ID2207- Modern Methods in Software Engineering

Homework 1

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Question 1

Use Case Description

Our assumptions:

1. FlightBookingSystem is any modern available method of booking flights, e.g. different flight booking websites or booking flights over phone.
2. HotelBookingSystem is any modern available method of booking accommodation, e.g. different hotel booking websites, airbnb, or booking accommodation over the phone

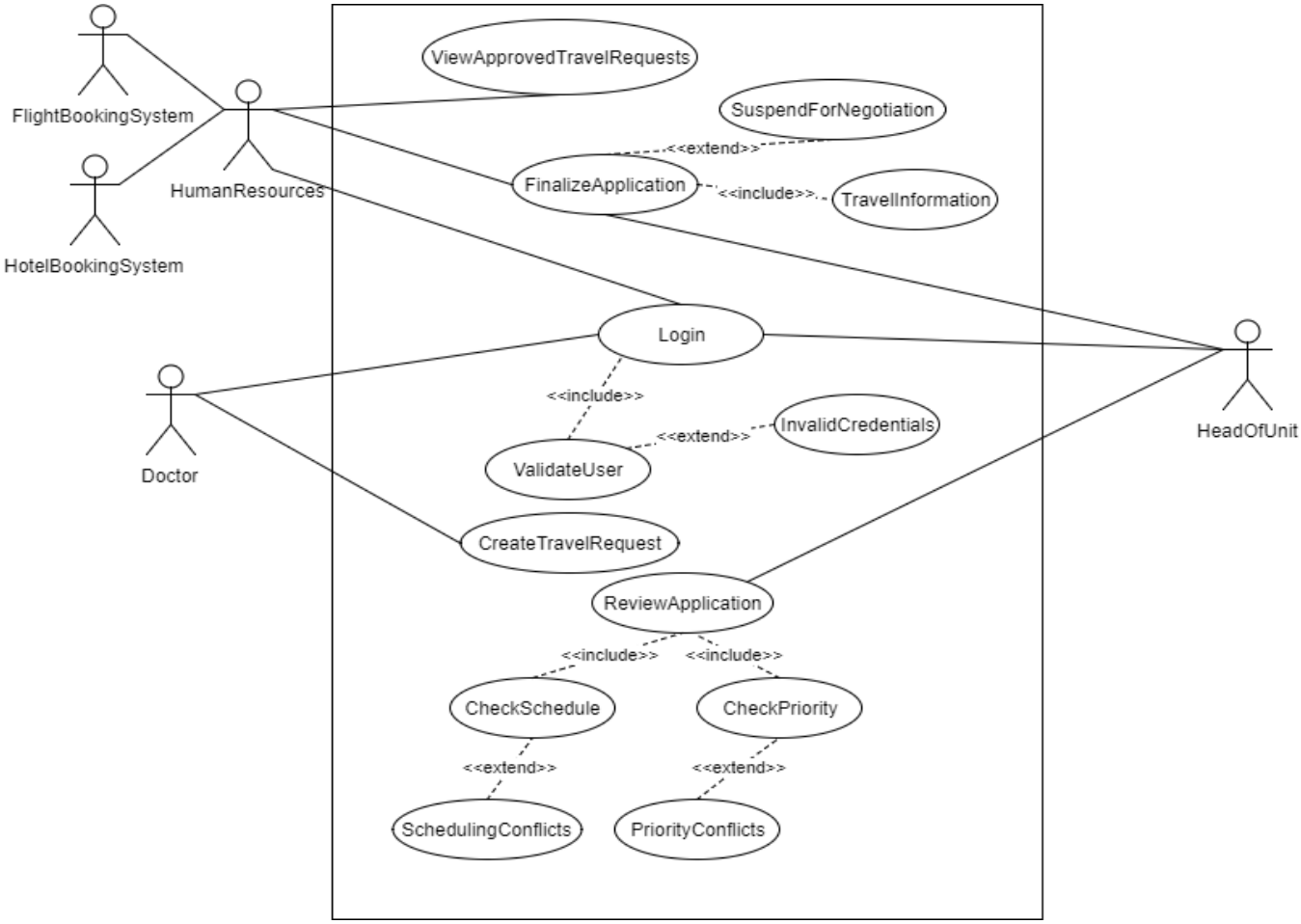
Name: ManageTravelRequest
Participating actor(s): Doctor, HeadOfUnit, HumanResources, FlightBookingSystem, HotelBookingSystem.
Entry Conditions: 1. Doctor logs successfully into the Travel Booking System. 2. Doctor accesses the create travel request functionality.
Exit Conditions: The Doctor sees that his travel request has been accepted and the hotel and flight have been booked, OR The Doctor sees that his travel request has been rejected or suspended by either HeadOfUnit or HumanResources.
Quality Conditions: The system should be available and functioning without unexpected interruptions.
Event Flow: 1. Doctor chooses to create a new vacation request application. 2. System displays the requested form. 3. Doctor fills the application with required date, and reason for travel. 4. Doctor chooses to send the application to the head of unit. 5. System displays the new request to the head of unit. 6. Head of unit reviews the application and chooses to review the schedule. 7. System displays the schedule to the head of unit. 8. Head of unit chooses to review the travel priorities for the other doctors. 9. System displays the list of travel request to the head of unit. 10. Head of unit reviews the application, and has three options: to approve, reject or suspend the application. He chooses to approve. 11. HeadOfUnit chooses to send the approved travel request to HumanResources 12. System displays approved travel request to HumanResources 13. HumanResources looks up available dates in FlightBookingSystem and HotelBookingSystem on travel request dates. 14. HumanResources finds available accommodation and flights for the event so he accepts the request.

15. The system displays a form to fill in the travel information for the event. And notifies the HeadOfUnit and Doctor that the request has been accepted and finalized.

Use Case Diagram

Our assumptions:

1. The FinalizeApplication system knows whether HumanResources or HeadOfUnit is logged in, so only HumanResources can fill out the TravelInformation form.

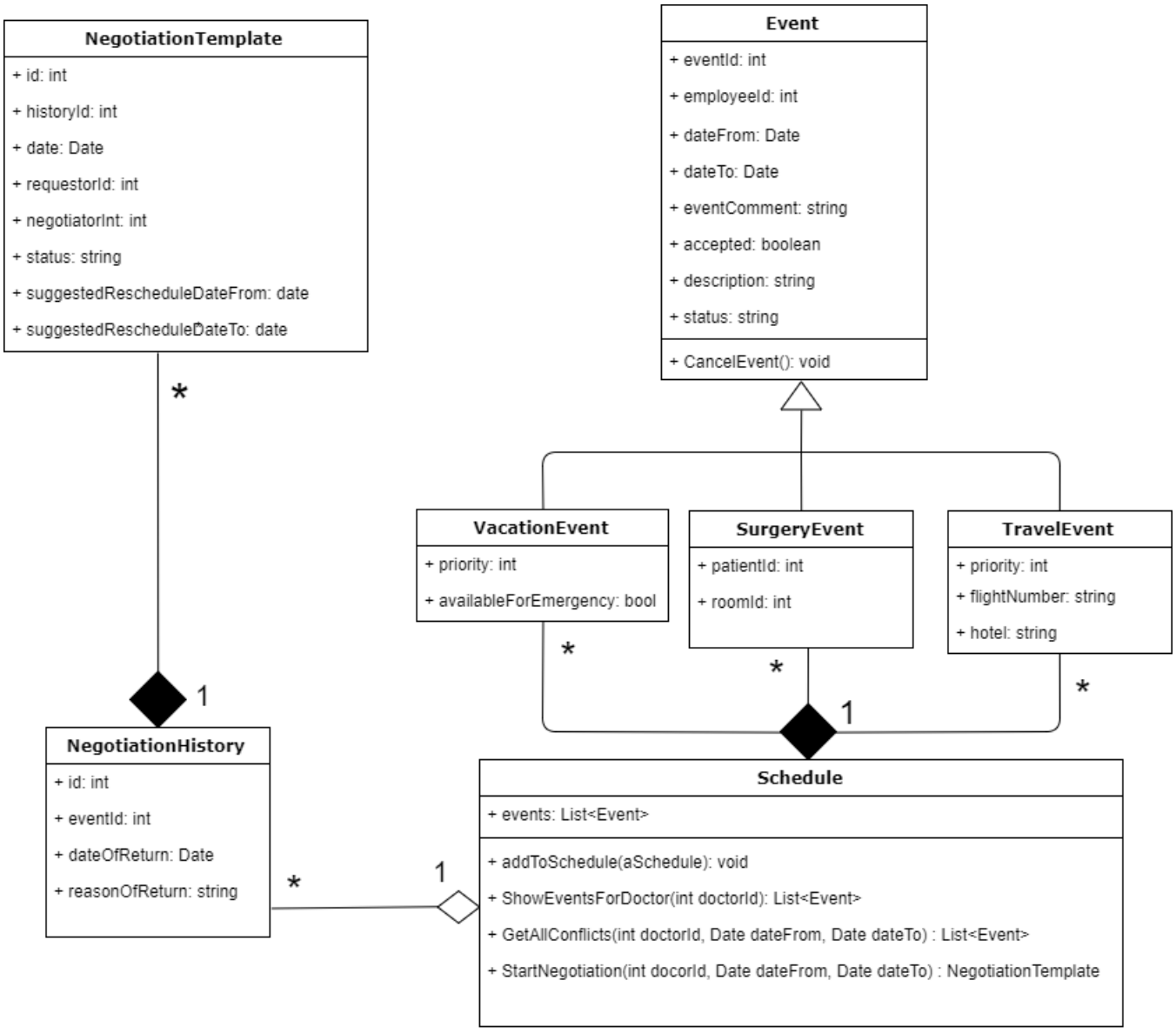


Question 2

Class Diagram

Our assumptions:

1. The Schedule is a calender that the HeadOfDepartment has access to, which displays all accepted events.
2. The HeadOfDepartment can ask the Schedule for all conflicts for a given doctor and date.
3. The Schedule has access to doctors priorities and filters in respect of that.
4. NegotiationHistory is a collection of NegotiationsTemplates that belong to a single event.

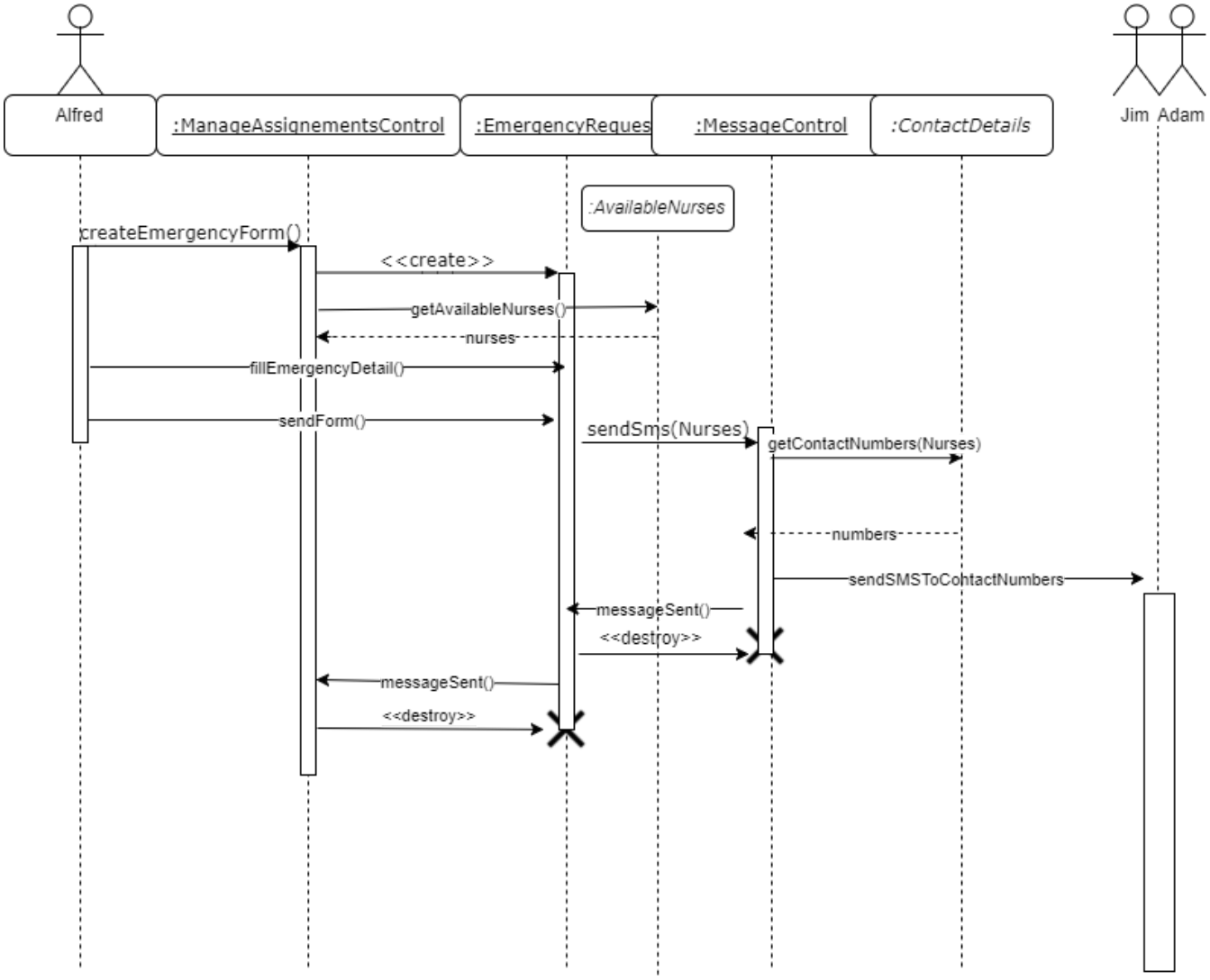


Question 3

Sequence Diagram

Our assumptions:

1. Since this is the case of an emergency we assume that the doctor does not wait for a reply. The patient might be in a critical condition so the doctor simply sends out an request and attends to the patient.
2. The abstract class *AvailableNurses* only returns nurses that are on call and can travel to the emergency room within critical amount of time.



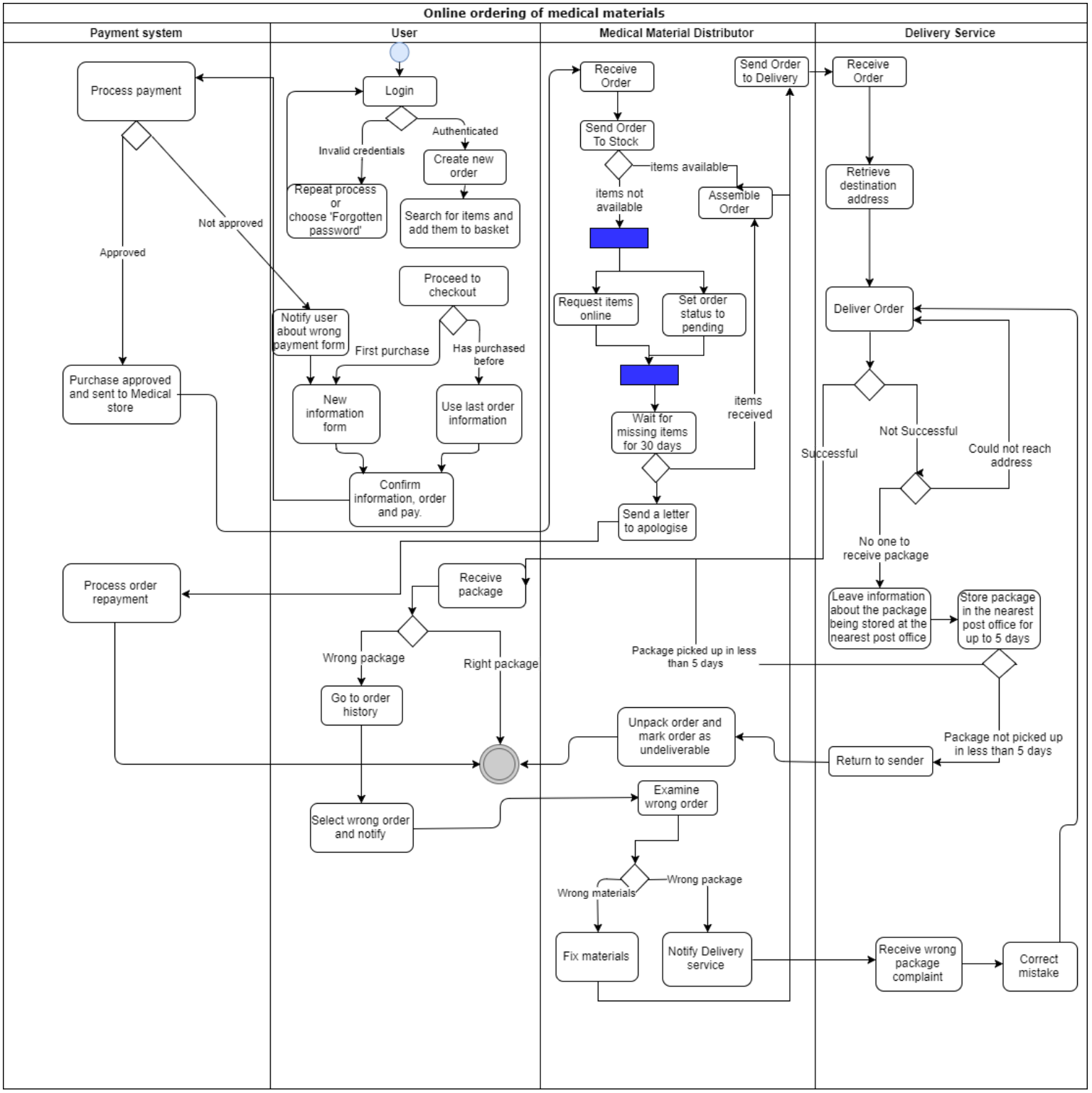
Question 4

Activity Diagram

Our assumptions:

1. The Medical Material Distributor uses external delivery services, for example ups or the postal service.
2. A wrong package can mean two things, either the medical item distributor assembled the wrong items to deliver, or the delivery services delivered the wrong package.
3. If no one is there to receive the package the postal office stores the package for up to 5 days at the nearest postal office to be picked up, before it returns it to sender.
4. The payment system is an external secure payment service, for example paypal or API provided by credit card companies..

Diagram can be found on next page


Online ordering of medical materials
Payment system
User
Medical Material Distributor
Delivery Service
Process payment
Login
Authenticated
Invalid credentials
Create new order
Repeat process or choose 'Forgotten password'
Search for items and add them to basket
Proceed to checkout
Not approved
Approved
Notify user about wrong payment form
First purchase
Has purchased before
New information form
Use last order information
Confirm information, order and pay.
Purchase approved and sent to Medical store
Receive Order
Send Order To Stock
items available
items not available
Assemble Order
Request items online
Set order status to pending
Wait for missing items for 30 days
items received
Send a letter to apologise
Send Order to Delivery
Receive Order
Retrieve destination address
Deliver Order
Successful
Not Successful
Could not reach address
No one to receive package
Leave information about the package being stored at the nearest post office
Store package in the nearest post office for up to 5 days
Package picked up in less than 5 days
Package not picked up in less than 5 days
Return to sender
Unpack order and mark order as undeliverable
Process order repayment
Receive package
Wrong package
Right package
Go to order history
Select wrong order and notify
Examine wrong order
Wrong materials
Wrong package
Fix materials
Notify Delivery service
Receive wrong package complaint
Correct mistake