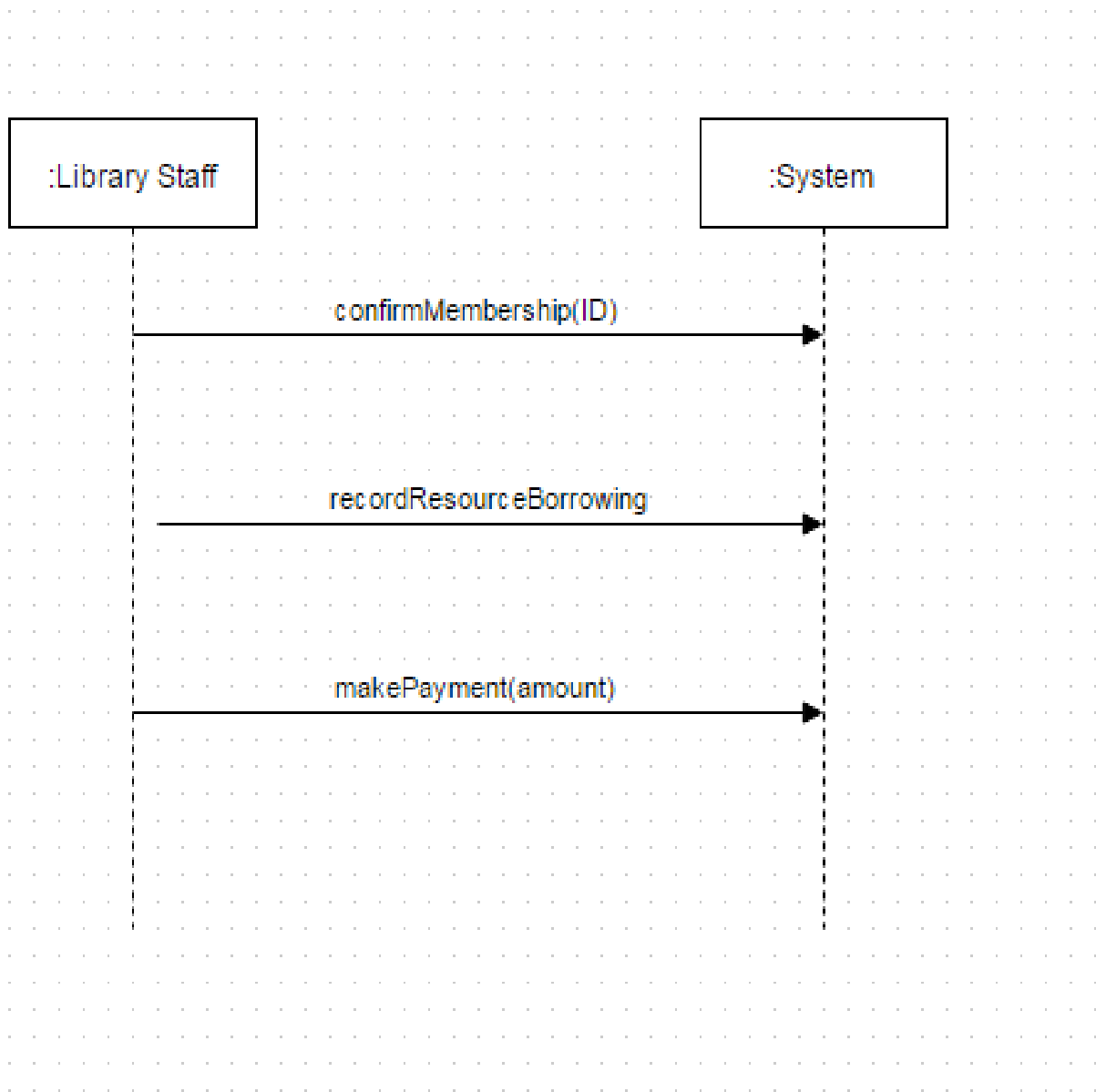


## **STEP 1: USE CASES**

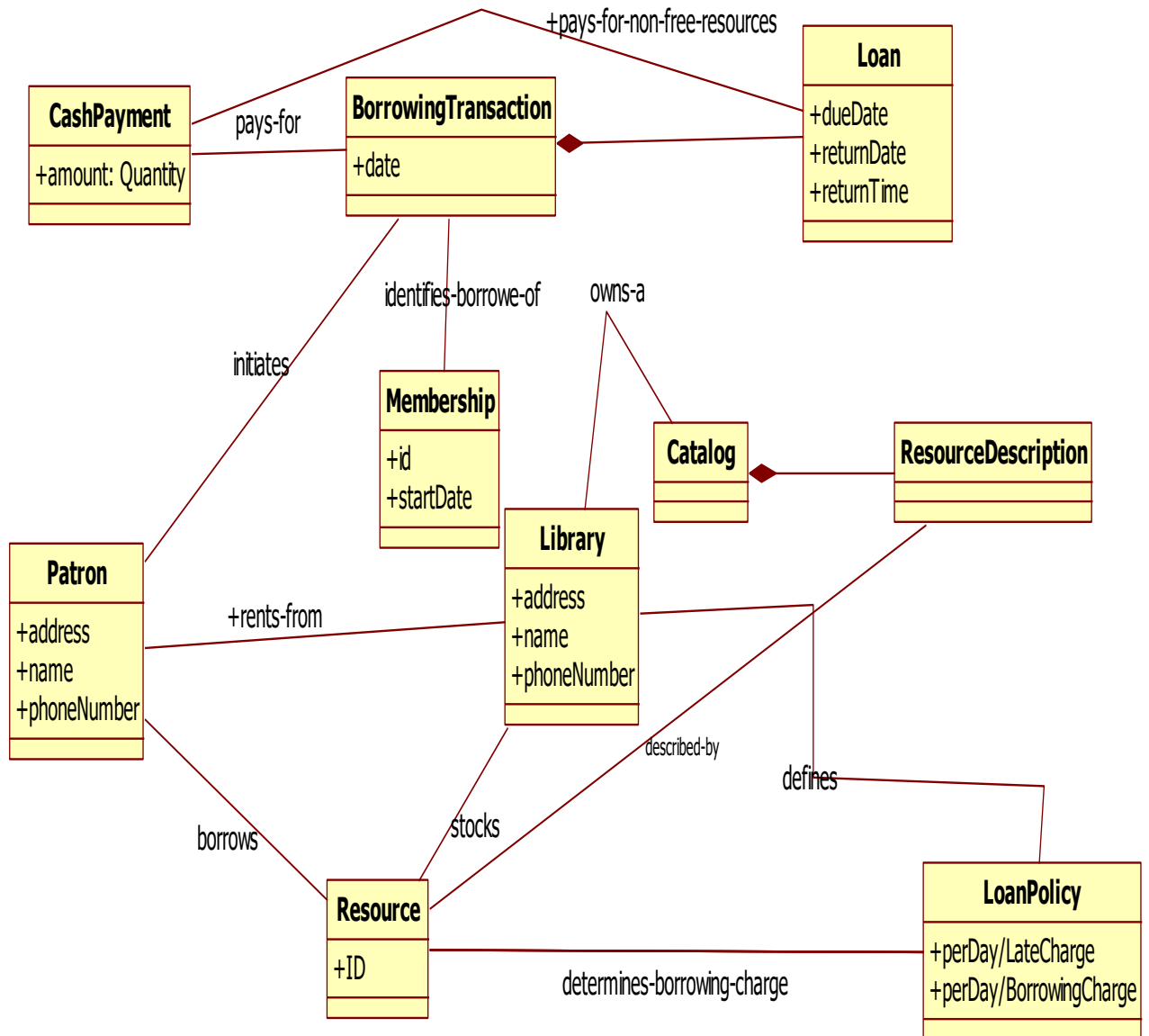
### **Use Case: Borrow Library Resources**

<b>Actor Actions</b>	<b>System Response</b>
1. Patron arrives at a checkout with library resources (e.g. books, videos, tapes,...) to borrow. Some of the resources can be borrowed for free, while others will have a borrowing fee.	
2. The library patrons presents their membership identification to the library staff, who enters it into the system.	3. Presents membership information, and status of loans (usually nothing on loan, and no outstanding fines).
4. For each library resource, the library staff records the item identification into the system.	5. Presents accumulating list of resources titles, due dates. The standard due date is 3 weeks from today.
6. Library staff informs library patrons of total borrowing fee, and asks for payment.	
7. Library patron pays cash to library staff.	
8. Library staff records payment into system.	9. Generates receipt and loan report.
10. Library staff gives receipt and loan report to library patron, who then leaves with the rental resources.	

## STEP 2: SYSTEM SEQUENCE DIAGRAM (SSD)



### STEP 3: DOMAIN MODEL



## **STEP 4: OPERATION CONTRACT**

1. Bounded by the above scenario and the domain model, write the operation contracts for the two operations:

confirmMembership(ID)

### **contract**

**Name:** confirmMembership (membershipID)

**Responsibilities:** Confirm that the membership is valid—that it exists, and that the membership is not suspended. Present confirmation. Present any overdue borrowings and charges owed.

**Preconditions:** System does not have a borrowing transaction underway.

**Postconditions:**

If the membership was valid:

- A *BorrowingTransaction* *txn* was created and initialized.
- The *Membership* (with *membershipID*) was associated with *txn*.

- recordResourceBorrowing

### **contract**

**Name:** recordResourceBorrowing (ResourceID)

**Responsibilities:** Record the borrowing of a resource and add it to ongoing borrowing transaction. Present the resource title, charge, and due date.

**Preconditions:** ResourceID is known to system. A *BorrowingTransaction* has been created.

**Postconditions:**

- A *loan*, *l*, was created and initialized.
- *l* was associated with a *Resource*, based on *resourceID* match.
- *l* was associated with the current *BorrowingTransaction*.

## STEP 5: INTERACTION DIAGRAM

