLabelClicked()	Call super method.
+ void onSearchButtonClicked()	Retieve a text from searchTextField and redirect to search page that is set with the aforementioned text.
+ void onMouseEnterLogOutButton()	Set logOutLabel's background to "#D4D4D4"
+ void onMouseExitLogOutButton()	Set logOutLabel's background to "#FFFFFF"
+ void onMouseEnterCartButton()	Set cartLabel's background to "#D4D4D4"
+ void onMouseExitCartButton()	Set cartLabel's background to "#FFFFFF"
+ void onMouseEnterCategoriesButton()	Set categoriesLabel's background to "#D4D4D4"
+ void onMouseExitCategoriesButton()	Set categoriesLabel's background to "#FFFFFF"
+ void onMouseEnterWishListButton()	Set wishlistLabel's background to "#D4D4D4"
+ void onMouseExitWishListButton()	Set wishlistLabel's background to "#FFFFFF"
+ void onMouseEnterUserOrdersButton()	Set userOrdersLabel's background to "#D4D4D4"

+ void onMouseExitUserOrdersButton()	Set userOrdersLabel's background to "#FFFFFF"

8.5.9. UserMainPageInterface.fxml

This fxml file is a GUI template for user's main page.

8.5.10. class UserMainPageController extends UserPage

This class works collaboratively with UserMainPageInterface.fxml

Fields

Name	Description
@FXML - Label usernameLabel	A label for user's username
@FXML - Label logOutLabel	A label for logging out
@FXML - Label cartLabel	A label for redicting to user's cart
@FXML - Label categoriesLabel	A label for redicting to categories page
@FXML - Label wishlistLabel	A label for redicting to user's wishlist page
@FXML - Label userOrdersLabel	A label for redicting to user's orders page.
@FXML - ImageView profileAvatarIcon	A profile avatar icon
@FXML - ImageView topLeftIconLogo	A logo image
@FXML - HBox newArrivalsPane	A HBox containing new arrival products

@FXML - GridPane recommendedItemsPane	A GridPane containing a maximum of 18 products denoted as recommended items
@FXML - TextField searchTextField	A textfield for product searching on top fo the page
- UserMainPageController instance	An instance of UserMainPageController

Methods

Name	Description
+ UserMainPageController()	Set the instance to this.
+ UserMainPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage()	Set storeItem to the given parameter Set usernameLabel to user’s display username Set the avatar icon and logo Set new arrivals and recommended items.
+ void setNewArrivals()	For every product denoted as new arrival, create a new arrival card for them and put in newArrivalPane.
+ void setRecommendedItems()	For every product denoted as recommended, create a recommended item card for them and put in recommendedItemPane.

+ void userCartLabelClicked()	Call super method.
+ void onUserOrderLabelClicked()	Call super method.
+ void onWishlistLabelClicked()	Call super method.
+ void logOutLabelClicked()	Call super method.
+ void categoriesLabelClicked()	Call super method.
+ void onSearchButtonClicked()	Retieve a text from searchTextField and redirect to search page that is set with the aforementioned text.
+ void onMouseEnterLogOutButton()	Set logOutLabel's background to "#D4D4D4"
+ void onMouseExitLogOutButton()	Set logOutLabel's background to "#FFFFFF"
+ void onMouseEnterCartButton()	Set cartLabel's background to "#D4D4D4"
+ void onMouseExitCartButton()	Set cartLabel's background to "#FFFFFF"
+ void onMouseEnterCategoriesButton()	Set categoriesLabel's background to "#D4D4D4"
+ void onMouseExitCategoriesButton()	Set categoriesLabel's background to "#FFFFFF"
+ void onMouseEnterWishListButton()	Set wishlistLabel's background to "#D4D4D4"
+ void onMouseExitWishListButton()	Set wishlistLabel's background to "#FFFFFF"
+ void onMouseEnterUserOrdersButton()	Set userOrdersLabel's background to "#D4D4D4"
+ void onMouseExitUserOrdersButton()	Set userOrdersLabel's background to "#FFFFFF"

8.5.11. UserOrderPage.fxml

This fxml file is a GUI template for user's order page.

8.5.12. class UserOrderPageController extends UserPage

This class works collaboratively with UserOrderPage.fxml

Fields

Name	Description
@FXML - Label usernameLabel	A label for user's username
@FXML - Label logOutLabel	A label for logging out
@FXML - Label cartLabel	A label for redicting to user's cart
@FXML - Label categoriesLabel	A label for redicting to categories page
@FXML - Label wishlistLabel	A label for redicting to user's wishlist page
@FXML - Label userOrdersLabel	A label for redicting to user's orders page.
@FXML - ImageView profileAvatarIcon	A profile avatar icon
@FXML - ImageView topLeftIconLogo	A logo image
@FXML - VBox ordersBox	A VBox containing user's orders
@FXML - TextField searchTextField	A textfield for product searching on top fo the page
- UserOrderPageController instance	An instance of UserOrderPageController

Methods

Name	Description
+ UserOrderPageController()	Set the instance to this.

+ UserOrderPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage()	Set storeItem to the given parameter Set usernameLabel to user’s display username Set the avatar icon and logo Set order box
+ void setOrdersBox()	For all user’s order, create an order card for each of them and add them to ordersBox.
+ void userCartLabelClicked()	Call super method.
+ void returnToUserMainPage()	Call super method.
+ void onWishlistLabelClicked()	Call super method.
+ void logOutLabelClicked()	Call super method.
+ void categoriesLabelClicked()	Call super method.
+ void onSearchButtonClicked()	Retieve a text from searchTextField and redirect to search page that is set with the aforementioned text.
+ void onMouseEnterLogOutButton()	Set logOutLabel’s background to “#D4D4D4”
+ void onMouseExitLogOutButton()	Set logOutLabel’s background to “#FFFFFF”
+ void onMouseEnterCartButton()	Set cartLabel’s background to “#D4D4D4”
+ void onMouseExitCartButton()	Set cartLabel’s background to “#FFFFFF”

+ void onMouseEnterCategoriesButton()	Set categoriesLabel's background to "#D4D4D4"
+ void onMouseExitCategoriesButton()	Set categoriesLabel's background to "#FFFFFF"
+ void onMouseEnterWishListButton()	Set wishlistLabel's background to "#D4D4D4"
+ void onMouseExitWishListButton()	Set wishlistLabel's background to "#FFFFFF"
+ void onMouseEnterUserOrdersButton()	Set userOrdersLabel's background to "#D4D4D4"
+ void onMouseExitUserOrdersButton()	Set userOrdersLabel's background to "#FFFFFF"

8.5.13. WishlistPage.fxml

This fxml file is a GUI template for user's wishlist page.

8.5.14. class WishlistPageController extends UserPage

This class works collaboratively with WishlistPage.fxml

Fields

Name	Description
@FXML - Label usernameLabel	A label for user's username
@FXML - Label logOutLabel	A label for logging out
@FXML - Label cartLabel	A label for redicting to user's cart
@FXML - Label categoriesLabel	A label for redicting to categories page
@FXML - Label wishlistLabel	A label for redicting to user's wishlist page

@FXML - Label userOrdersLabel	A label for redicting to user’s orders page.
@FXML - ImageView profileAvatarIcon	A profile avatar icon
@FXML - ImageView topLeftIconLogo	A logo image
@FXML - VBox wishlistBox	A VBox containing user’s wishlist
@FXML - TextField searchTextField	A textfield for product searching on top fo the page
- WishlistPageController instance	An instance of WishlistPageController

Methods

Name	Description
+ WishlistPageController()	Set the instance to this.
+ WishlistPageController getInstance()	If the instance is null, set it to this. Return instance.
+ void setPage()	Set storeItem to the given parameter Set usernameLabel to user’s display username Set the avatar icon and logo Reload wishlist box.
+ VBox getWishlistBox()	Return wishlistBox
+ void reloadWishlistBox	For all products in user’s wishlist, create a wishlist card for them and add them to wishlistBox.

+ void userCartLabelClicked()	Call super method.
+ void returnToUserMainPage()	Call super method.
+ void onUserOrderLabelClicked()	Call super method.
+ void logOutLabelClicked()	Call super method.
+ void categoriesLabelClicked()	Call super method.
+ void onSearchButtonClicked()	Retieve a text from searchTextField and redirect to search page that is set with the aforementioned text.
+ void onMouseEnterLogOutButton()	Set logOutLabel’s background to “#D4D4D4”
+ void onMouseExitLogOutButton()	Set logOutLabel’s background to “#FFFFFF”
+ void onMouseEnterCartButton()	Set cartLabel’s background to “#D4D4D4”
+ void onMouseExitCartButton()	Set cartLabel’s background to “#FFFFFF”
+ void onMouseEnterCategoriesButton()	Set categoriesLabel’s background to “#D4D4D4”
+ void onMouseExitCategoriesButton()	Set categoriesLabel’s background to “#FFFFFF”
+ void onMouseEnterWishListButton()	Set wishlistLabel’s background to “#D4D4D4”
+ void onMouseExitWishListButton()	Set wishlistLabel’s background to “#FFFFFF”
+ void onMouseEnterUserOrdersButton()	Set userOrdersLabel’s background to “#D4D4D4”
+ void onMouseExitUserOrdersButton()	Set userOrdersLabel’s background to “#FFFFFF”