

# CS246 Assignment 1

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## Problem 1 - 7.2(a)

1. Sender - Create and send email(s).
2. Recipient(s) - Retrieve email(s) from the server.
3. System Administrator - Perform regular maintenance for the server (security updates, patches, etc).

## Problem 2 - 7.3(a)

1. Customer - Make reservation(s) and purchase ticket(s).
2. Database - Maintains up-to-date information on flight schedules and pricing information, to be provided upon request.

## Problem 3 - 7.4(a)

1. Librarian - Performs the checkout of the item(s).
2. Database - Maintains up-to-date information on the status of items in the library (on-shelf, in-transit, borrowed, etc).
3. Book - Provides the catalogue number to the system in order to update the database.

## Problem 4

### 7.2(b)

1. Compose an email - the user creates a draft of an email, which can be dispatched immediately or stored for future usage.
2. Send email - the user dispatches the email to the recipient(s).

### **7.3(b)**

1. Search for available flights - the user enters the flight information, and searches for all available matching flights.
2. Purchase ticket - after the user has found an acceptable flight, the user pays for the ticket.

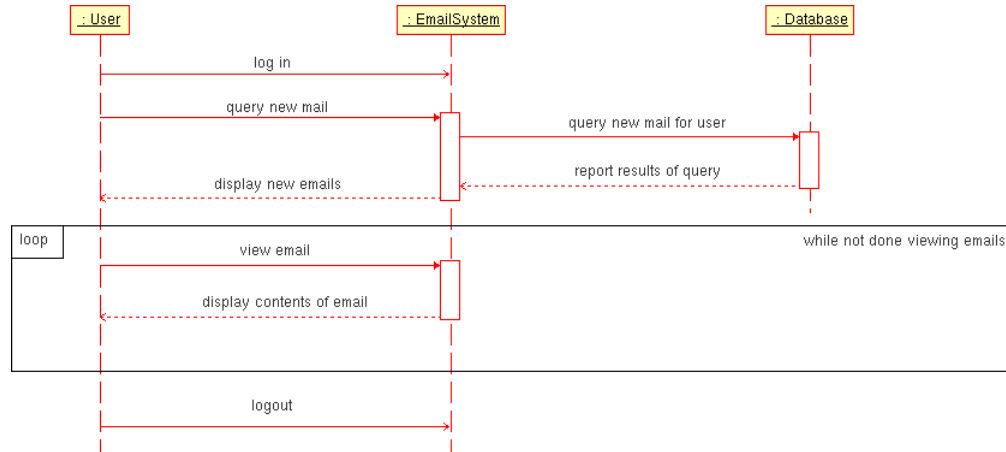
### **7.4(b)**

1. Return item(s) - the user returns item(s) that were previously checked out.
2. Query outstanding item(s) - the librarian checks what item(s) that the user has outstanding.

### **Use Case - Get Mail**

1. User logs in to email system.
2. User queries email system for listing of new mail in the user's inbox.
3. Email system forwards query to database.
4. Database processes query and returns result of query to email system.
5. System displays list of new mail in the user's inbox.
6. User selects an email for viewing.
7. System displays selected email.  
*User repeats steps 2-7 until indicates done.*
8. User logs out of email system.

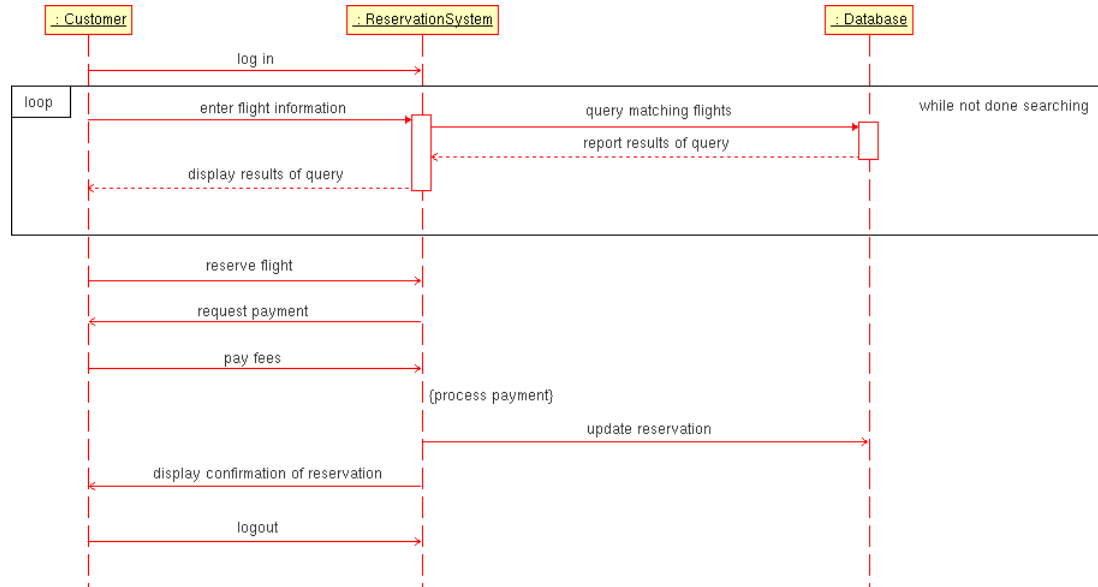
### Sequence diagram for getting mail.



### Use Case - Make a flight reservation.

1. Customer logs in to online airline reservation system.
2. Customer enters flight information.
3. System queries database for flights matching entered criteria.
4. Database returns result of query to system.
5. System displays result of query to customer.  
*Customer repeats steps 2-5 until indicates done.*
6. Customer selects flight for reservation.
7. System asks customer for appropriate payment.
8. Customer pays appropriate fees and system handles payment.
9. System logs reservation complete and sends payment information to database for updating.
10. System displays confirmation of the reservation.
11. Customer logs out of the online airline reservation system.

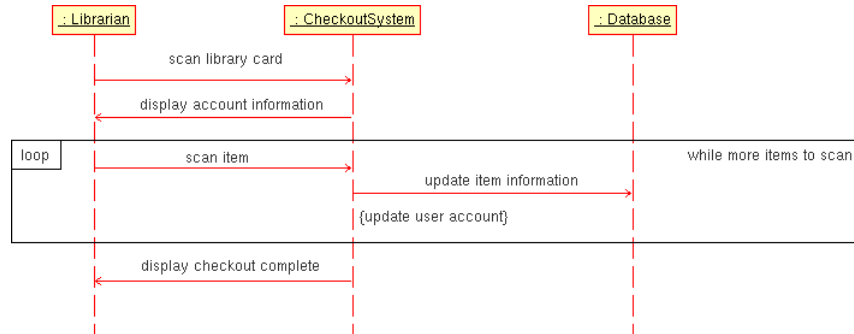
## Sequence diagram for making a flight reservation.



## Use Case - Borrow a library item.

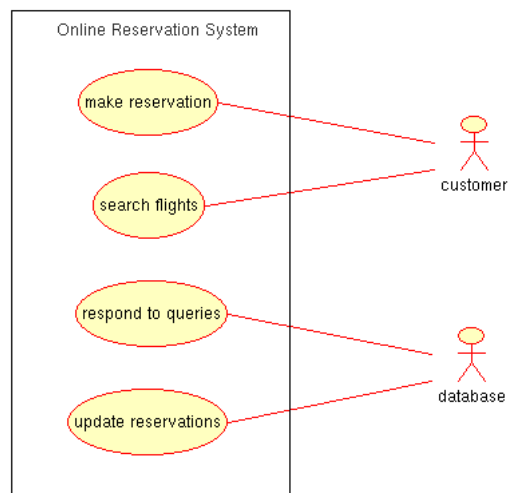
1. User arrives at item checkout location with item(s) to checkout.
2. User presents library card to librarian.
3. Librarian takes the library card and scans in the barcode.
4. System displays user's account.
5. Librarian scans the barcode of item.
6. System sends checkout information to the database for updating.
7. System updates user's account with newly checked out item.  
*Librarian repeats steps 5-9 until indicates done.*
8. System terminates checkout and presents receipt.
9. User leaves with receipt and item(s).

Sequence diagram for borrowing library items.



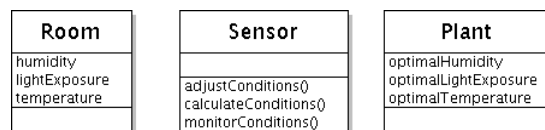
## Problem 5

Use case diagram for an online airline reservation system.

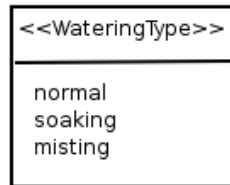
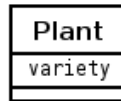
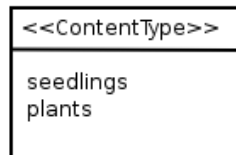
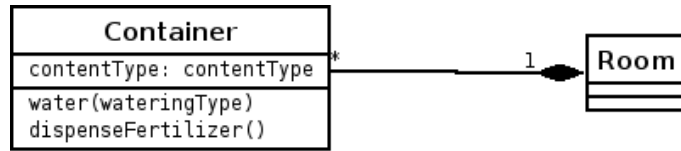


## Problem 6

6. (a)



6. (b)



6. (c)

