



## CS319 - Object Oriented Software Engineering

### D2: Sequence/Activity/Class/State Diagrams/Mockups

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## 1. Class Diagram

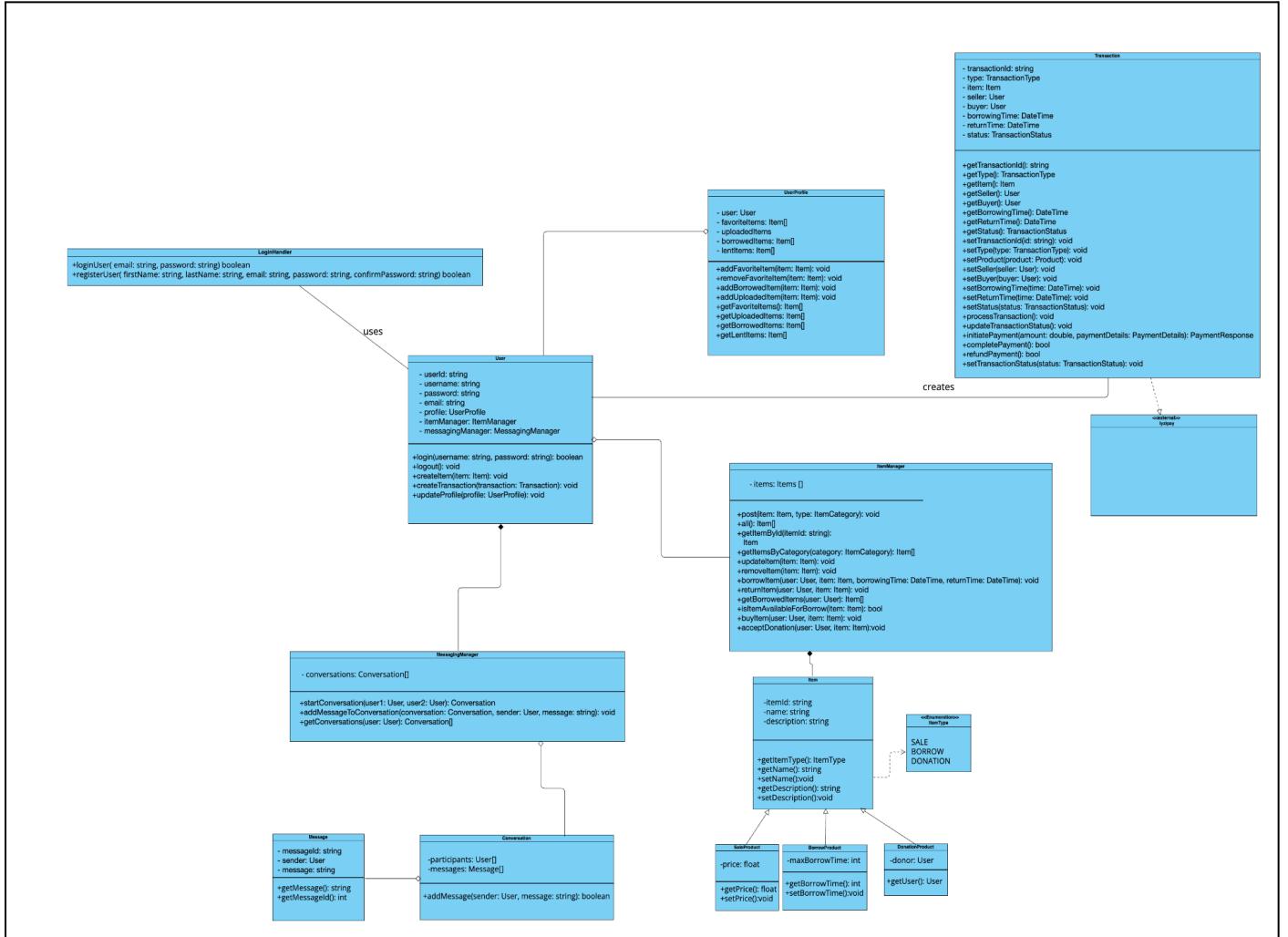


Fig. 1: Class Diagram

**User:** The User class represents the various users within the CampusConnect platform. It contains essential attributes such as user IDs, usernames, passwords, emails, and user profiles. Users can log in, create items, initiate transactions, and send messages. It serves as the base class for different user roles in the system.

**Item:** Item is an abstract class representing various types of items that users can post or interact with within CampusConnect. It includes shared attributes like item IDs and names. Specific item types, such as sale, borrow, and donation items, extend this class.

**ItemType:** ItemType is an enumeration class representing the different categories or types of items within CampusConnect, including sale, borrow, and donation.

**SaleItem:** SaleItem represents items available for sale. It inherits from the Item class and adds specific attributes and methods related to sale items.

**BorrowItem:** BorrowItem represents items available for borrowing. It extends the Item class and includes attributes for maximum borrow time and availability status for borrowing.

**DonationItem:** DonationItem represents items offered as donations. It extends the Item class and includes information about the donor.

**ItemManager:** ItemManager is responsible for handling item-related operations. Users can post items, view all items, get items by category, update and remove items, borrow and return items, buy items, and accept donations. It plays a crucial role in managing the items available within the platform.

**Transaction:** Transaction represents interactions between users and items. It includes information like transaction IDs, transaction types, associated items, users (sellers and buyers), borrowing and return times, and transaction statuses. Transactions can be processed, updated, initiated with payments, and finalized.

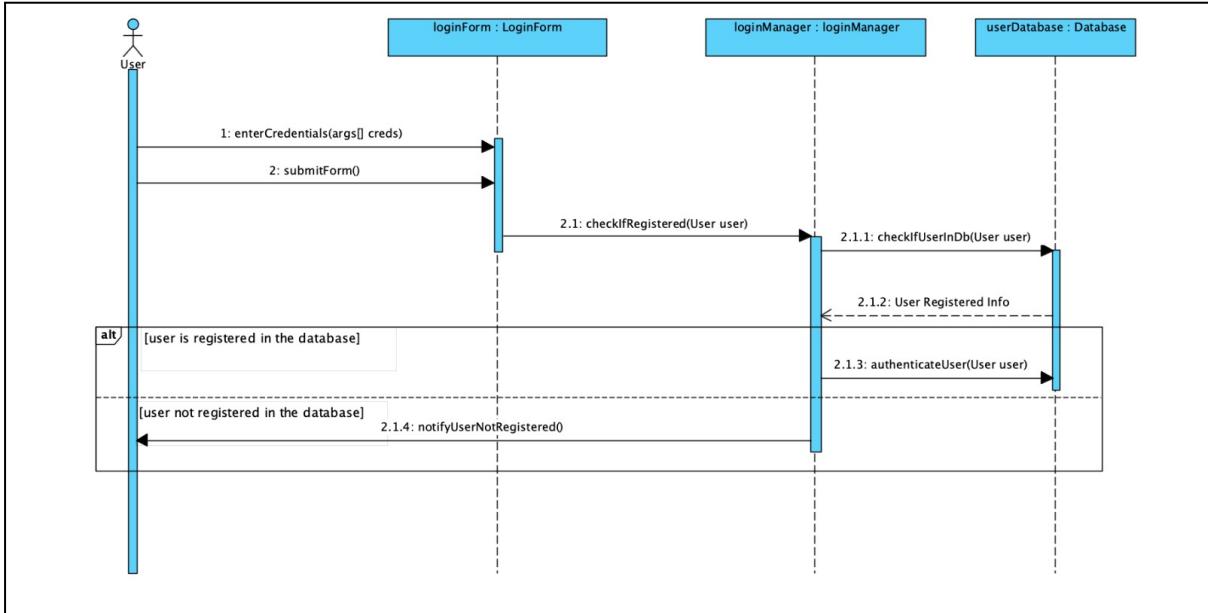
**UserProfile:** UserProfile contains user-specific information, including favorite items, uploaded items, borrowed items, and sales status. Users can add and manage items in their favorites, track their uploaded and borrowed items, and view their sales status.

**MessagingService:** MessagingService handles user conversations and messages. Users can start conversations, add messages to conversations, and retrieve their conversations. It facilitates real-time communication within the platform.

**Conversation:** The Conversation class represents individual communication threads between users. It contains participants and messages. Users can add participants and messages to conversations.

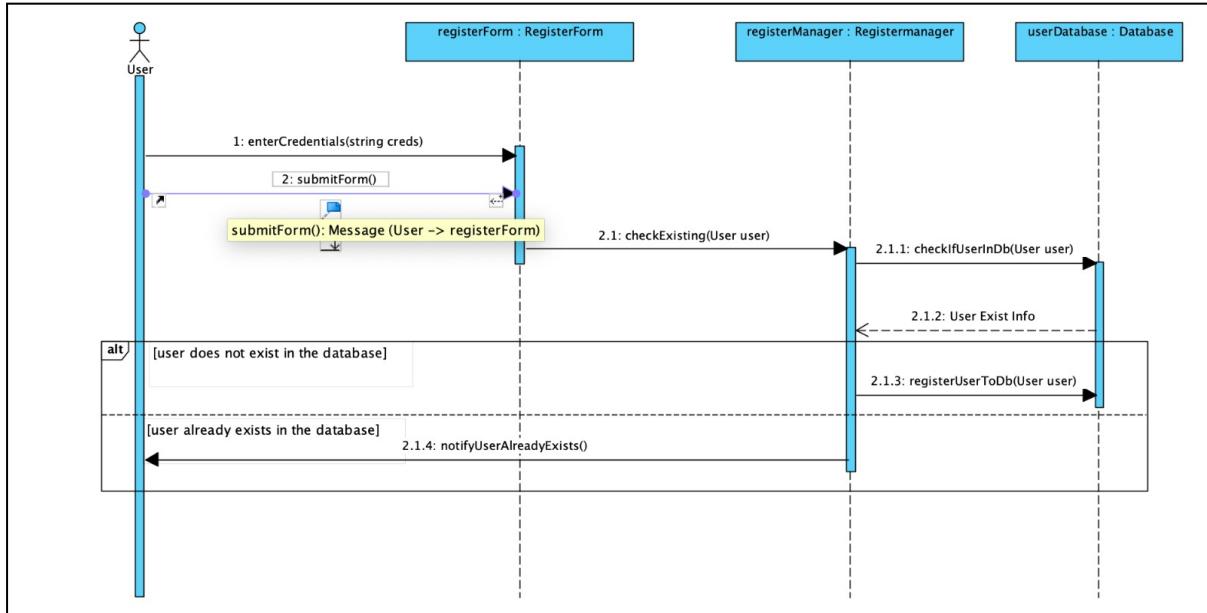
**Message:** The Message class represents individual messages within a conversation. It includes a message ID, sender, and message content. Messages are exchanged within conversations.

## 2. Sequence Diagrams



*Fig. 2: Sequence Diagram for Login Functionality*

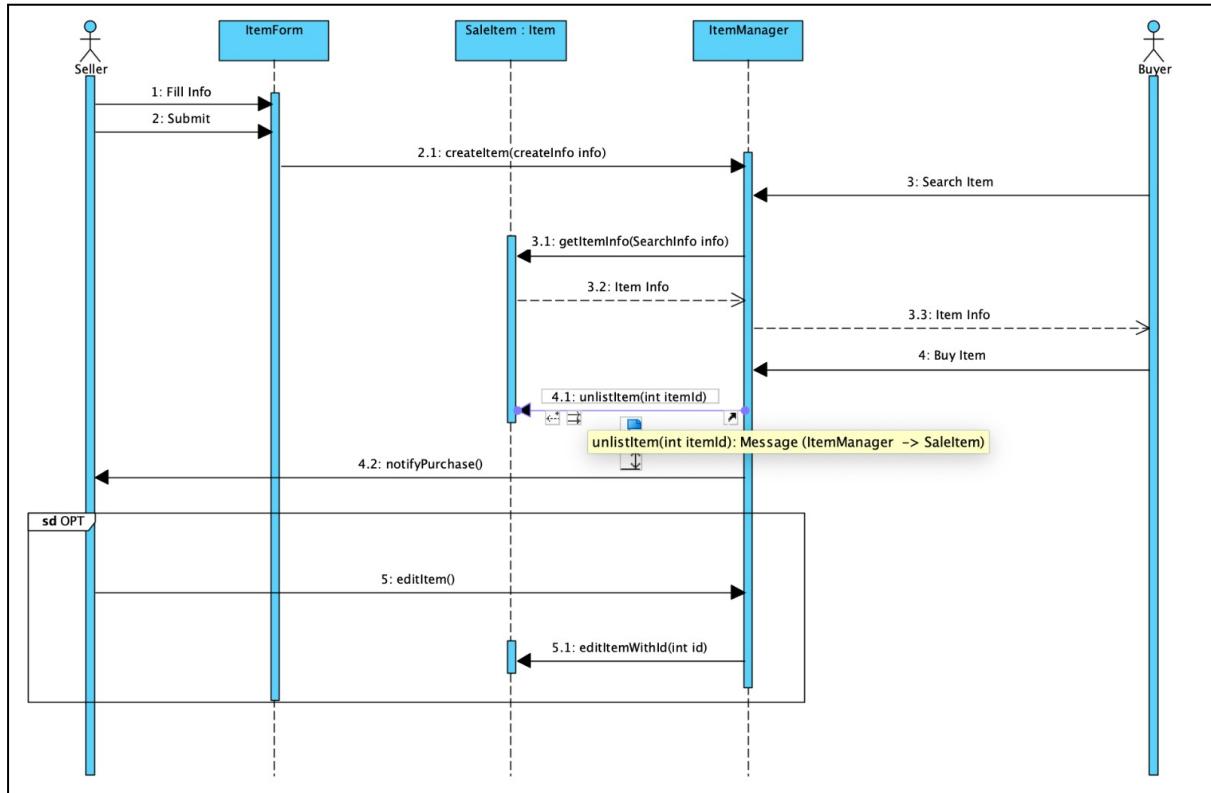
A user will first enter their information into the login form and submit it. This information will then be sent to the database to be compared, to see if such a user is already registered. If the user has been registered before, the user will be authenticated and logged into the application. If no registry can be found, an error will be displayed urging the user to register first.



*Fig. 3: Sequence Diagram for Register Functionality*

A user will first enter their information into the register form and submit it. This information will then be sent to the database to be compared, to see if such a user already exists. If so, an

error will be displayed saying that such a user already is registered. If not, the user and their credentials will be registered into the database.



*Fig. 4: Sequence Diagram for Buy-Sell Functionality*

A seller can fill an item form and submit it for sale, which will create a sale listing. Buyers can search listings, and can click the buy button on any listing they wish to purchase. After a buyer presses the Buy button, the listing will be unlisted and the seller will be notified of the purchase. Additionally, sellers can also edit or delete listings if they choose to do so from their own listings.

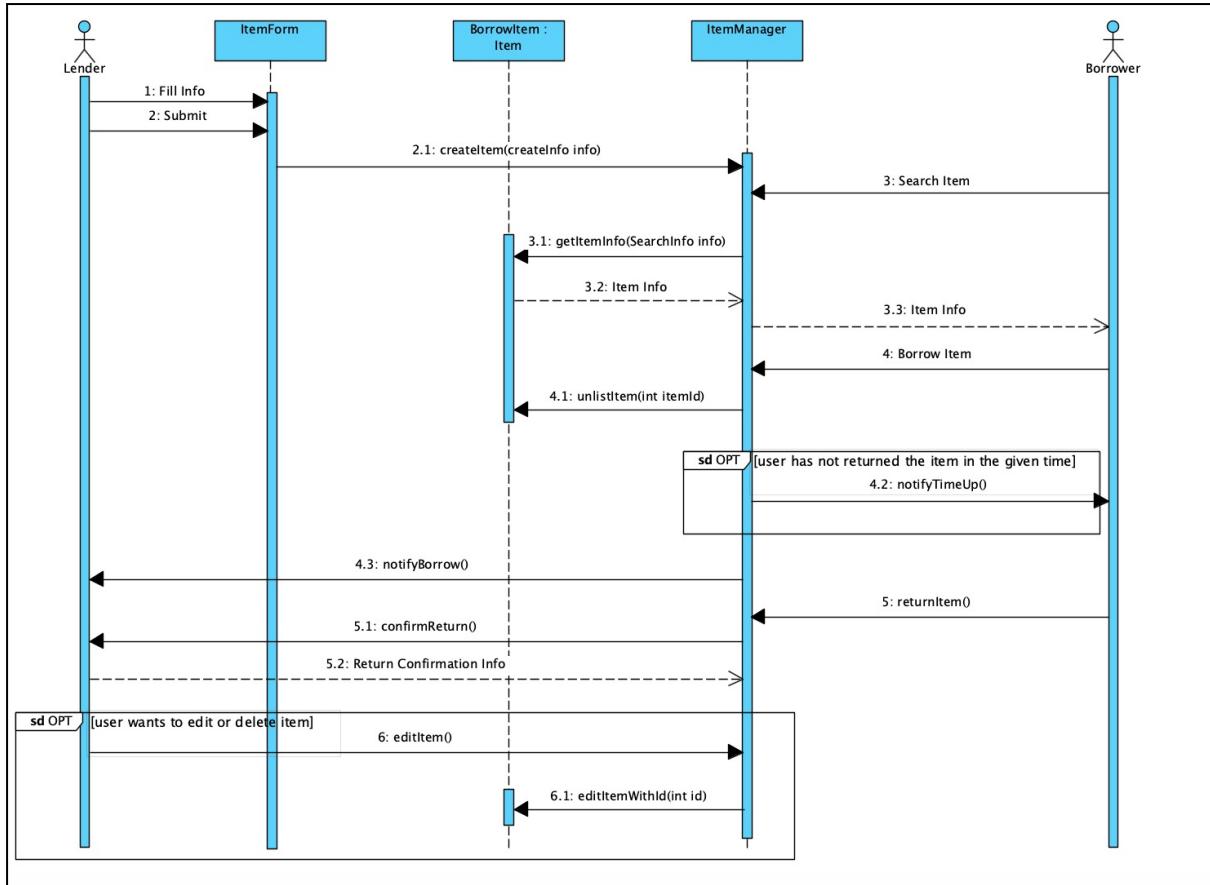


Fig. 5: Sequence Diagram for Lend-Borrow Functionality

A lender can fill an item form and submit it for borrowing , which will create a borrow listing. Borrowers can search listings, and can click the Borrow button on any listing they wish to borrow. After a borrower presses the Borrow button, the listing will be unlisted and the lender will be notified of the action. Additionally, lenders can also edit or delete listings if they choose to do so from their own listings. When the return date for the item comes and if the borrower still has not returned the item, they will be automatically notified. Upon the return of the item, the borrower can press the Return button on the listing, which will ask for a confirmation from the Lender to authenticate safe item returns.

### 3. Activity Diagrams

#### 3.1. Activity Diagram for Buying and Selling an Item

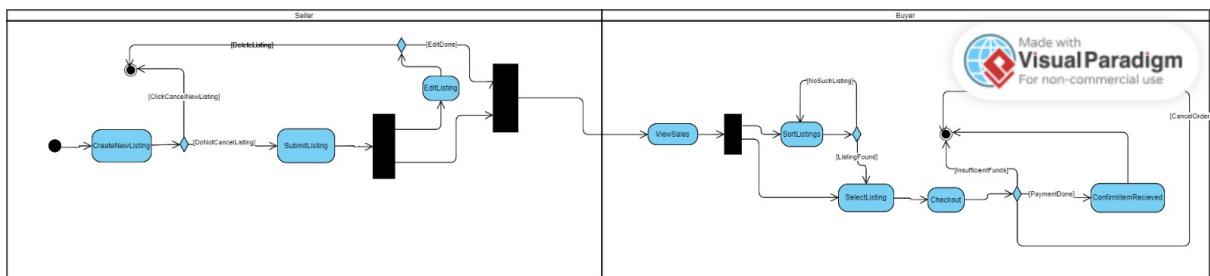


Fig. 6: Activity diagram for buying and selling function.

Seller users can create new listings(and submit it) and edit or remove their old listings(if they exist) from the "Create New Item" panel or "My Listings" panel respectively. The buyer users can view and browse the listing of other users, and filter their search. If the buyer finds something they want to purchase they can select the item they wish to purchase and after payment is received using our "Money Transaction" module mentioned above the buyer and seller will be messaging each other to set a time to give and receive the item respectively. After confirmation of the item exchange the process will be completed and the listing of the item will be removed from the "Sell & Buy" module.

### 3.2. Activity Diagram for Donating and Receiving an Item

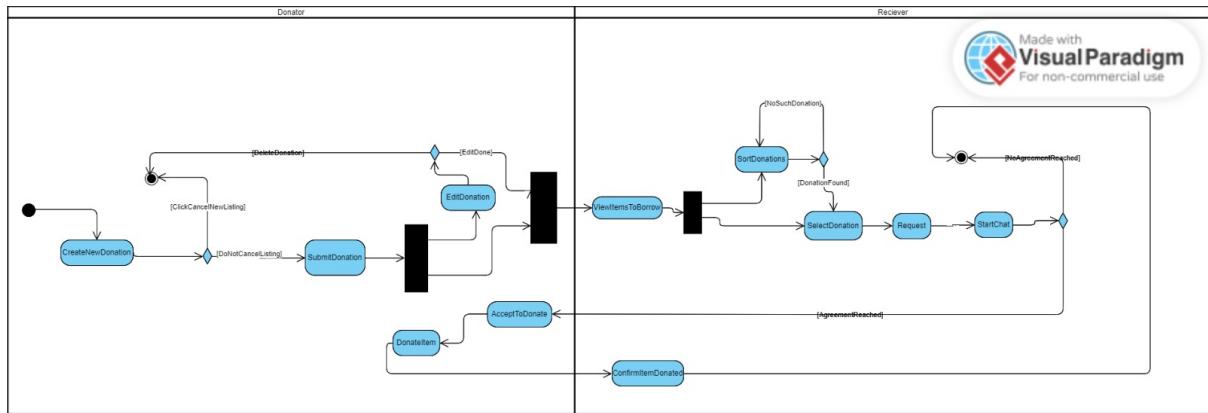


Fig. 7: Activity diagram for donation function.

Donator users (similar to seller users) can submit a new listing or edit or remove their previous listings. Receiver users can browse and filter listings of other donor users. If the receiver users wish to receive a donation they will submit a request which will be redirected to the donator. The donor has the right to accept or reject the request but the receiver user can send messages to the donator to explain themselves why they wish to get this item(e.g. financial inability). If the donator accepts the request they will use the messaging platform of the application and select a place and time to give and receive item respectively. After confirmation from the both parties this process will be completed and the listing will be removed from the "Donate & Receive" module, however if the donator rejects the request after notifying the receiver user the process will be ended without removing the listing.

### 3.3. Activity Diagram for Lending and Borrowing an Item

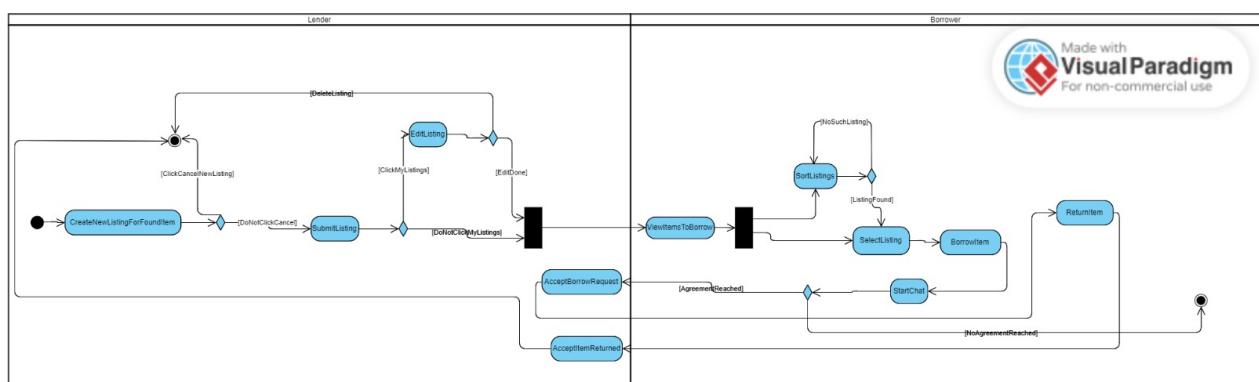


Fig. 8: Activity diagram for borrowing and lending function.

Lender users can create new listings and edit or remove their old listings. The borrower users can browse or filter listings of other users. If they wish to borrow an item they will submit a request which will be redirected to the lender user. The lender user has the right to reject or accept a request. The borrower user can message the lender to explain themselves to convince the lender. If the lender accepts the request both parties will set a time limit of how long the item will be lended and set a time and place to exchange the item. The two exchanges will be the lending of the item to the borrower and returning the item to the lender. During the exchanges both parties will be prompted to confirm the exchange. After confirming the return of the item to the lender this process will be ended. If the lender rejects the request this process will be ended after notifying the borrower user that made the request. In both cases the item will not be removed from the "Borrow & Return" module, if the lender wishes to remove an item they can remove their listings using "My Listings" panel.

### 3.4. Activity Diagram for Losing and Finding an Item

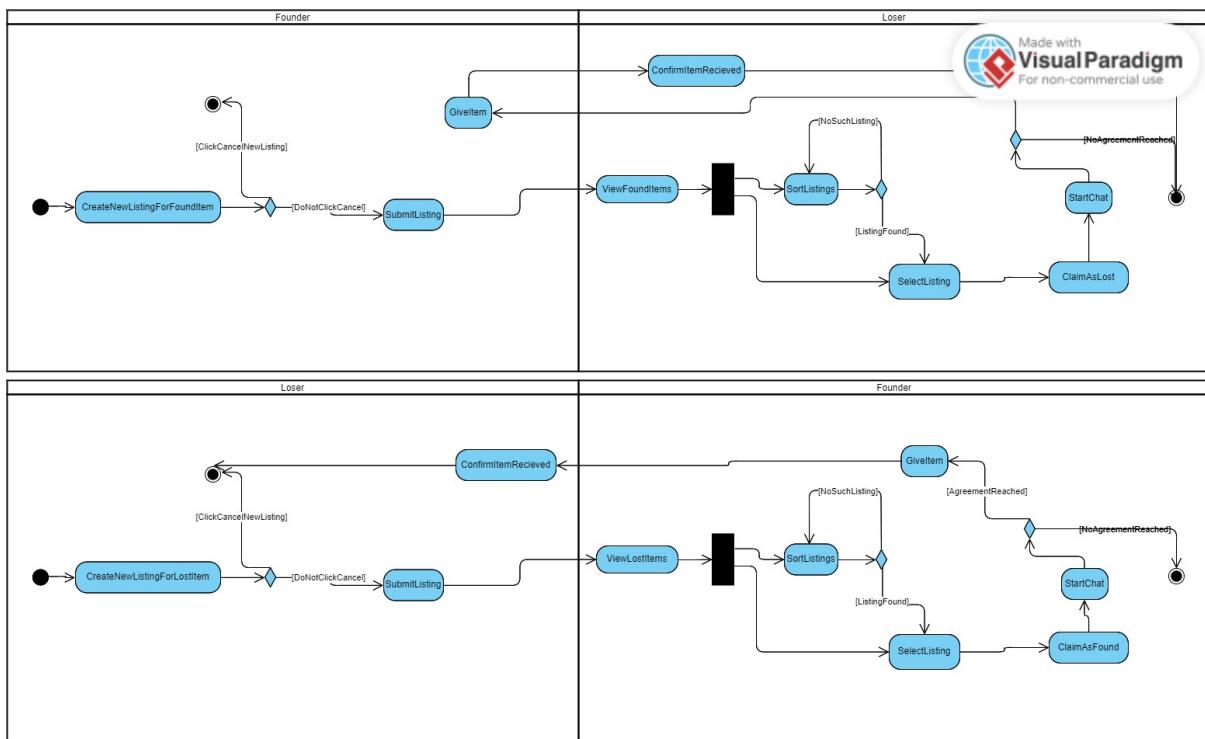


Fig. 9: Activity diagrams for lost and found function.

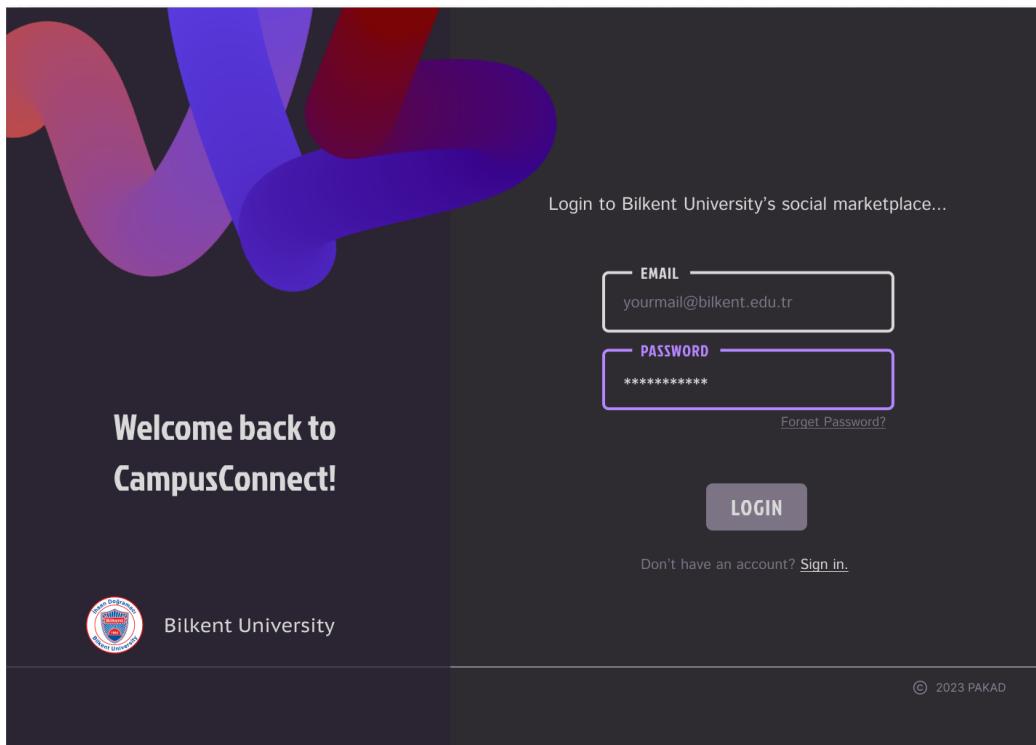
The “Lost & Found” module has two different processes.

Firstly, if a user finds an item they can submit a listing of the item that they found and the owner of the item (loser user) can view and filter the listings to find their lost item. If they find the item they can submit a request to receive the item and the loser user will be redirected to the founder user to message them and set a time and place for the exchanging of the item. During the exchange both parties will be prompted to confirm the exchange of the item and after confirmation the process will end. Listing of the item will be removed from the “Lost & Found” module.

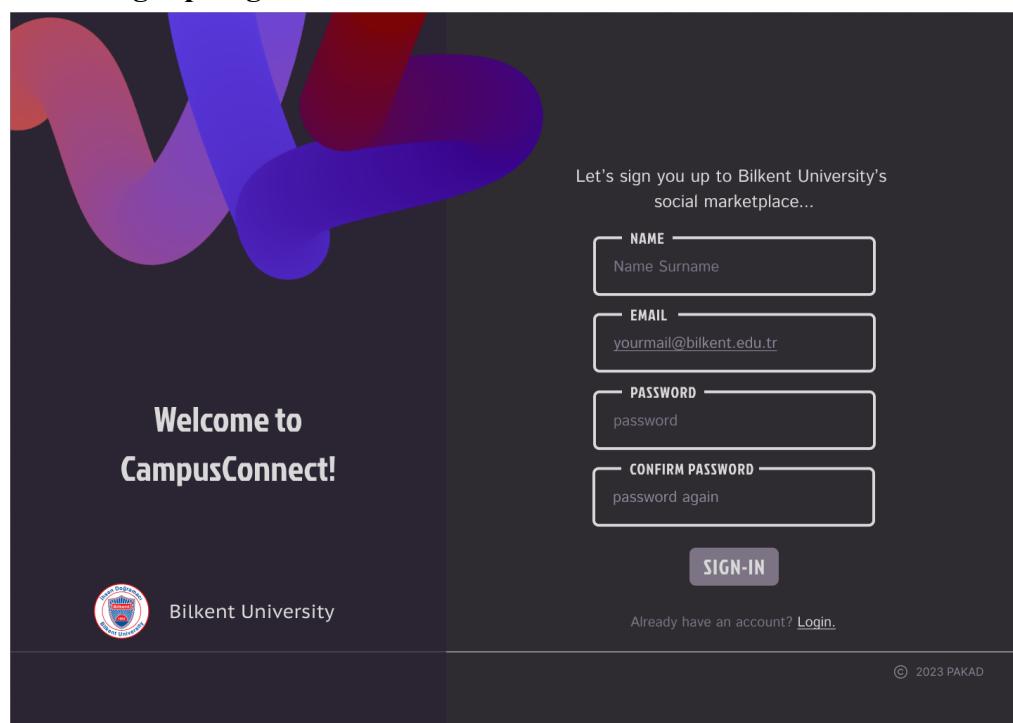
The other variant is if a user (loser user) loses an item they can submit a lost item listing. If a founder finds that item they can browse and filter the listings to find the lost item listing. After the founder user claims the listing as found both parties will be notified and prompted to use the messaging platform of the application to set a time and place for the exchange of the item. During the exchange both parties will be prompted to confirm the exchange and after the confirmation the process will end and the listing will be removed from the “Lost & Found” module.

#### 4. Mockups

##### 4.1. Login Page



##### 4.2. Signup Page



### 4.3. Main Page

The screenshot shows the CampusConnect main page with a dark theme. On the left sidebar, under the 'ITEMS' category, 'Sales' is highlighted in red. The main content area displays a grid of item listings titled 'All Sales'. Each listing includes a thumbnail, item name ('Psychology Book'), price ('100 TL'), and a 'CONTACT' button. A large dashed box highlights the first item in the top row. Below the grid, a call-to-action box with the heading 'Want to sell/borrow/donate something?' and a purple 'UPLOAD ITEM' button is visible. At the bottom of the page, there's a footer with copyright information and links to 'Engage' and 'Items' sections.

**Engage**

- Contact Us
- FAQ

**Items**

- Sales
- Borrowing
- Donations
- Lost & Found

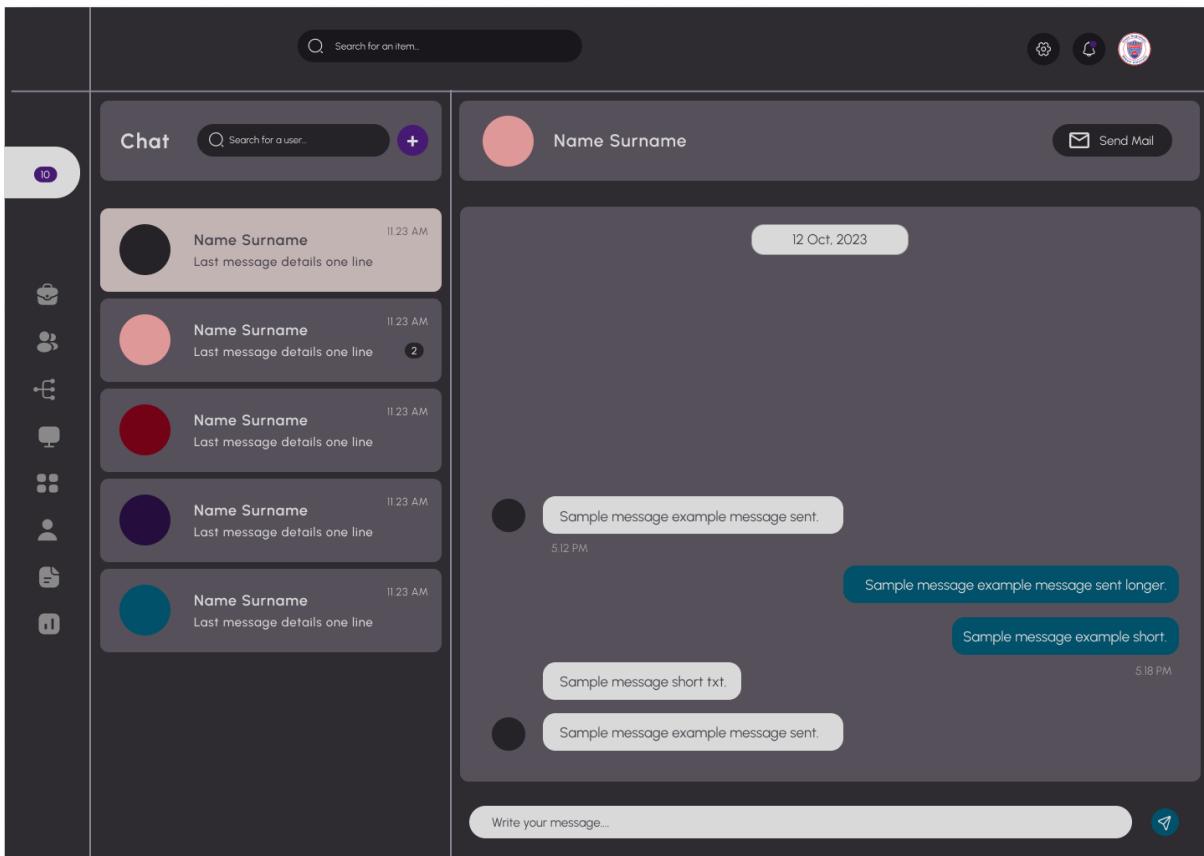
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This screenshot shows the same CampusConnect interface but with a different main section: 'Second-Hand Sales'. The sidebar items are identical to the previous screenshot. The main content area now displays a grid of item listings titled 'Second-Hand Sales'. The layout and details of the items (Psychology Book, 100 TL, CONTACT button) are consistent with the 'All Sales' section. The rest of the page, including the call-to-action box and footer, remains the same.

## 4.4. Profile Page

## 4.5. Dashboard Page

## 4.6. Messaging Page



## 4.7. Settings Page

The screenshot shows the settings page of CampusConnect. The left sidebar includes sections for Dashboard, Messages (with 10 notifications), ITEMS (All Items, Sales), Borrowing, Donations, LOST & FOUND (I've lost something, I've found something, All Found Items). The main content area is divided into three sections: 'Notifications' (Choose how you want to hear about the important changes), 'Appearance' (Choose how you want to view CampusConnect), and 'Privacy and Security' (Review key privacy and legal documents). In the 'Notifications' section, there are two toggle switches: 'By email' (No) and 'On your desktop' (Yes, with a note about Chrome browser notifications). In the 'Appearance' section, there is a switch for 'Theme' (Dark). The 'Privacy and Security' section contains links for 'Personal Data Protection Law' and 'Learn more'.

## 4.8. Add Item

The screenshot shows the 'Add Item' interface for 'Sales'. The left sidebar has a red highlight on the 'Sales' button under the 'ITEMS' section. The main form is titled 'Add Item' and contains sections for 'Choose the category', 'Details', 'Price', and 'Pictures'. The 'Sell' tab is selected in the category bar. The 'Details' section includes a title input field (12 / 50 characters) and a text area for item description (102 / 300 words). The 'Price' section has a placeholder 'TL'. The 'Pictures' section shows five dashed boxes for photo uploads. A large blue 'Add Item' button is at the bottom right.

## 4.9. Lost&Found

The screenshot shows the 'Add Item' interface for 'Lost & Found'. The left sidebar has a red highlight on the 'All Found Items' button under the 'ITEMS' section. The main form is titled 'Add Item' and contains sections for 'Choose the category', 'Details', and 'Pictures'. The 'Lost' tab is selected in the category bar. The 'Details' section includes a title input field (12 / 50 characters), a date input field, and a text area for item description (102 / 300 words). The 'Pictures' section shows five dashed boxes for photo uploads. A large blue 'Add Item' button is at the bottom right.