Misr University for Science & Technology

College of Information Technology

Computer Science Department

CS341 (Sec: C)

Project Title: Furniture Store System

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1.1 System Domain

The Furniture Store System is designed to facilitate users' online purchase of furniture products. It includes a user-friendly interface for browsing various furniture items, managing user accounts, making purchases, and handling order fulfilment. Customers browse the website, search for furniture, add items to the shopping cart, and make purchases. Administrators or managers are responsible for overseeing and maintaining the system.

In addition to providing a seamless online purchasing experience, the Furniture Store System incorporates robust inventory management functionality. This aspect ensures that the online catalog is synchronized with the physical stock, preventing discrepancies and inaccuracies. Inventory management includes tracking product availability, managing restocks, and updating the online platform in real-time. This feature is crucial for maintaining a reliable and up-to-date representation of the available furniture products, ultimately contributing to customer satisfaction and operational efficiency.

Furthermore, the system includes a secure user authentication and account management system. This allows customers to create accounts, store their preferences, track order histories, and receive personalized recommendations. User accounts not only enhance the shopping experience but also contribute to the implementation of targeted marketing strategies. Additionally, the system ensures the security of sensitive user data, employing encryption and authentication protocols to safeguard personal information, thereby instilling trust in the online platform.

1.2 Requirements Specifications

Glossary

Term	Definition
Admin	The admin is the one who owns the system and has no restrictions to do anything, and he is responsible for it.

User	The user is the person who as access to the system but as a customer and doesn't have any access to the main system as the admin.
Shipping company	The shipping company are the people who delivers the product that we provide to the user and as known the will have access but for their part only to add information and update it as well.

Table 1.1: Glossary

1.2.2 Functional Requirements Specification

- User can add items to shopping cart to proceed for purchase.
- User must add payment method to complete the purchase.
- User must have an account for the system to store the information.
- User must add his information as the phone number/email address/name/age/address/payment method.
- User can manage their profile.
- User can make a checkout.
- User can add, view, edit and delete items from the cart.
- System must accept and verify each user.
- System must send an email to the user to arrange the shipping process.
- Administrator can view/remove users from the system.
- Administrator can add, delete or edit products.
- Administrator can manage the backup-restore data for the products.
- Administrator can cancel an order if needed.

1.2.3 Non-Functional Requirements

- System should be secured.
- The system should be easy without any complications for the process or the interface.
- The system should be fast and responsive.

- System should be designed to serve a minimum of 10,000 users at the same time.
- System should be updated or compatible with new versions as soon as possible.
- System should have regular automated backup process from time to time.
-The system should be easily scalable to accommodate a 20% increase in the number of products and users within the next two years.

-System shall have a 99.9% uptime over a 30-day period, excluding scheduled maintenance.

-User authentication shall follow industry best practices, including strong password policies and secure transmission of sensitive information.

-System shall have built-in performance monitoring tools to track key metrics such as response time, error rates, and system resource usage.

1.3 Unified Modeling Language (UML)

1.3.1 Use case modeling.

1.3.1.1 Use case description.

1. User Register:

Function	Register user
Description	User inputs information to register and to be able to add and remove items to the cart and purchase products from the website.
Input	User will fill his personal information: First Name, Last Name, Mobile Number, Home telephone number, Work Telephone Number, Fax, E-mail (for login and to contact this user through), password, date of birth, occupation, nationality, and gender.
Output	If the process is valid, the user will see successful message, and if the process not valid, the user will see error message tell him the wrong data which he entered.
Action	If the user is a new user, he can register in the website. The website displays a registration page and asks the user to enter personnel information (first name, last name, and phone number, email address and password) and then confirm his password and select the security question then he answers it and finally write the spam characters. admin will confirm registration. If there is invalid information the

	system will not complete the registration and will display a warning message telling the user to modify the information.
Pre-condition	A database to save the credentials
Post condition	Account activation and email validation from user

2. Log in:

Function	Log in
Description	User inputs his username and password if he's registered
Input	Input username, email address and password
Output	If the credentials are right, the user will pass to the next page, if they were wrong, the user will get an error message
Action	The user (User/Admin) can login to the website by entering his email address and password. The system will verify that the email address existed in the database and matches the login password. If they do not match, an error message will be shown, asking the user to correct his information. Then the user/company user can access his account.
Pre-condition	- A Connected database - A registered and activated user account.
Post condition	Browse the website

3. Log out:

Function	Logout
Description	Registered user when they want to close the session with the website, then click logout
Input	Click on logout button
Output	Redirect to another page contains message said the user logged out and the session is expired.
Action	Users or admin can log out from the website by clicking on the logout button.
Pre-condition	Successfully Login.
Post condition	None

4. Add item (Admin)

Function	Add item
Description	The admin user can add new item for sale to the website
Input	Enter the new Item Details (name, color, price, photos….)
Output	Returns message (Your data successfully updated) and views it.
Action	The admin can add a new product and describe this product in detail like name, color, price, photos, dimensions, material, available in which branch and quantity.
Pre-condition	Successfully logged in

Post condition	The new entered product will be available for all users

5. Activate account

Function	**Activate account**
Description	After successfully registration process the user will receive activation Email
Input	Only click the activation link
Output	Message (Your account Successfully activated)
Action	After successfully registration Process the user will receive Activation Email, he should go to his Email and click the activation link to activate his account, and if not clicked within 3 days, the account will be canceled and deleted from the database
Pre-condition	Successfully registration
Post condition	Account activated

6. Edit item (Admin):

Function	Edit item
Description	The admin user can edit an existing item for sale in the website.
Input	Enter the new Item Details (name, color, price, photos….)
Output	Returns message (Your data successfully updated) and views it.
Action	The admin can edit an existing product and describe this product in detail like name, color, price, photos, dimensions, material, available in which branch and quantity.
Pre-condition	Successfully Login and previous products were added to his account to be updated
Post condition	Message that the new information successfully saved

7.Delete item (admin):

Function	Delete item
Description	The admin user can delete items from the website.
Input	Enter the new Item Details (name, color, price, photos….)
Output	Returns message (Your data successfully updated) and views it.
Action	The admin can delete an existing product
Pre-condition	Successfully Login and previous products were added to his account to be updated
Post condition	Message that the new information successfully saved

8.Update User Information

Function	Update Information
Description	Any user can view to his own profile and update any of his Information
Input	Enter the new updated data
Output	Message “Your Data Successfully Updated”
Action	After successfully login process the user will click on (Update Profile) the system will display the information to be updated and the user enter the new data.
Pre-condition	Successfully login
Post condition	A message to tell the user that his data is updated successfully. or Login again if update username or password

9 .Browse product

Function	Browse product
Description	Any user can view any of the products.
Input	None
Output	Browse Information of all products
Action	Users can view products details (description, photos, and models) according to categories.
Pre-condition	Connected database and Existing Products
Post condition	Items displayed by the system

10.Search items

Function	Search items
Description	Users can search on any of the saved products.
Input	Type the required Item
Output	Browse all products that are related to the keyword entered.
Action	Users will be able to search for anything in the system database by typing any keyword in a search textbox then the system will return the matched items or a message.
Pre-condition	None
Post condition	The result of search or perform for new search

11.Add product:

Function	Add product
Description	The user can select and add the products to the cart to buy it.
Input	Click on the add-to-cart button which appears at the bottom of every product.
Output	The cart will increase by the selected products in the header of the page

Action	The user can select any product from the cart to buy it.
Pre-condition	The user must be logged in first to be able to add the product to the cart
Post condition	Send e-mail to the user and the company users to make the communications and to arrange the way of paying and delivering the products

12.Delete product:

Function	Delete product
Description	Any user can delete product from shopping cart
Input	Type product to be removed
Output	product removed from shopping cart
Action	Users able to remove items from Shopping cart, that may be added by mistake
Pre-condition	There are products in Shopping cart
Post condition	product deleted

13.View Cart:

Function	View Cart
Description	The user can view his added products by clicking on the view shopping cart button in the header of the home page on the website.
Input	Click on the view shopping cart button in the header of the home page on the website.
Output	Redirect to shopping cart page which contains the selected products
Action	The user will be able to view his added products by clicking on the view shopping cart button in the header of the home page on the website.
Pre-condition	The user must be logged in first and select any product
Post condition	None

14.Add Address:

Function	Add address
Description	The user will add the shipping address to be saved into his account before making a purchase, which is needed by the shipping company to use to send the user the product
Input	Before making the purchase, the user will input the shipping address which contains the street, area, city, and country
Output	A message will be shown (Address saved successfully)

Action	The user will be able to buy products from the website now that they added an address to their account, now the products they buy will be sent to their home address.
Pre-condition	The user must be logged. Account must be activated
Post condition	The user can buy products from the website.

15.Add Payment

Function	Add Payment
Description	The user can add a payment card (credit card, visa, ..).
Input	Click on the payment button on the website and add payment information
Output	Check validation for payment card
Action	The user will be able to add payment card and website will validation payment information
Pre-condition	The user must be logged to the website
Post condition	Payment information added

16.Checkout items

Function	Checkout items
Description	The user can check out by click on the checkout button
Input	List of added items at the cart.
Output	Orders will be sent to the user.
Action	When the user finishes shopping, he requests to checkout. The user is given the option to edit, add or delete any of the items included in the order. And verify the user information, and then an email will be sent to the company with all the details of the requested items and the user information.
Pre-condition	- User must be logged in first. - Account must be activated - Items must be added first to the shopping cart.
Post condition	The checked-out items will be deleted from the cart.

17.Return product

Function	Return product
Description	The user will return product that be shipped to him
Input	The user buy product and shipped to him
Output	A message will be shown (return order requested successfully)

Action	The user will be able to buy products from the website and able to return the product if is wrong item or issues with 14 days (about 2 weeks) with free fees
Pre-condition	The user must be logged. The user must have issues with product or wrong product
Post condition	The shipping company will return product to warehouse

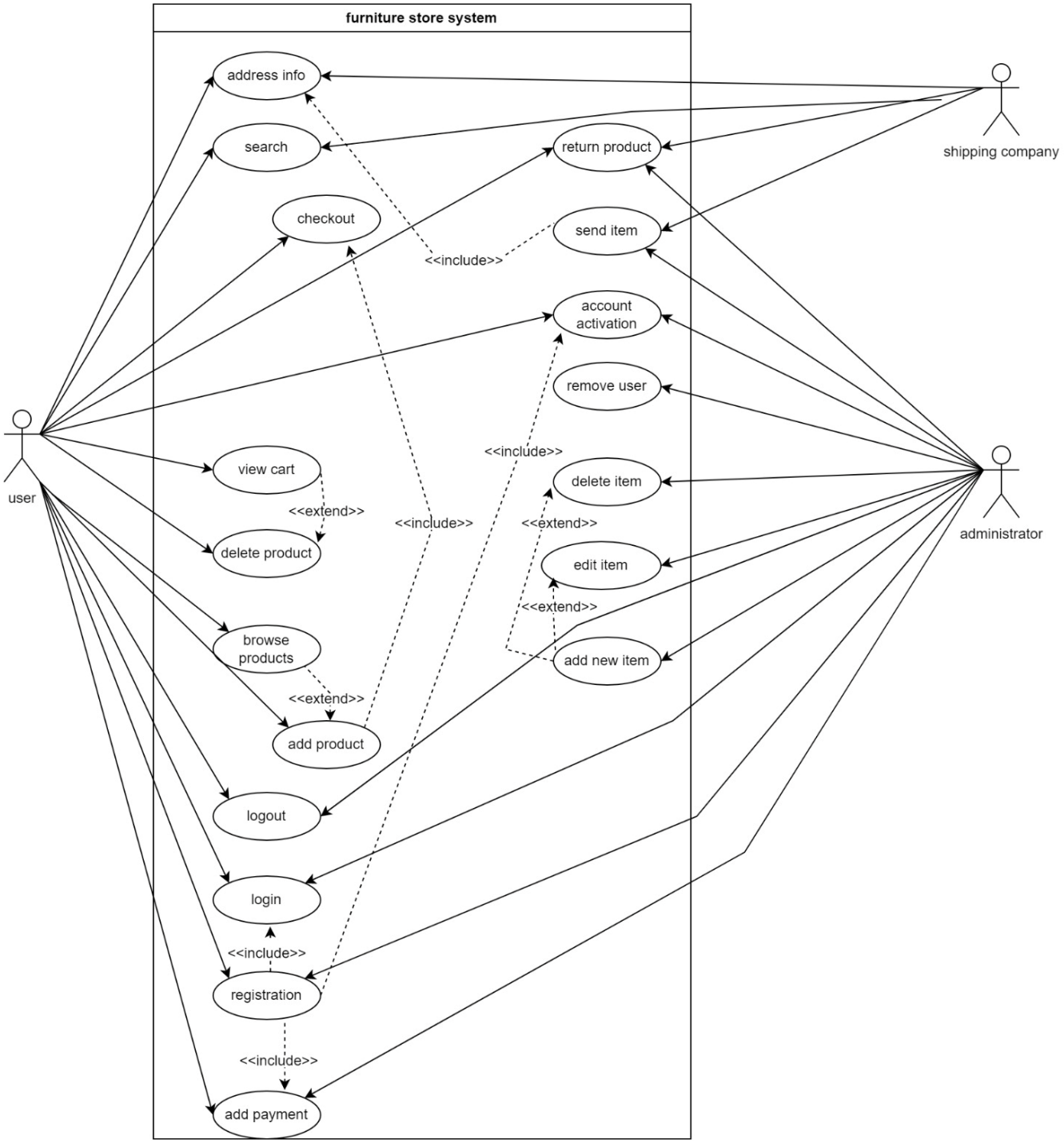
18.Delete User (Administrator)

Function	Delete user
Description	The administrator can remove any user whatever a user or a company user.
Input	Search for the user and click on remove button
Output	Check validation for payment card
Action	The administrator can remove any user and he will see a confirmation message before the removal process, after that he chooses to go through with it or cancel, so if he chooses to proceed the user is removed and if he chooses to cancel the operation will be aborted.
Pre-condition	The administrator must be logged in and the user must be registered in the database.
Post condition	Confirmation message before the removal process.

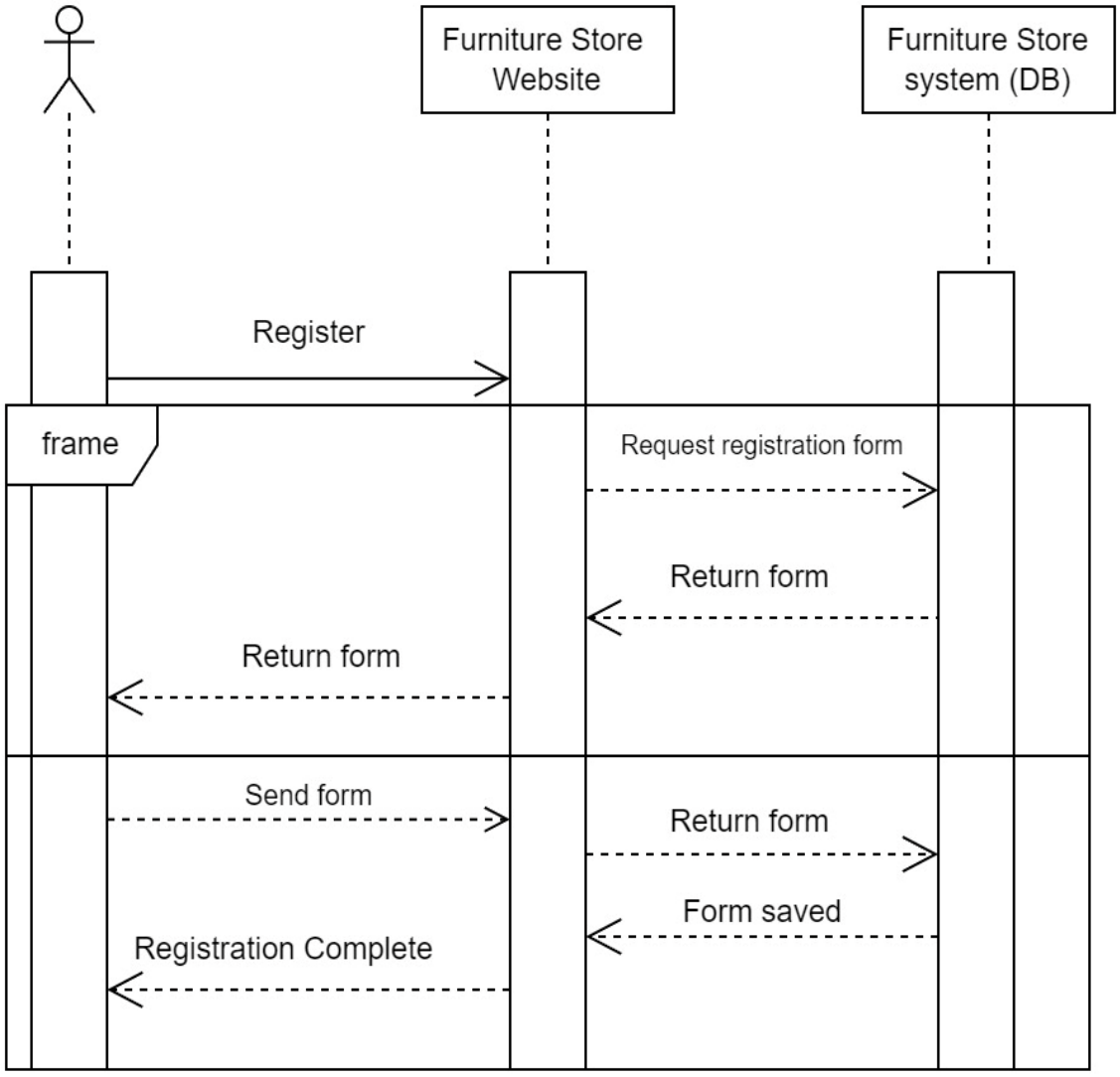
19.Send product

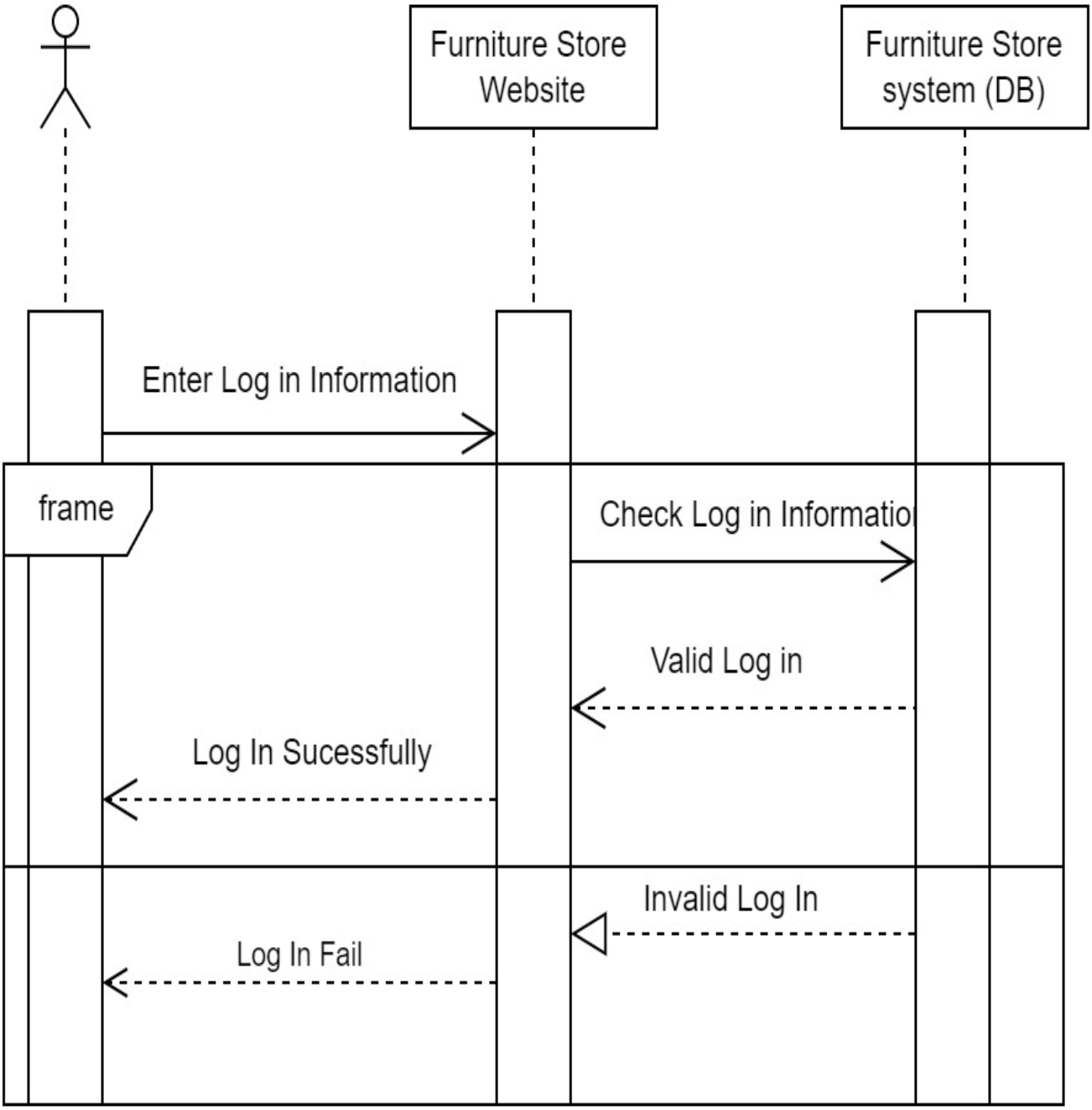
Function	Send product
Description	The system send order to shipping company to ship the order
Input	The user buy product
Output	A message will be shown (order submitted successfully)
Action	The user will be able to buy products from the website and website will send ored to Shipping company to ship orde
Pre-condition	The user must be logged. The user must buy product
Post condition	The shipping company will ship product to user

1.4 Use Case Diagram

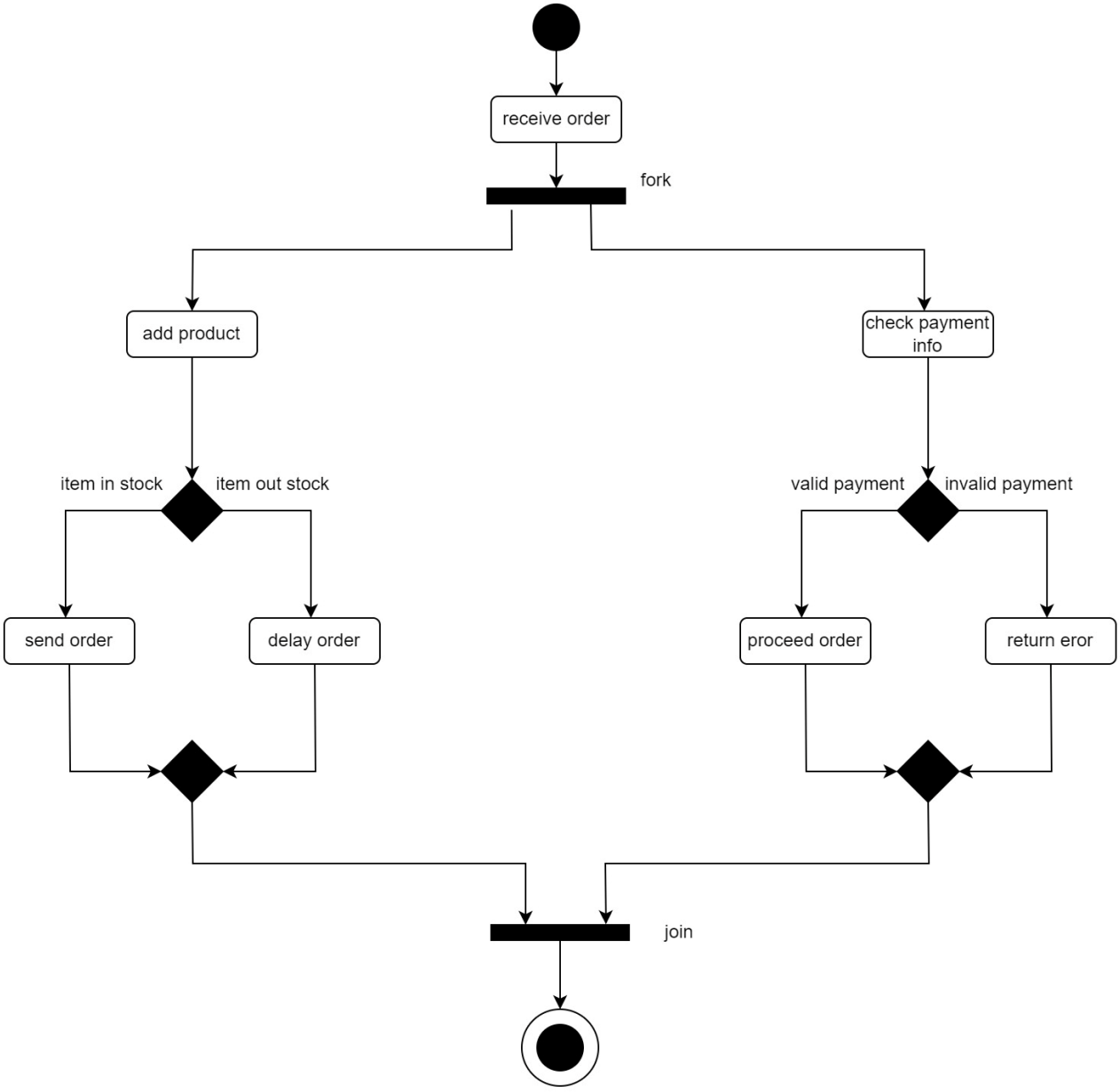
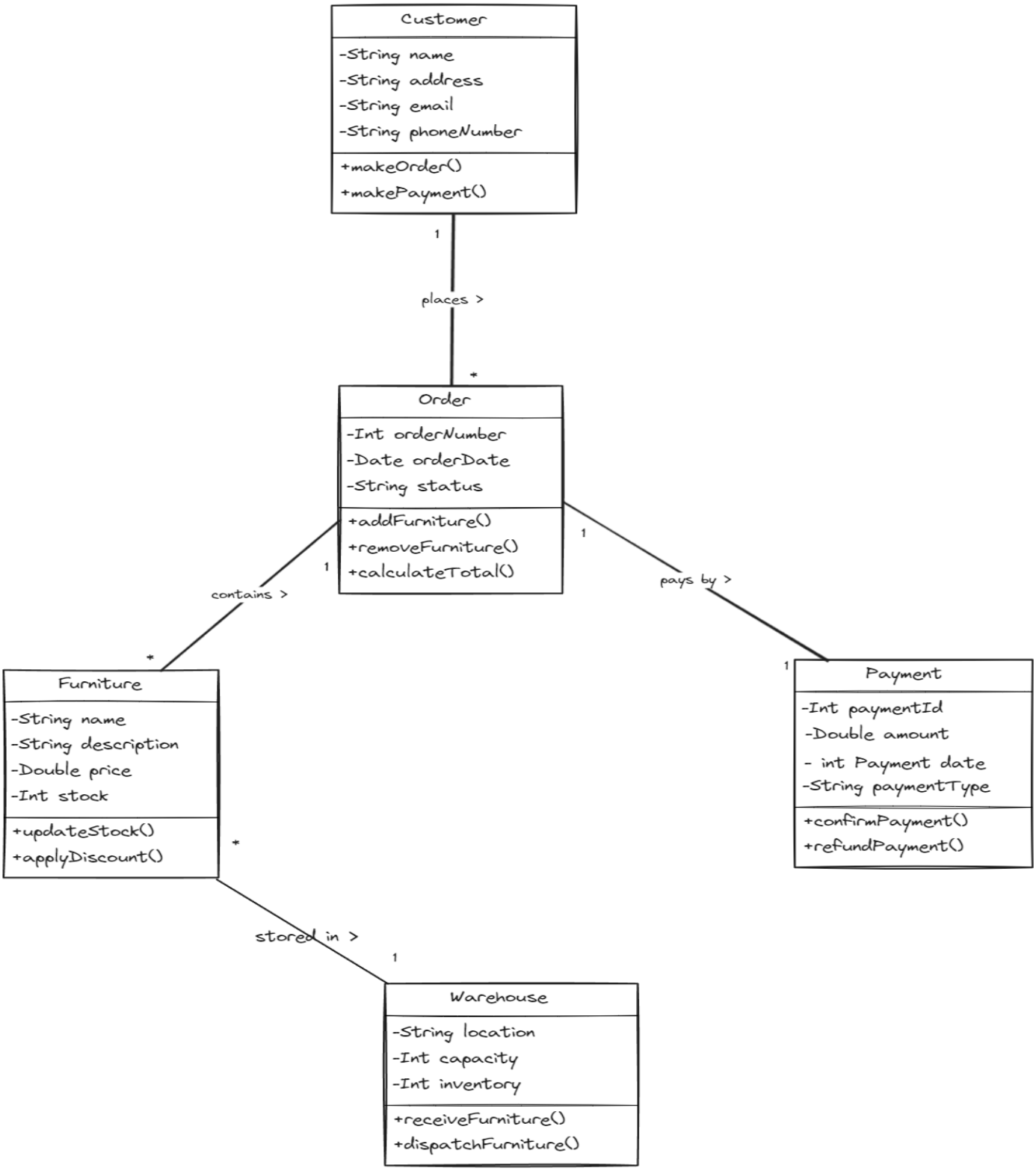


1.5 Sequence Diagram




Furniture Store Website
Furniture Store system (DB)
Enter Log in Information
frame
Check Log in Informatio
Valid Log in
Log In Sucessfully
Invalid Log In
Log In Fail

1.6 Activity Diagram



1.7 Class Diagram