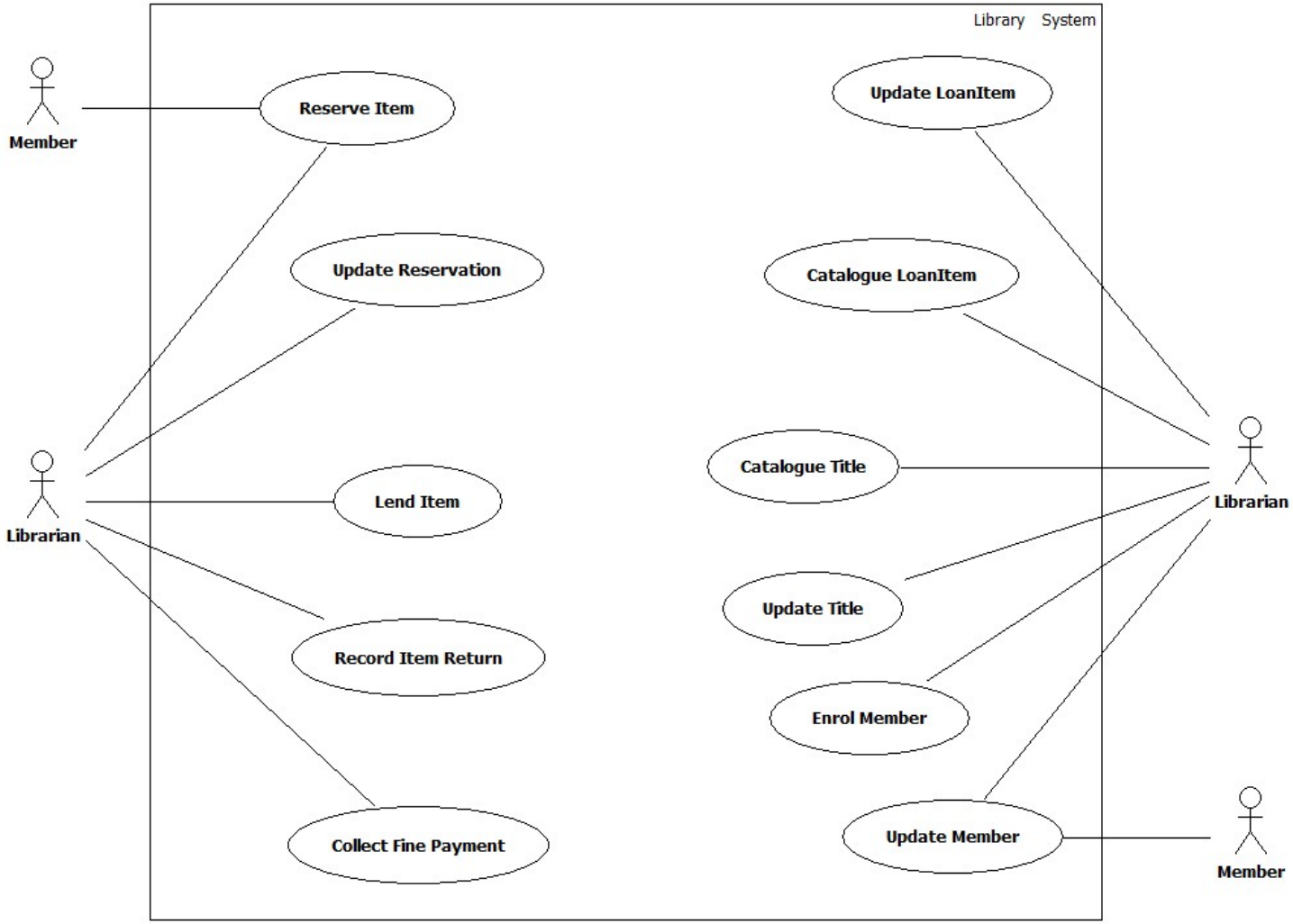
Systems Modelling Techniques using UML

Exercise Sample Answers

Exercise 1 – Lending library use case diagram

Sample answ



Exercise 2 – Course booking use case diagram

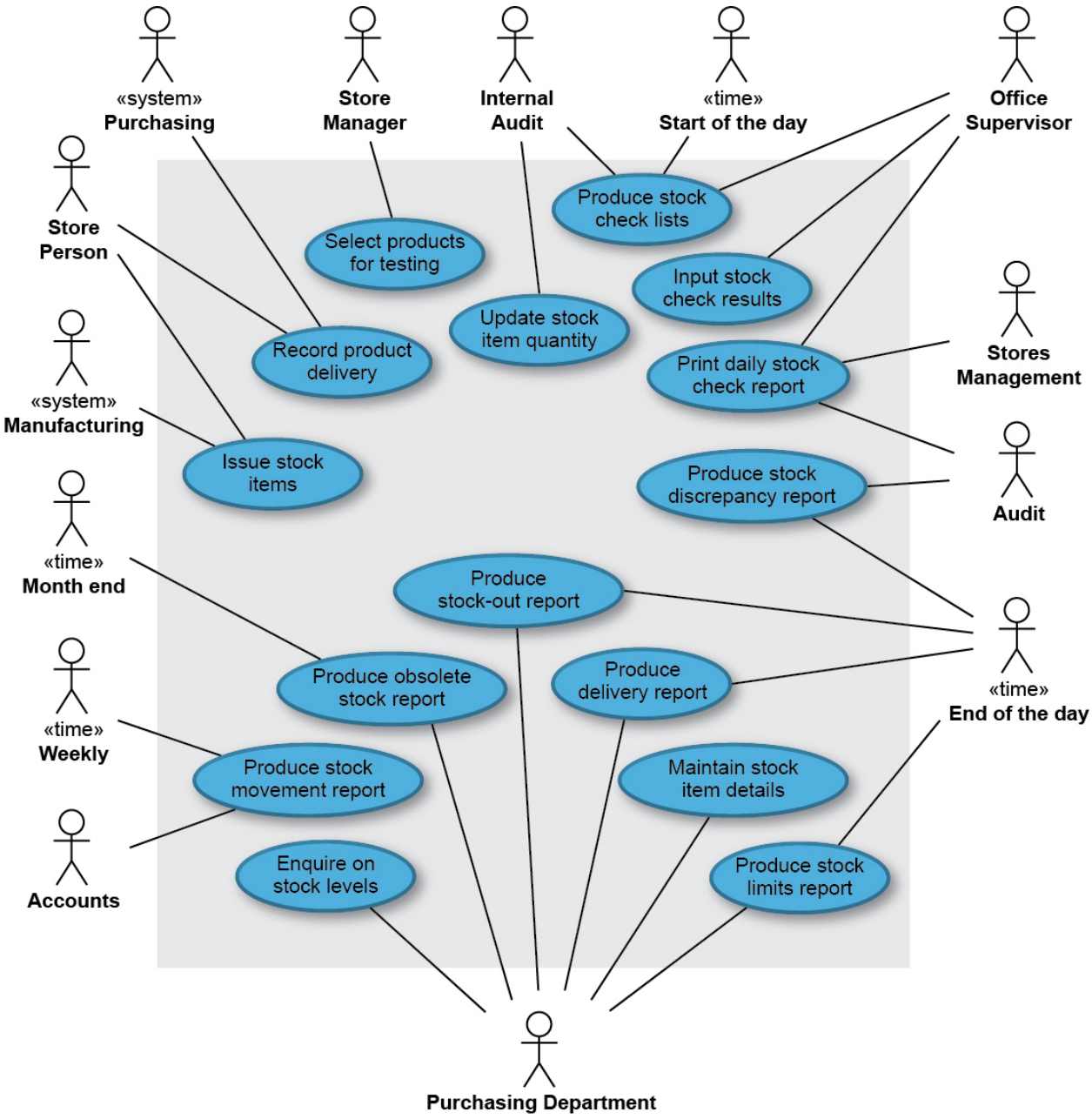
Sample answer

This diagram is intended to summarise the functional requirements of the proposed IT system, based on the text. There may be some scope for interpreting the text differently, as is the case with all requirements documents, and your diagram may reflect that.

Part of the purpose of modelling is to highlight areas for further investigation with the business. For example delegates could confirm their own bookings, or send in an email. Delegates could be prompted by the system if they haven't confirmed by a certain date etc.

Exercise 3 – T‘n’T use case diagram

Sample answer

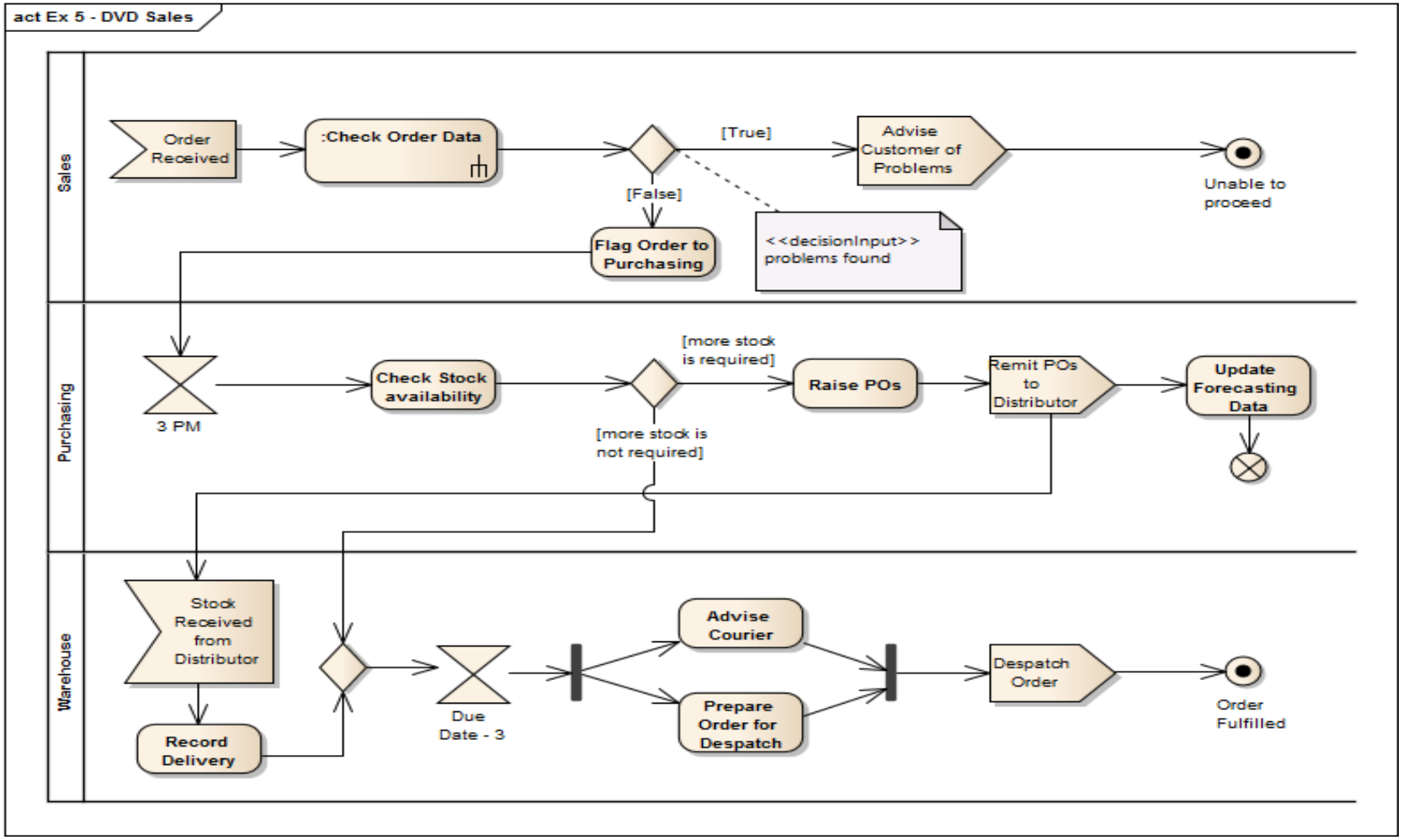


Exercise 4 – T‘n’T record product delivery

MFTnT09	Record Product Delivery
Brief Description:	When a delivery is received from a supplier it is checked and the goods (products) moved into the warehouse. The delivery is recorded after matching the delivery with the original purchase order, which is held on the purchasing system. Stock for quality testing will be held separately (quarantined) from available stock.
Actor(s):	Store person.
Trigger(s):	Supplier’s delivery vehicle has been unloaded.

Main Flow:		
1.	Store person enters the purchase order number into the system.	
2.	System retrieves the purchase order details.	
3.	Store person enters delivery details.	
4.	System creates the delivery.	
5.	For each purchase order item comprising the purchase order:	
6.	Store person enters the quantity unloaded.	
7.	System updates the product balance by the amount delivered.	
8.	System highlights any product to quarantine for testing.	
9.	Store person confirms end of delivery details input	
10.	System displays delivery details	
11.	Stores person confirms OK	
12.	Use Case Ends.	

Exercise 5 – DVD Sales Activity Diagram Sample Answer

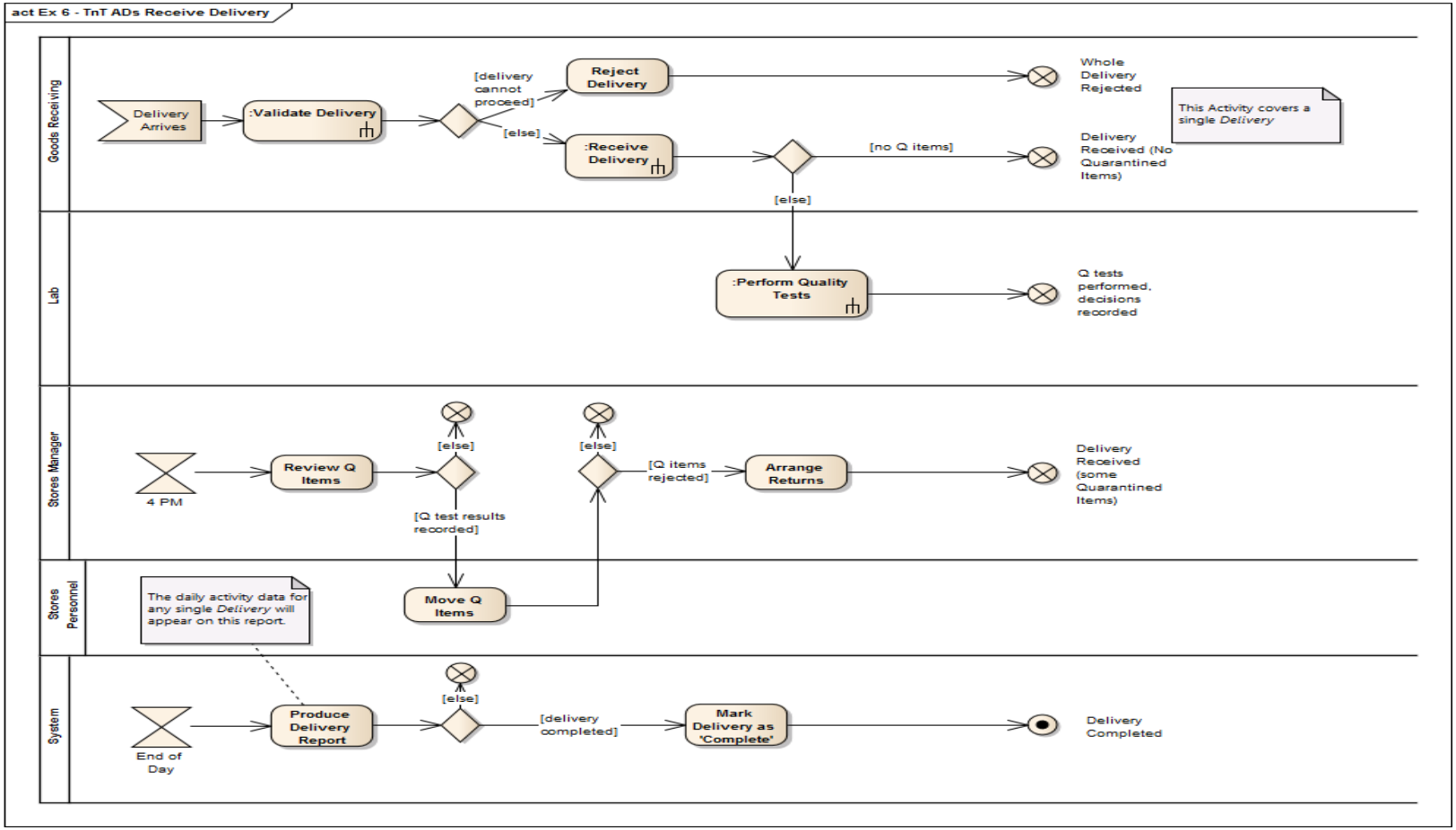


Notes:

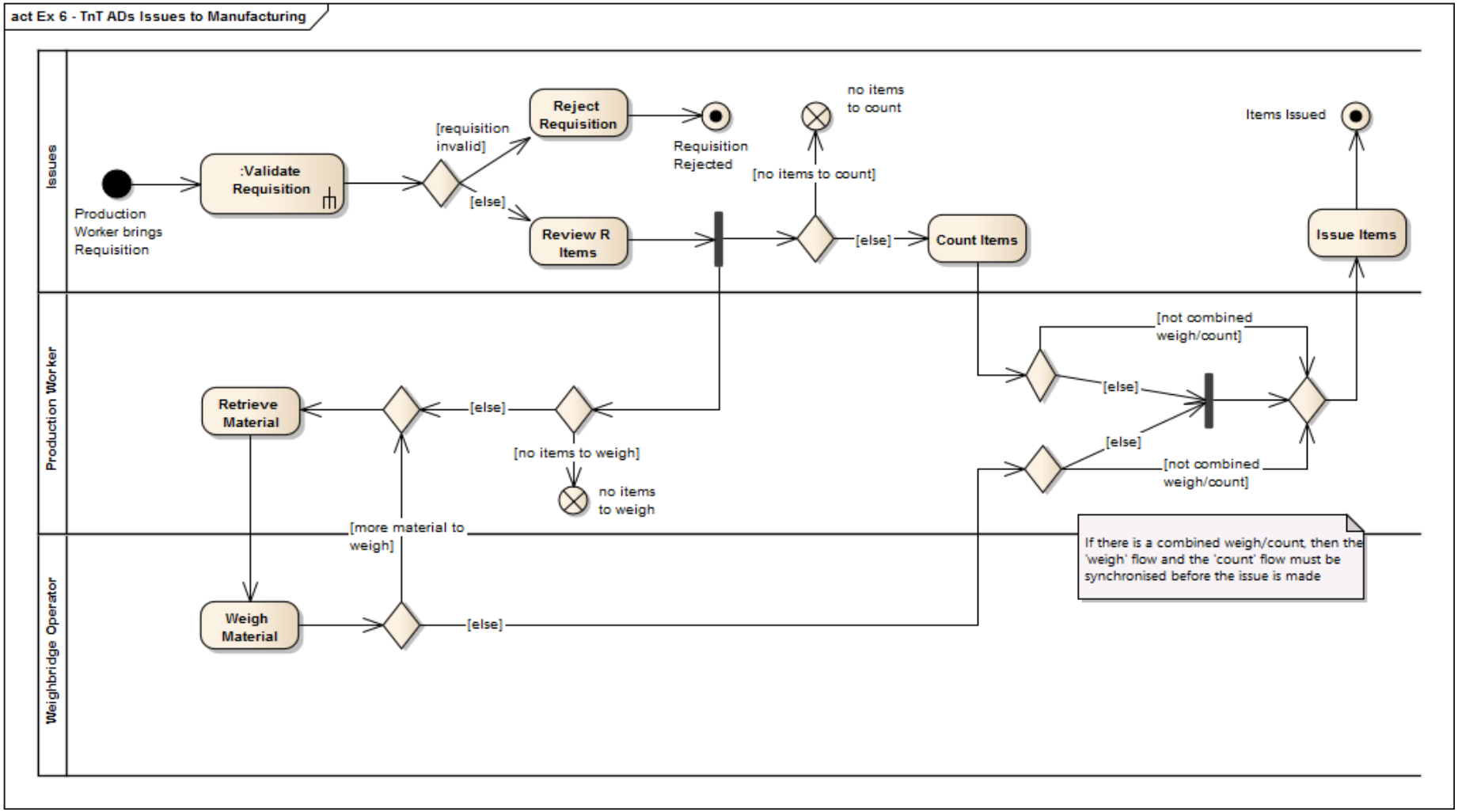
1. This answer illustrates 2 different ways to label a decision node. Another common way of labelling is to use the [else] keyword on one of the flows – this ensures that there is always a default flow out of the decision node.

Exercise 6 – T‘n’T Activity Diagrams Sample Answers

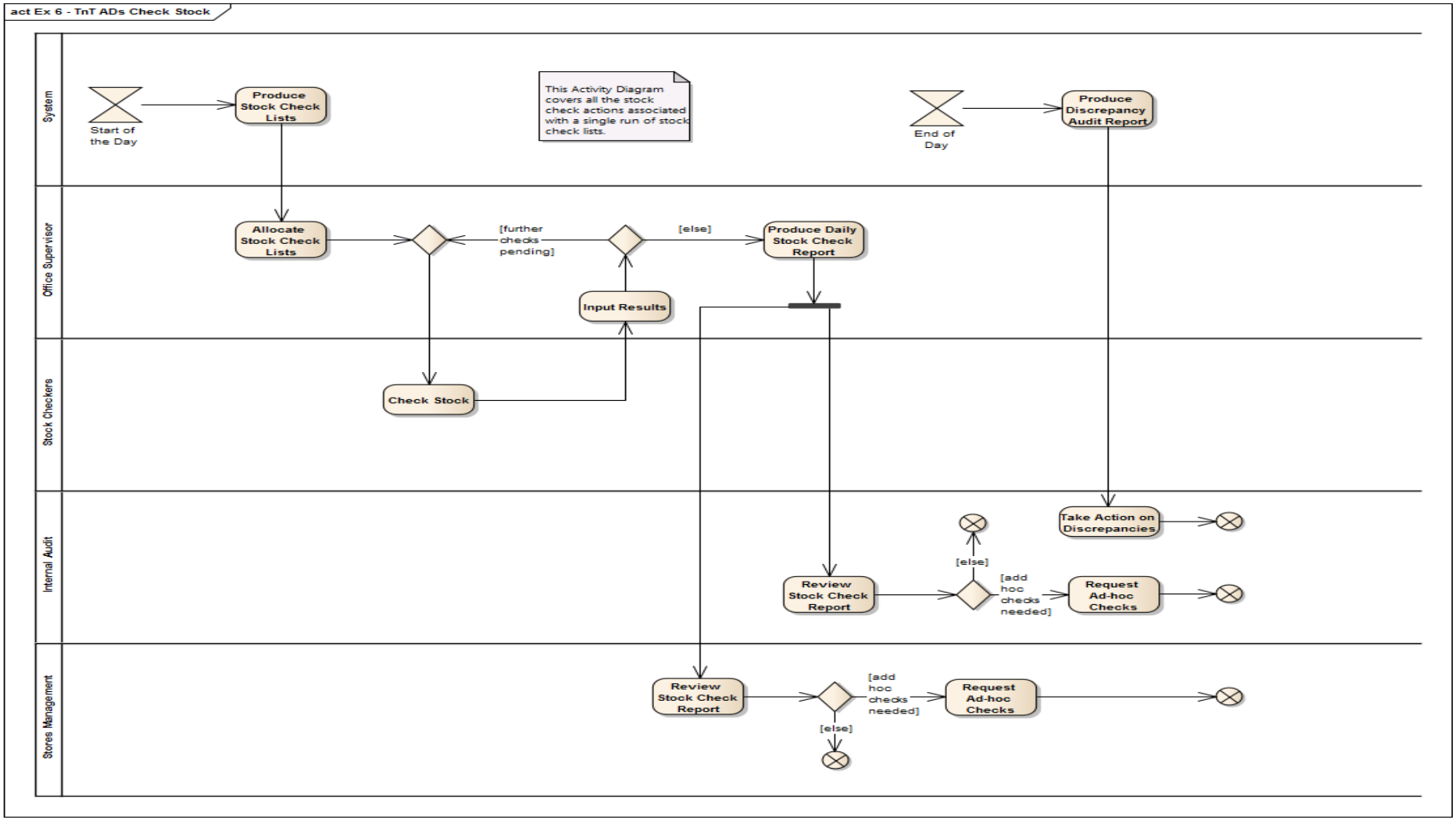
Receive Delivery



Issues to Manufacturing

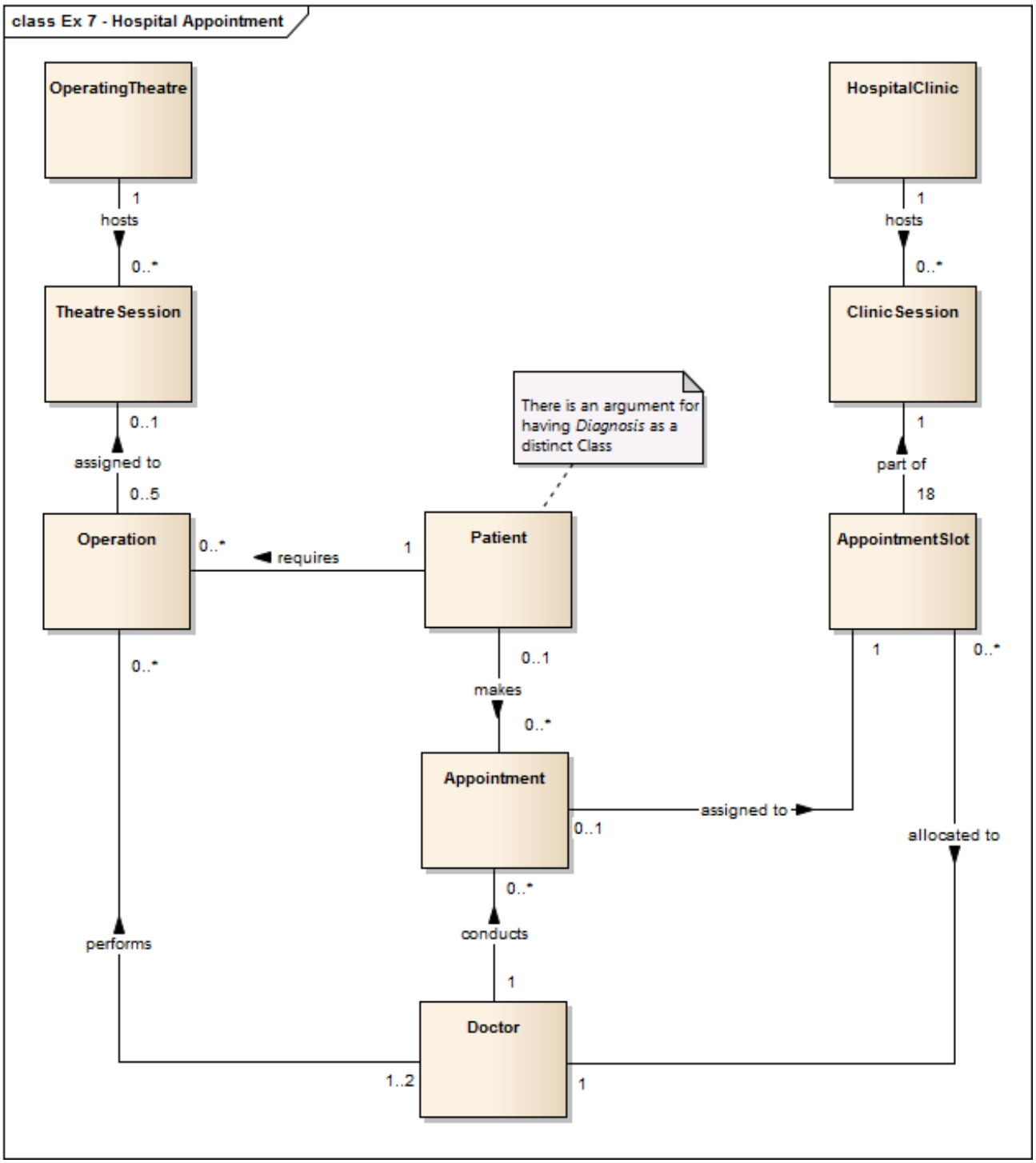


Check Stock


act Ex 6 - TnT ADs Check Stock
System
Office Supervisor
Stock Checkers
Internal Audit
Stores Management
Start of the Day
Produce Stock Check Lists
This Activity Diagram covers all the stock check actions associated with a single run of stock check lists.
End of Day
Produce Discrepancy Audit Report
Allocate Stock Check Lists
[further checks pending]
[else]
Produce Daily Stock Check Report
Input Results
Check Stock
Take Action on Discrepancies
[else]
Review Stock Check Report
[add hoc checks needed]
Request Ad-hoc Checks
Review Stock Check Report
[add hoc checks needed]
[else]
Request Ad-hoc Checks

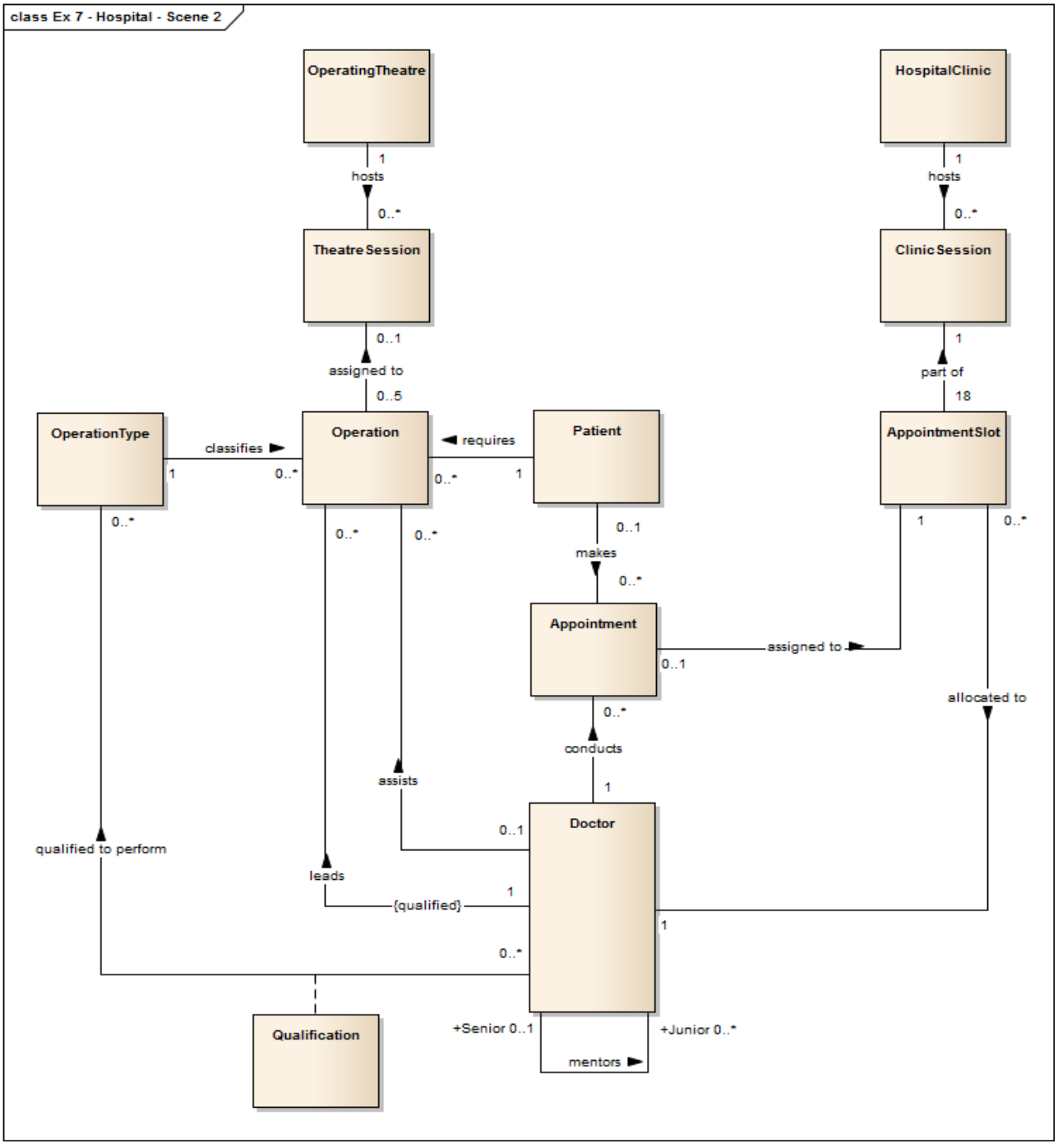
Exercise 7 – Hospital appointment

Sample Answer 1



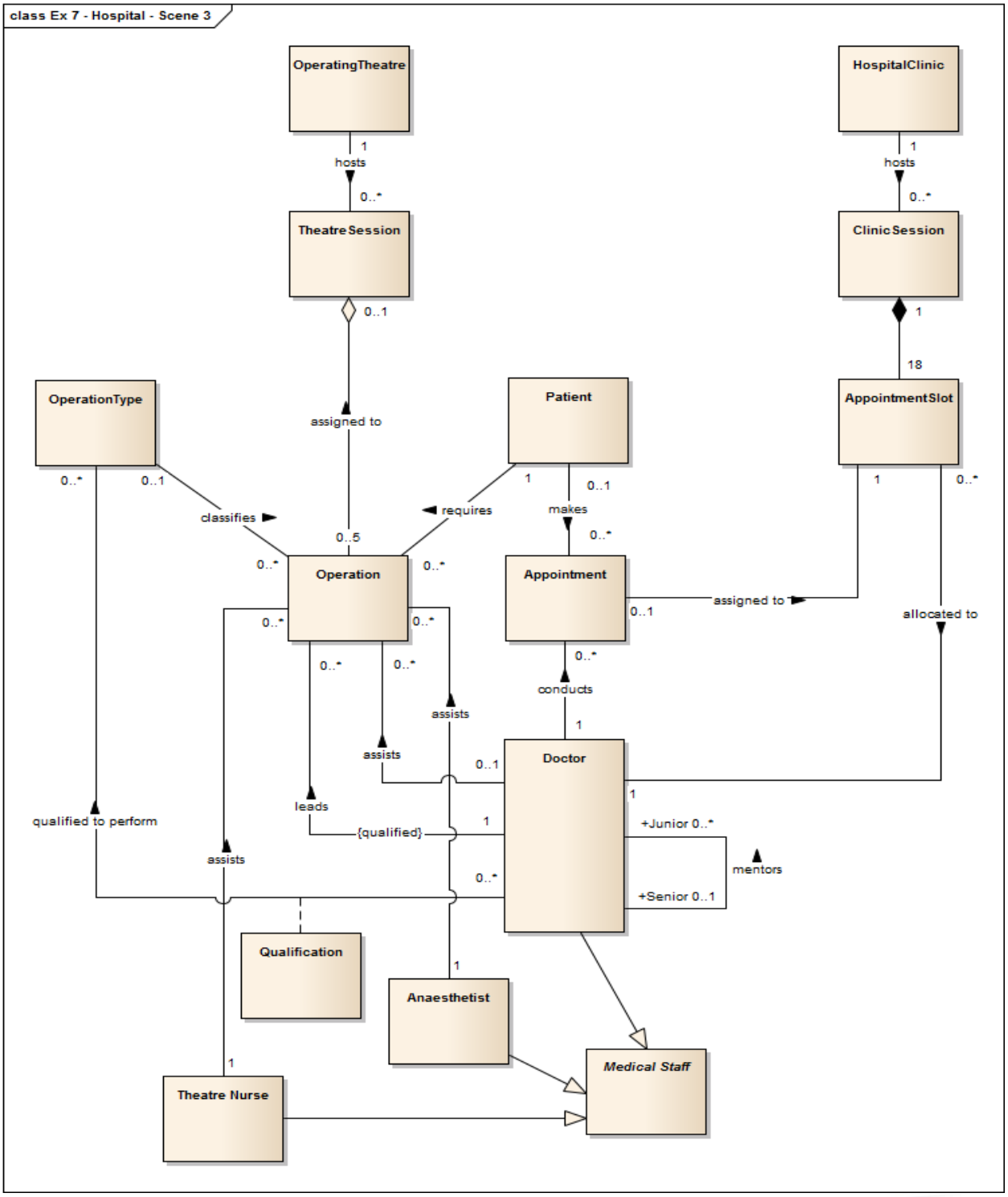
Exercise 7 – Hospital appointment

Sample Answer 2



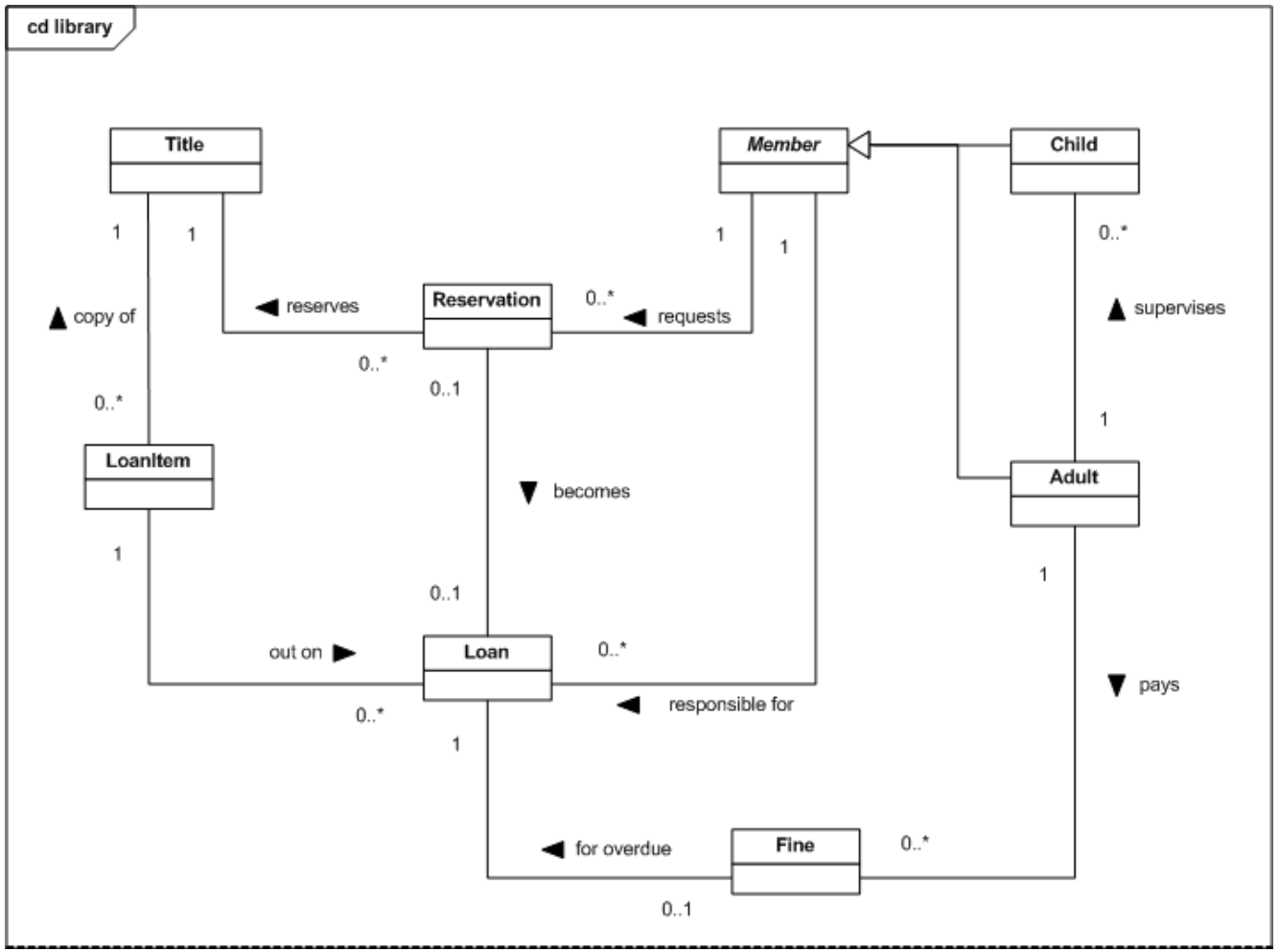
Exercise 7 – Hospital appointment

Sample Answer 3



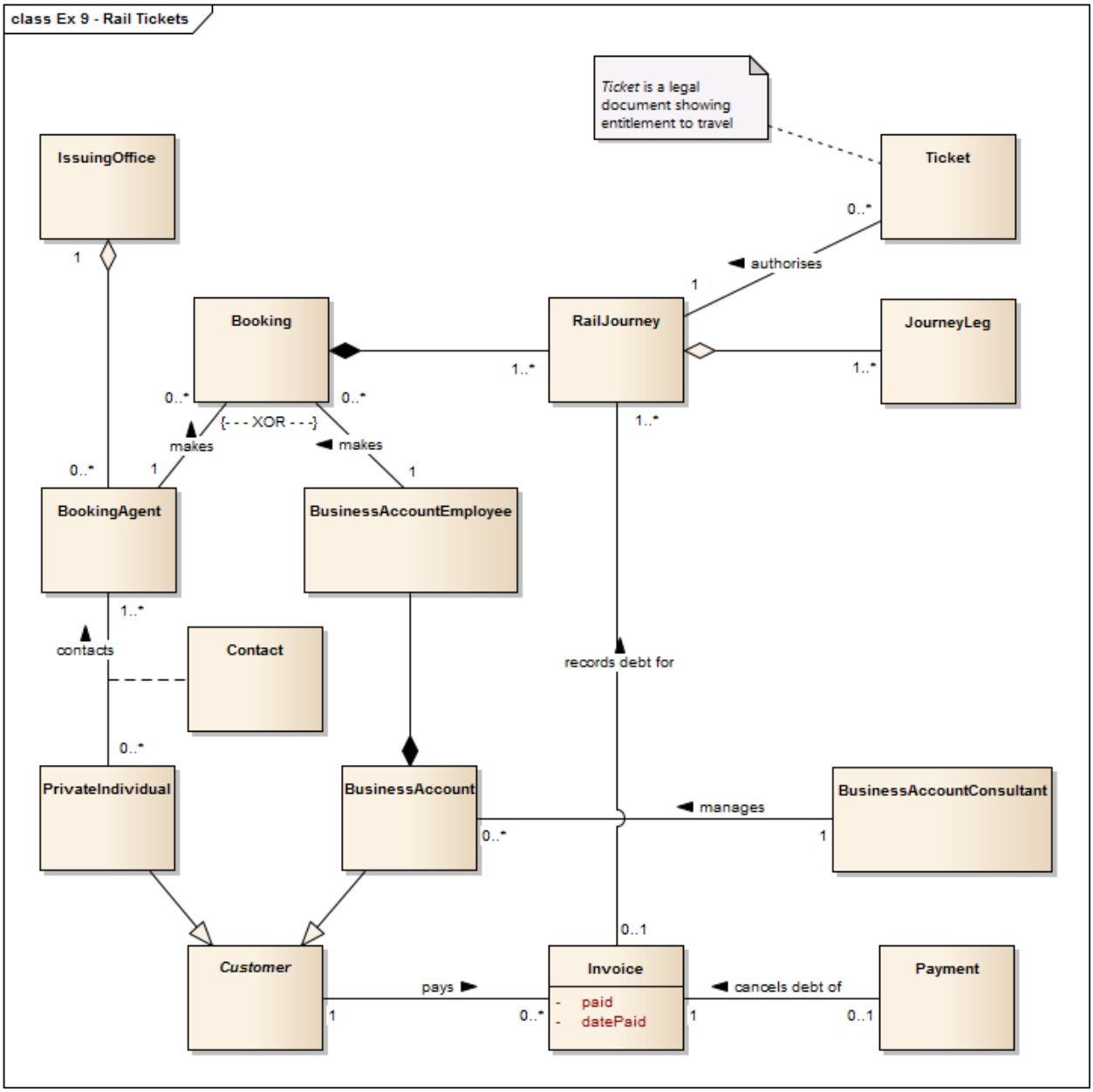
Exercise 8 – Lending library class diagram

Sample answer



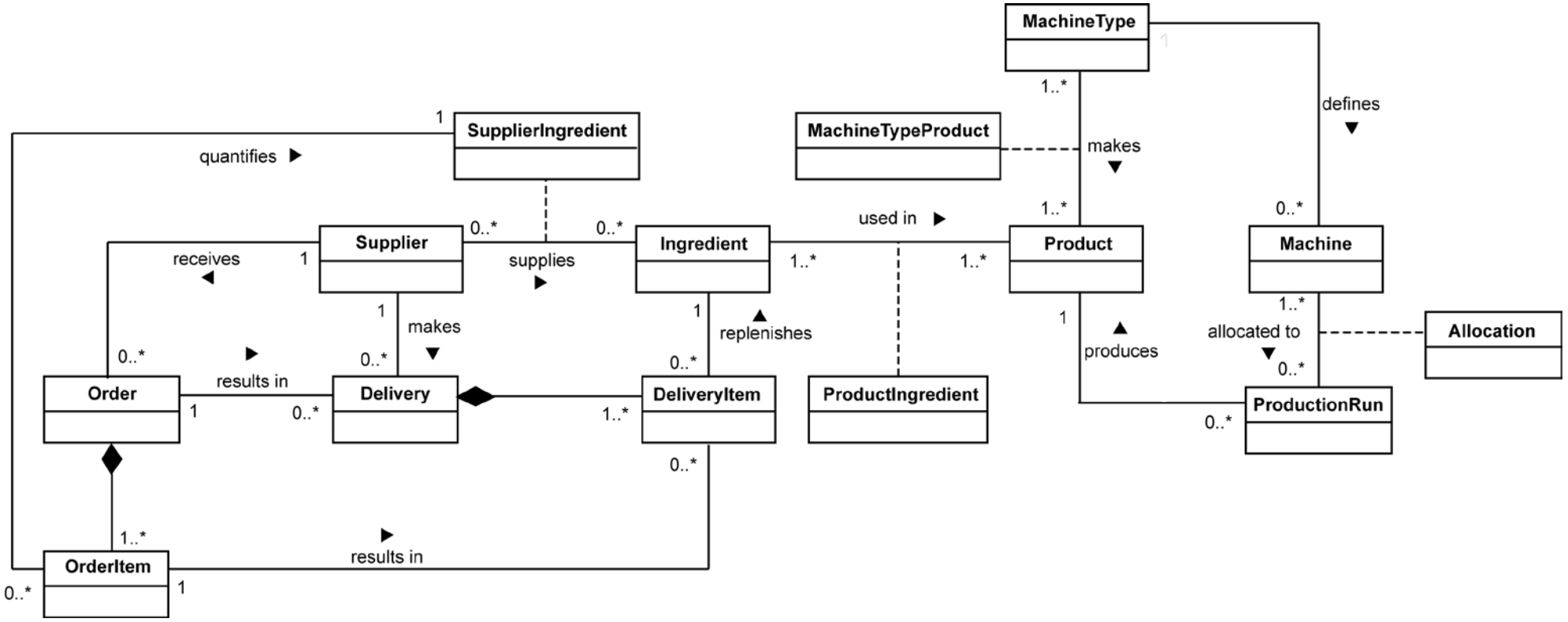
Exercise 9 – Rail ticket class diagram

Sample answer



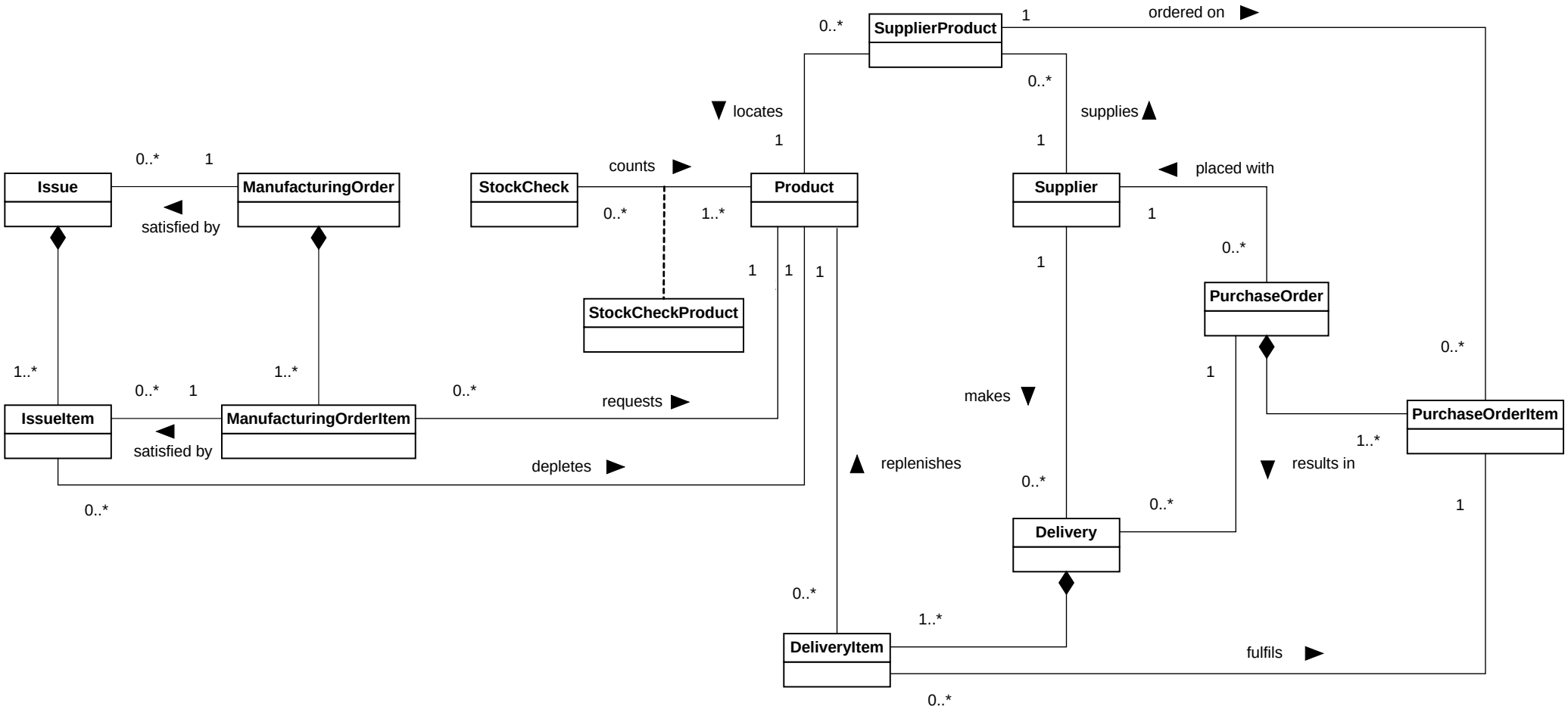
Exercise 10 – Bakery class diagram

Sample answer



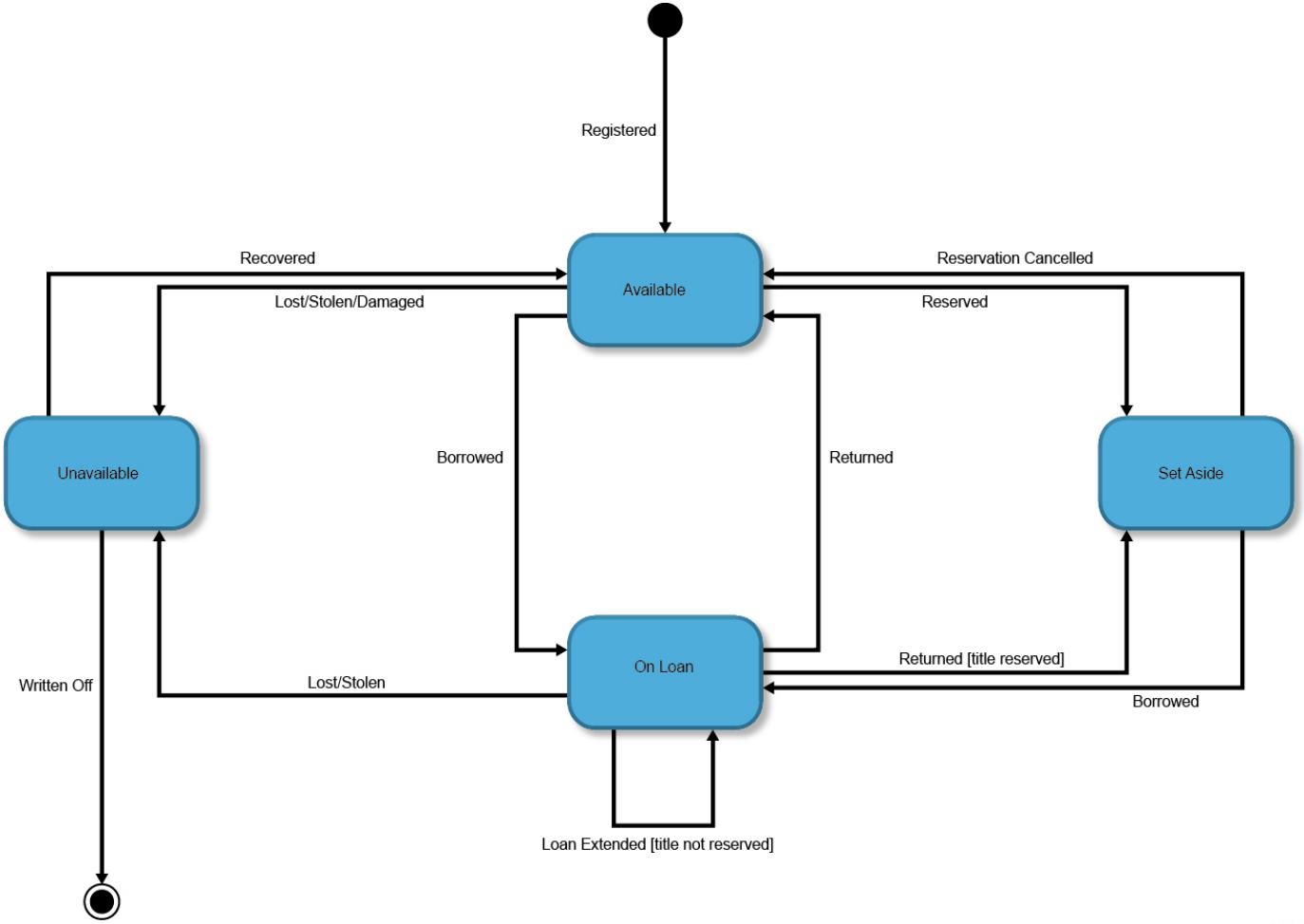
Exercise 11 – T‘n’T class diagram

Sample answer



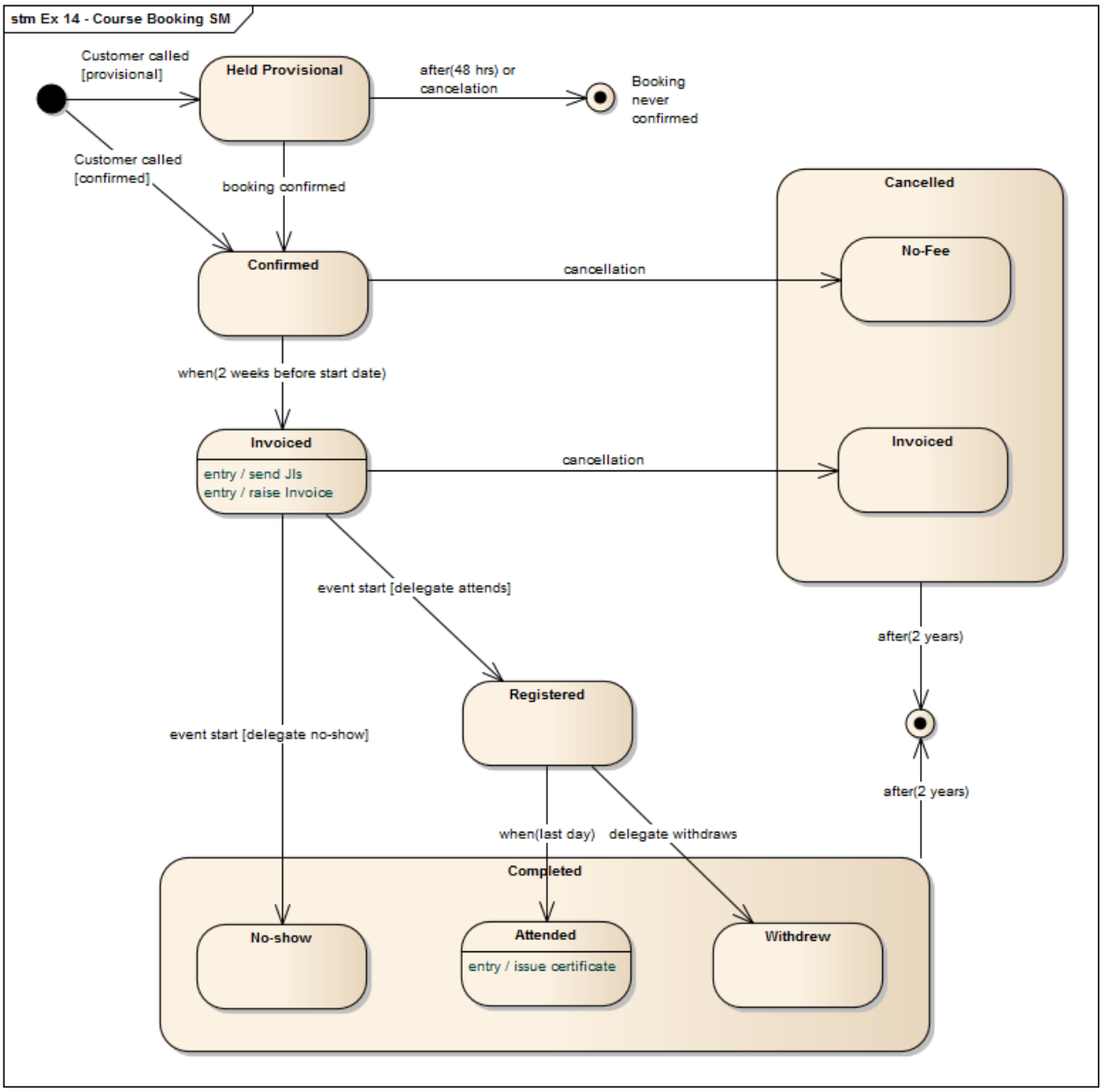
Exercise 12 – Lending Library – LoanItem State Machine

Sample answer



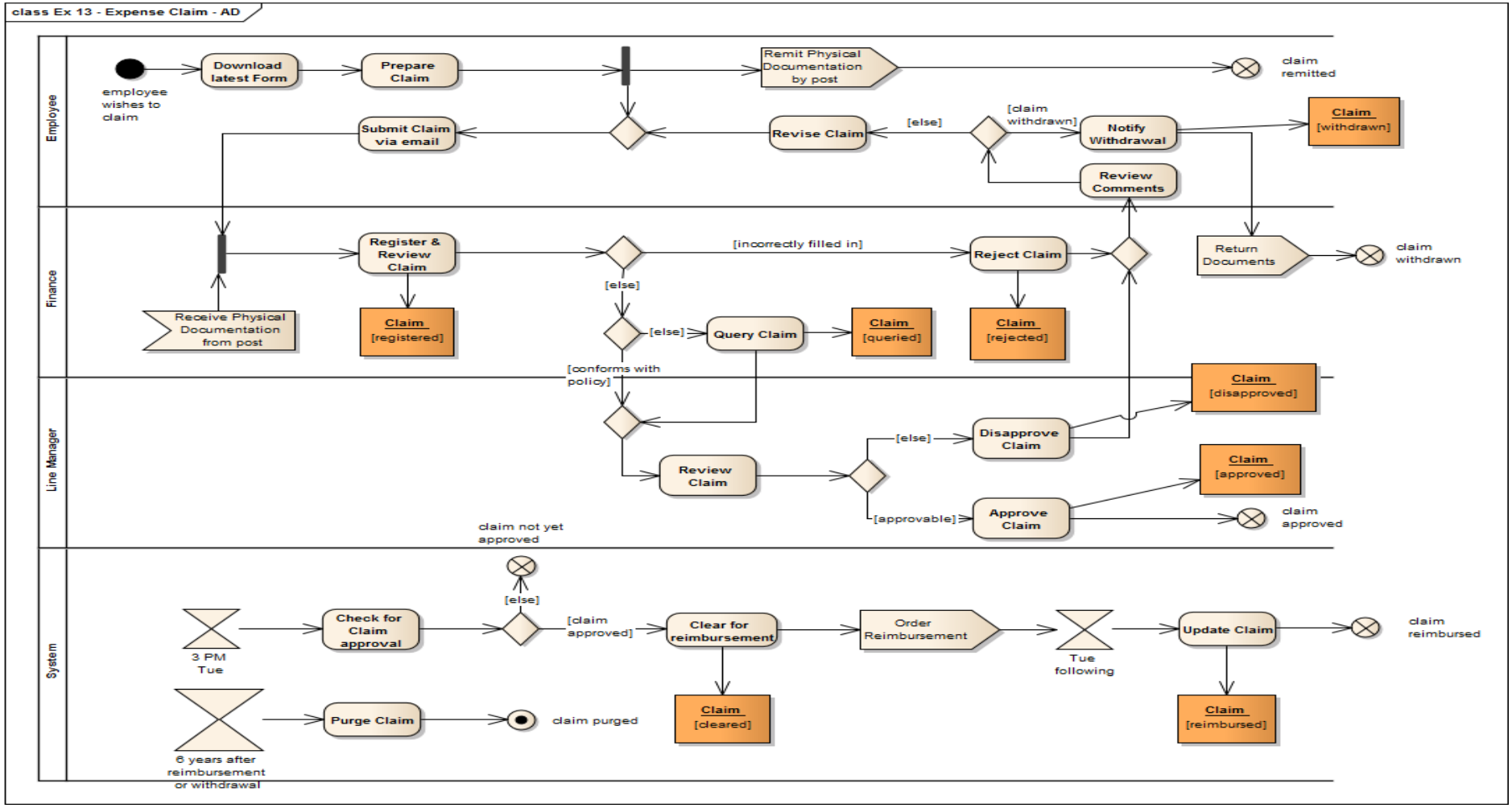
Exercise14 – Course booking state machine

Sample answer



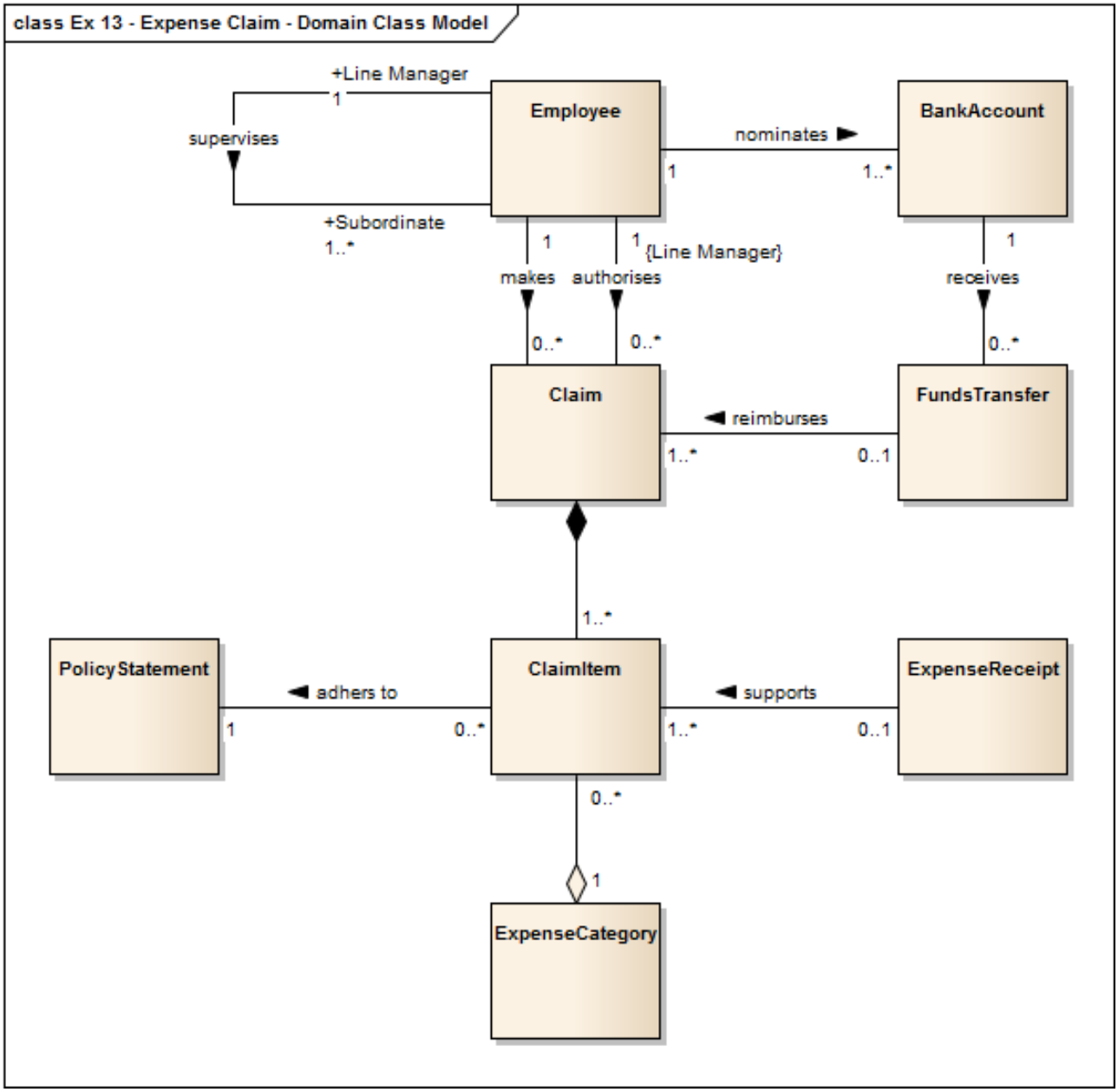
Exercise 13 – Expense Claim Activity Diagram (with Object Flows)

Sample answer



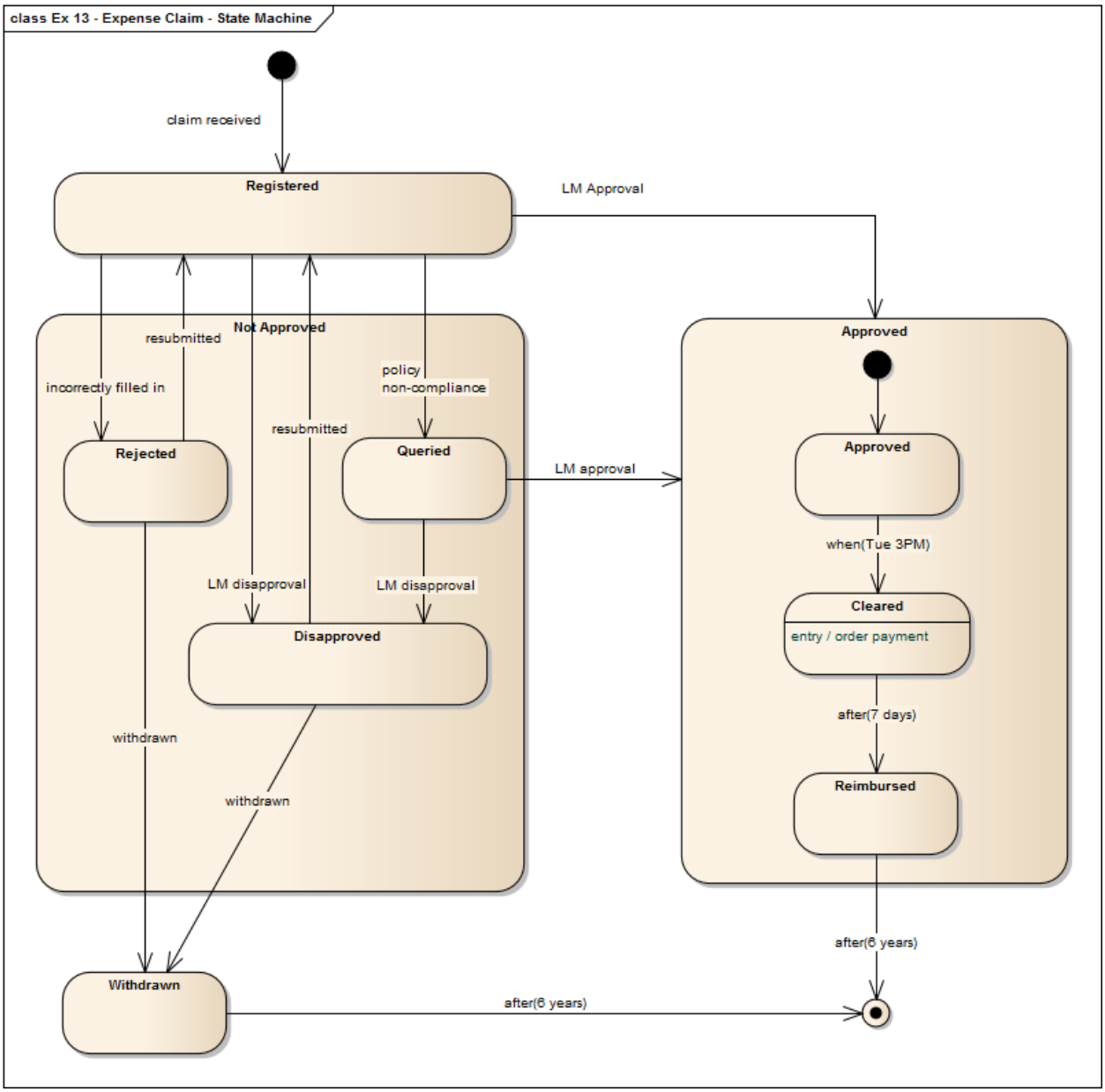
Exercise 13 – Expense Claim Class Diagram

Sample answer



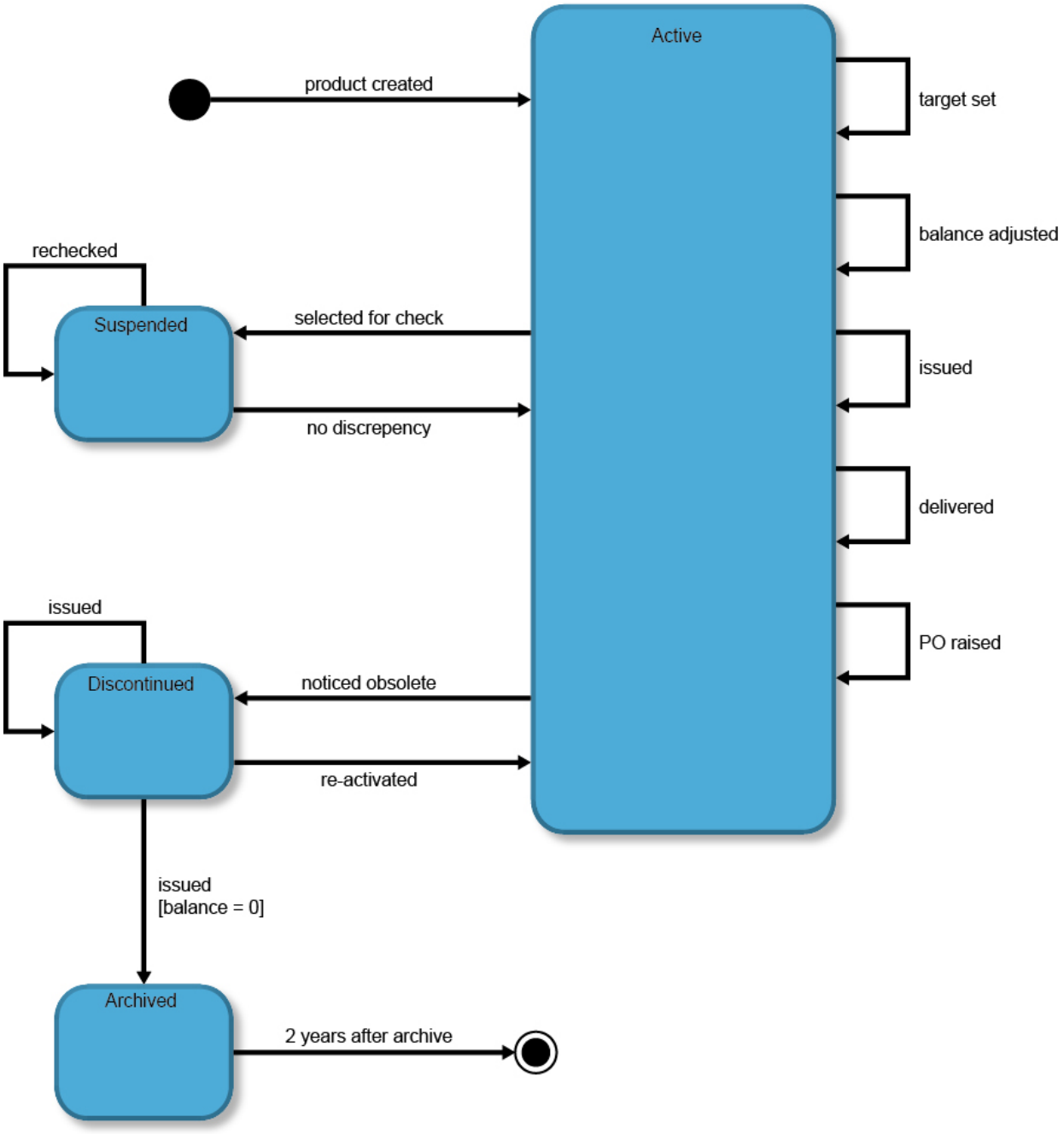
Exercise 13 – Expense Claim State Machine

Sample answer

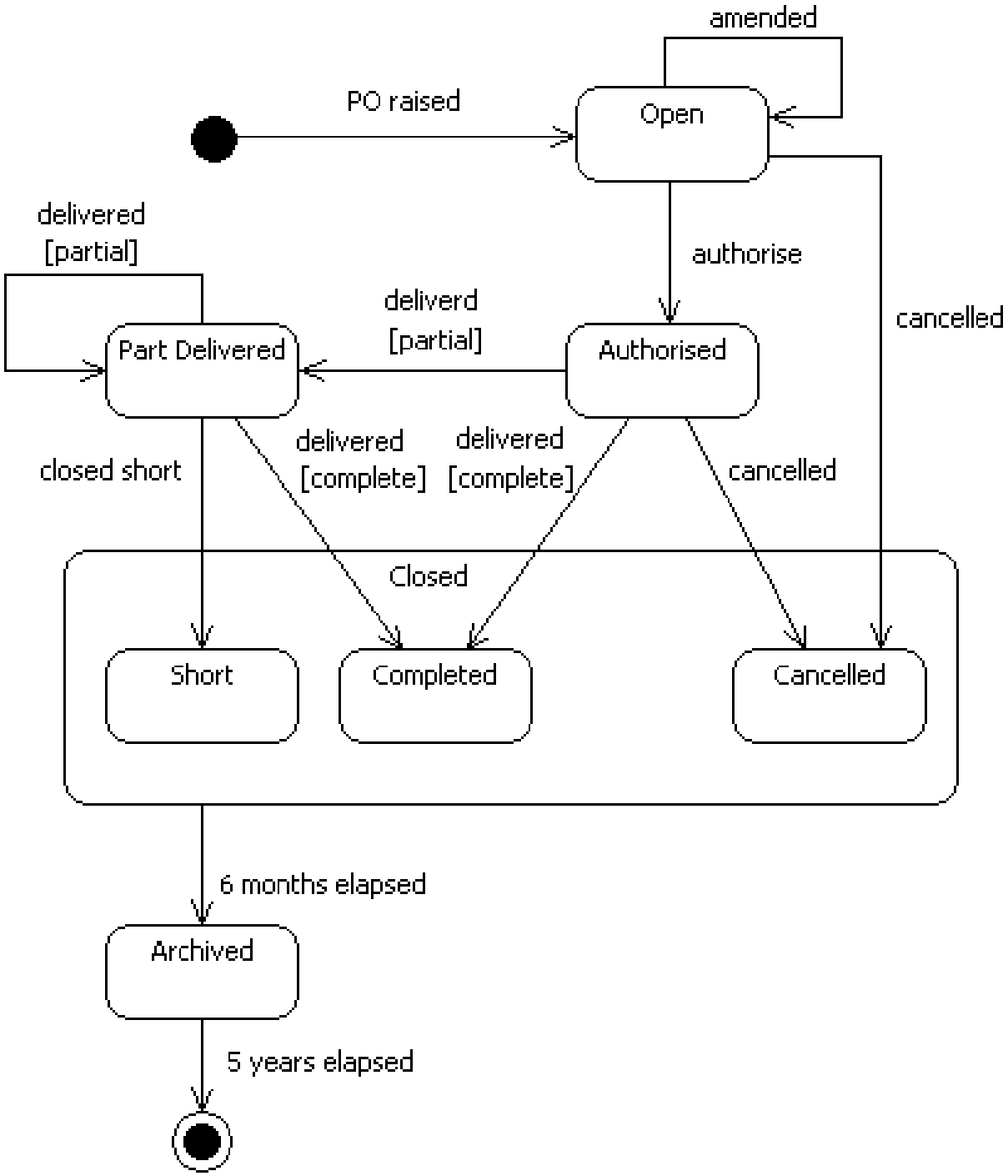


Exercise – T‘n’T State Machines Sample Answers

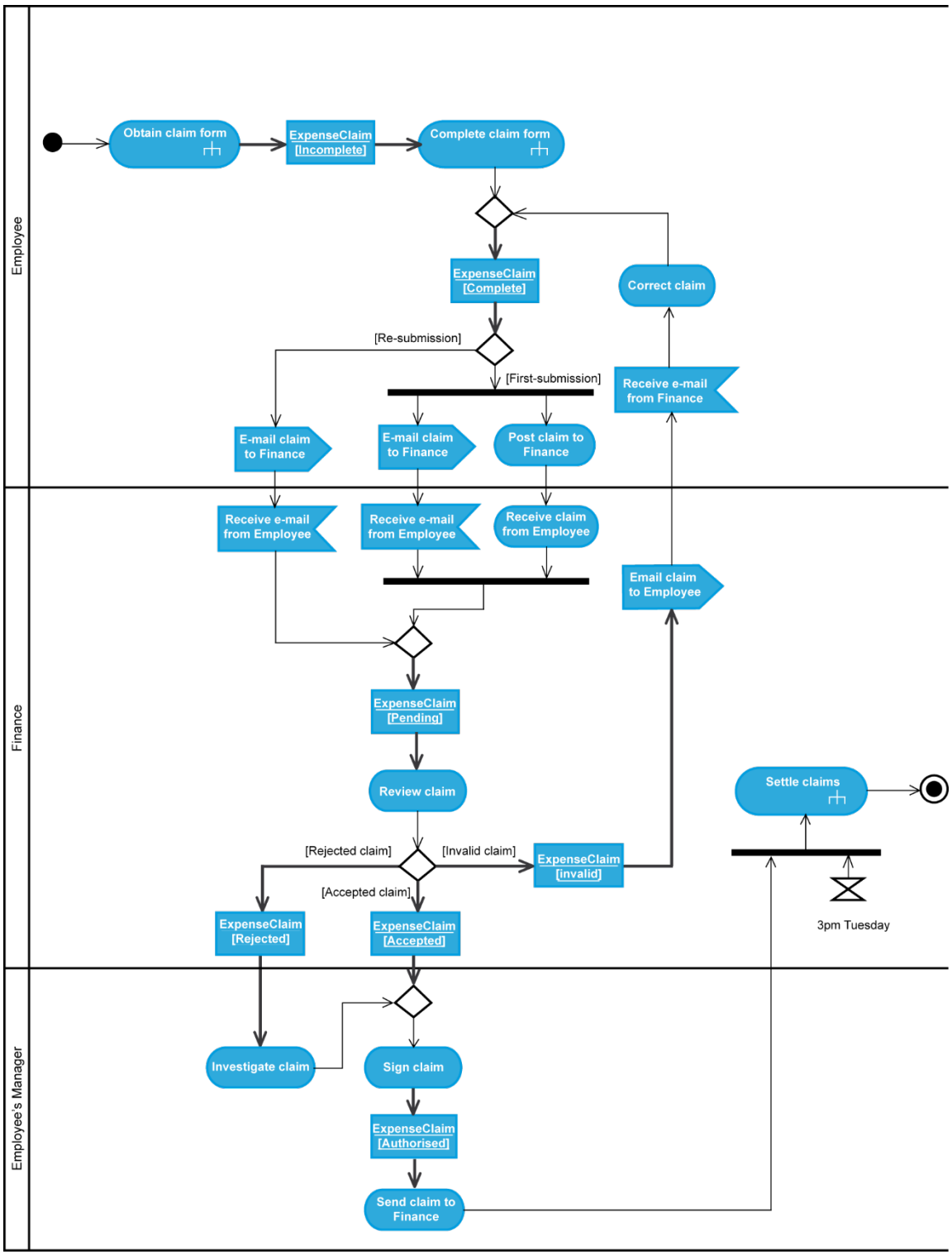
Product



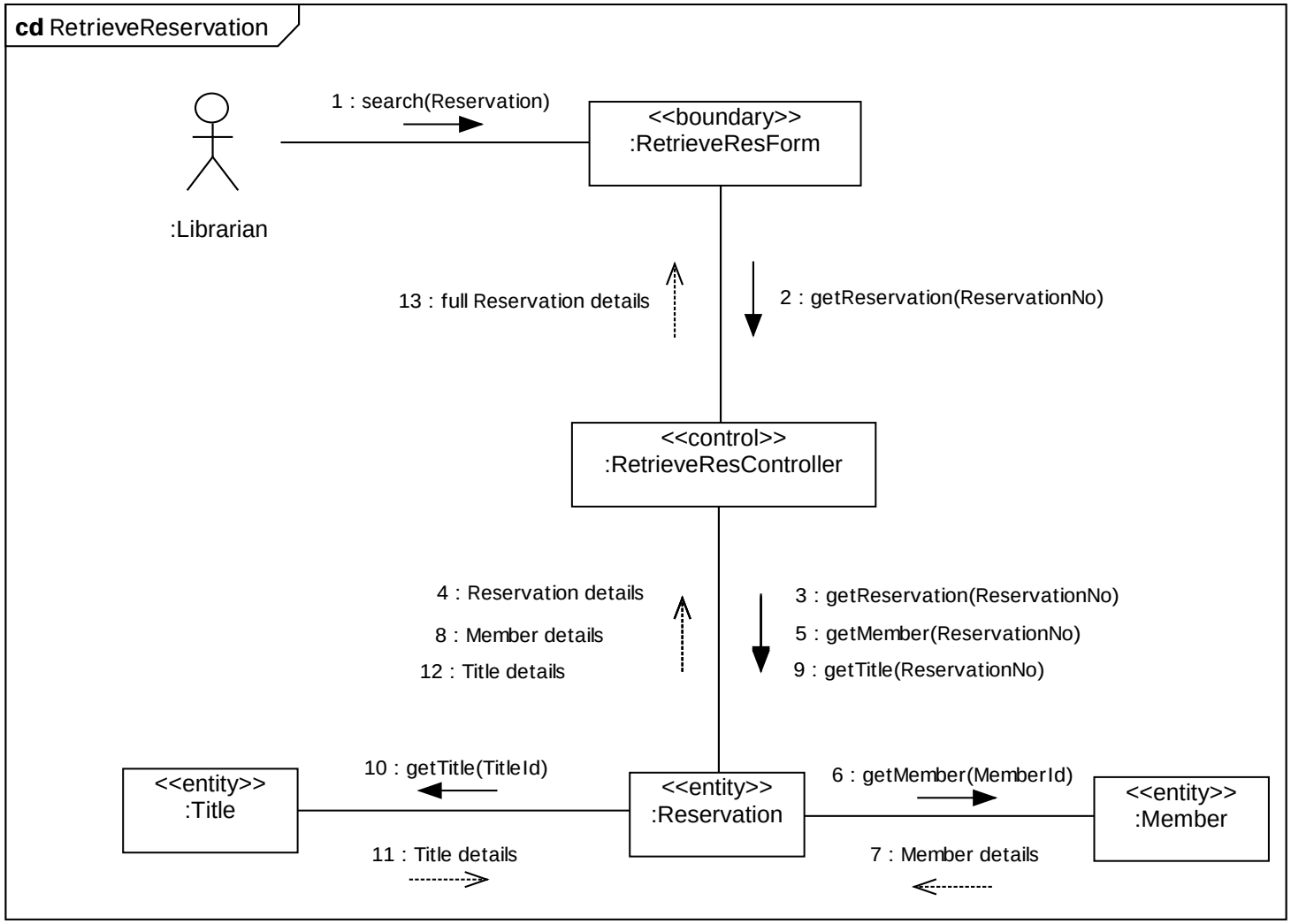
Purchase order



Exercise 18 – Expense Claim Activity Diagram



Lending library retrieve reservation communication diagram



Lending library retrieve reservation sequence diagram