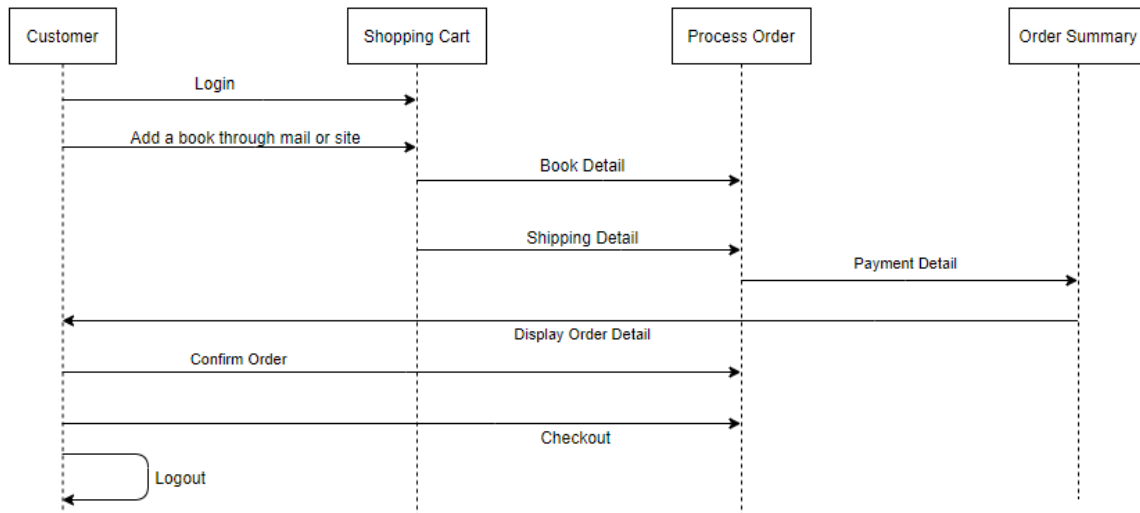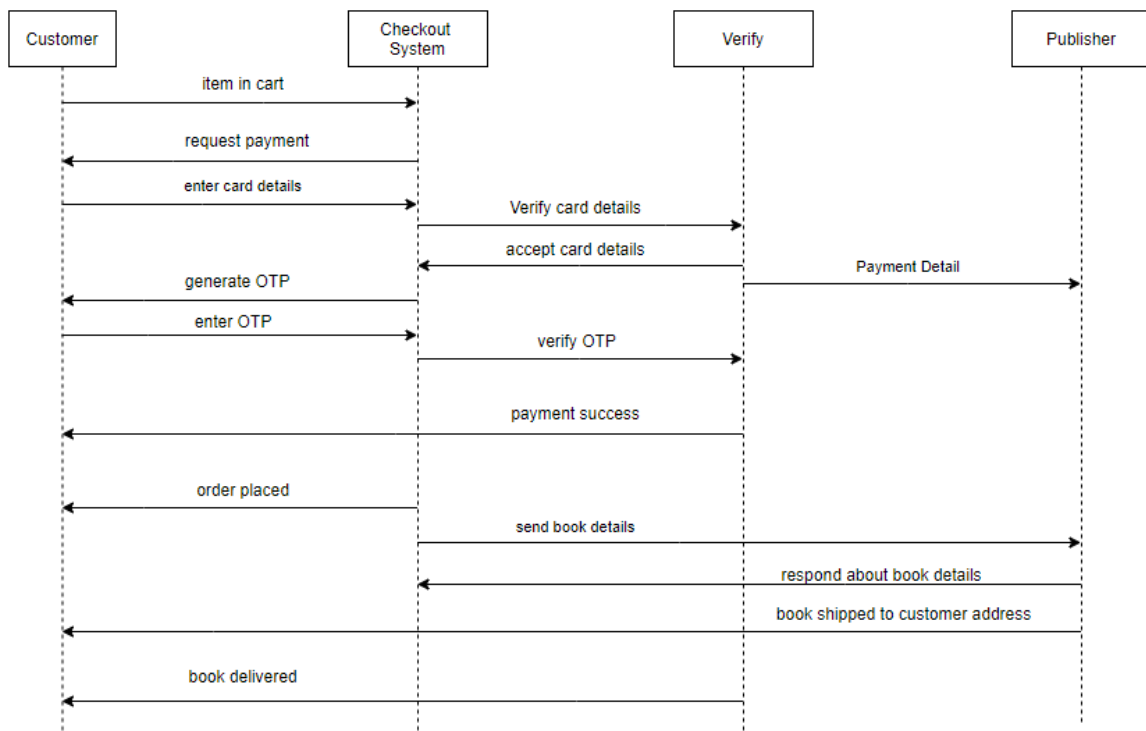Q1a)
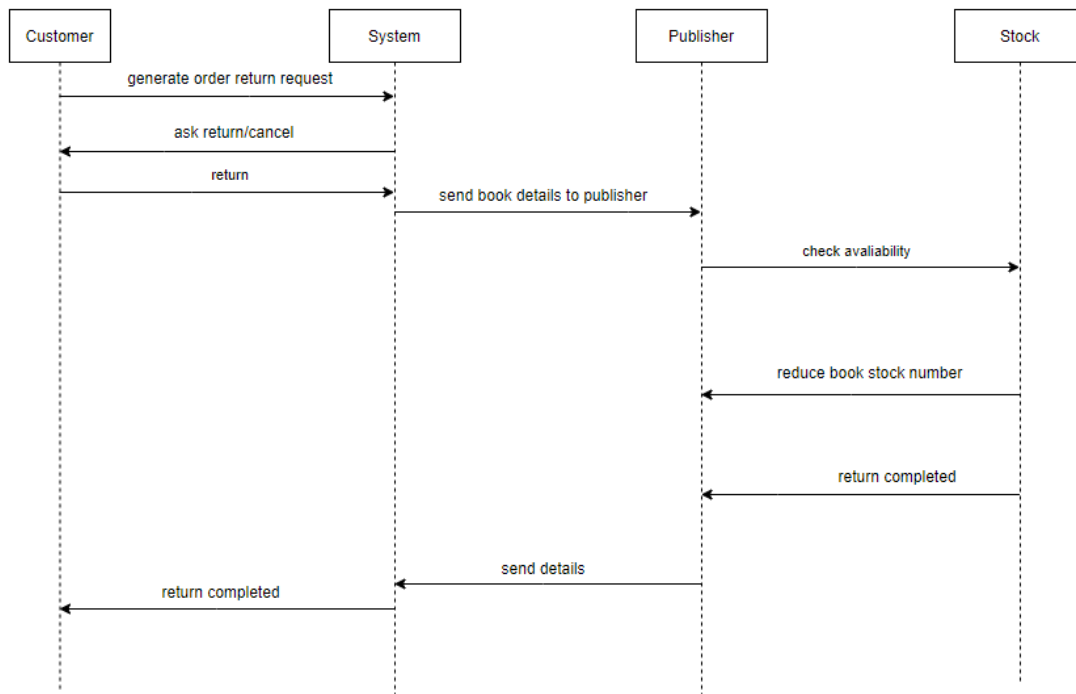
Sequence diagram of customer placed order
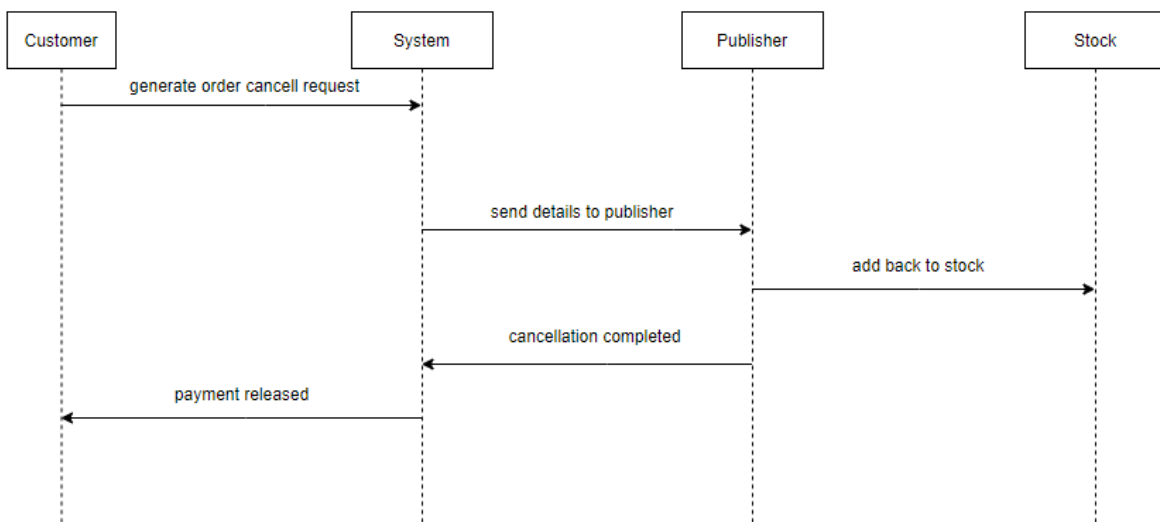

Order processing sequence diagram

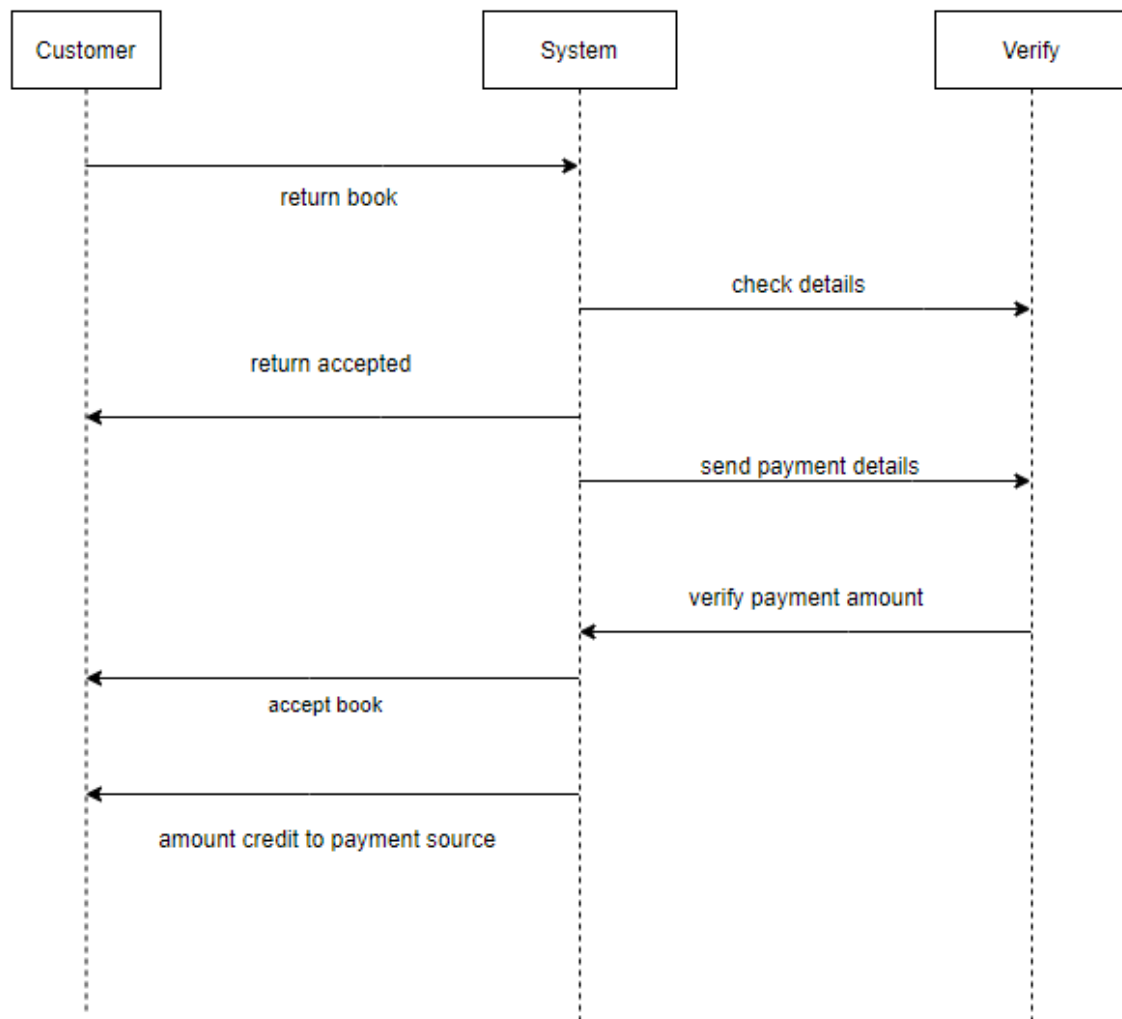## Order Cancellation sequence diagram in case of return

Customer	System	Publisher	Stock

generate order return request → (Customer to System)

ask return/cancel ← (System to Customer)

return → (Customer to System)

send book details to publisher → (System to Publisher)

check avaliability → (Publisher to Stock)

reduce book stock number ← (Stock to Publisher)

return completed ← (Stock to Publisher)

send details ← (Publisher to System)

return completed ← (System to Customer)

Order Cancellation sequence diagram in case of cancellation

Customer	System	Publisher	Stock

generate order cancell request → (Customer to System)

send details to publisher → (System to Publisher)

add back to stock → (Publisher to Stock)

cancellation completed ← (Publisher to System)

payment released ← (System to Customer)

Return of books

Customer	System	Verify

Customer → System: return book

System → Verify: check details

System → Customer: return accepted

System → Verify: send payment details

Verify → System: verify payment amount

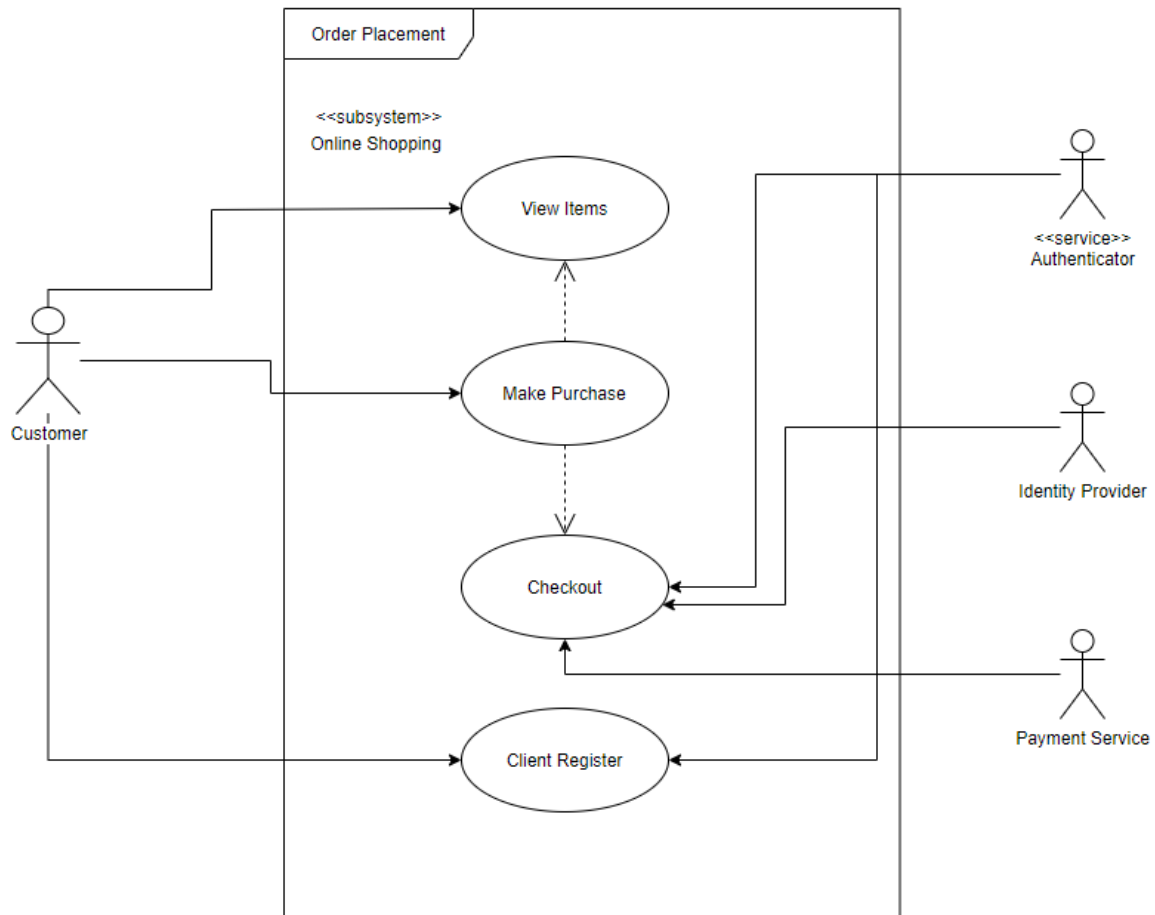System → Customer: accept book

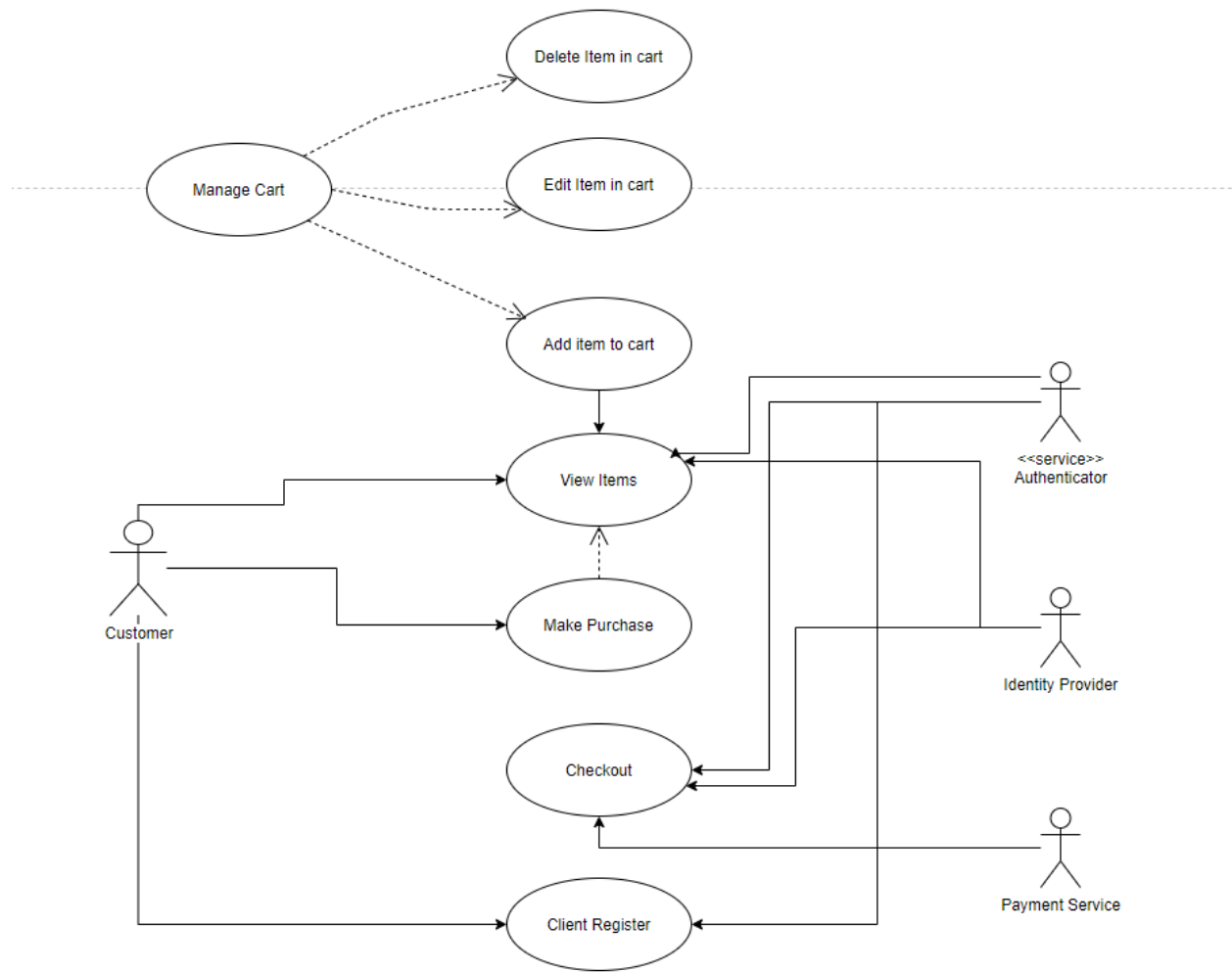System → Customer: amount credit to payment source

Q1b)

Order placement

GoF Pattern: Adapter because it's a combination of an inventory system and accounting system, thus it'll also have varying APIs.

Order Placement

<<subsystem>>
Online Shopping

Customer

View Items

Make Purchase

Checkout

Client Register

<<service>>
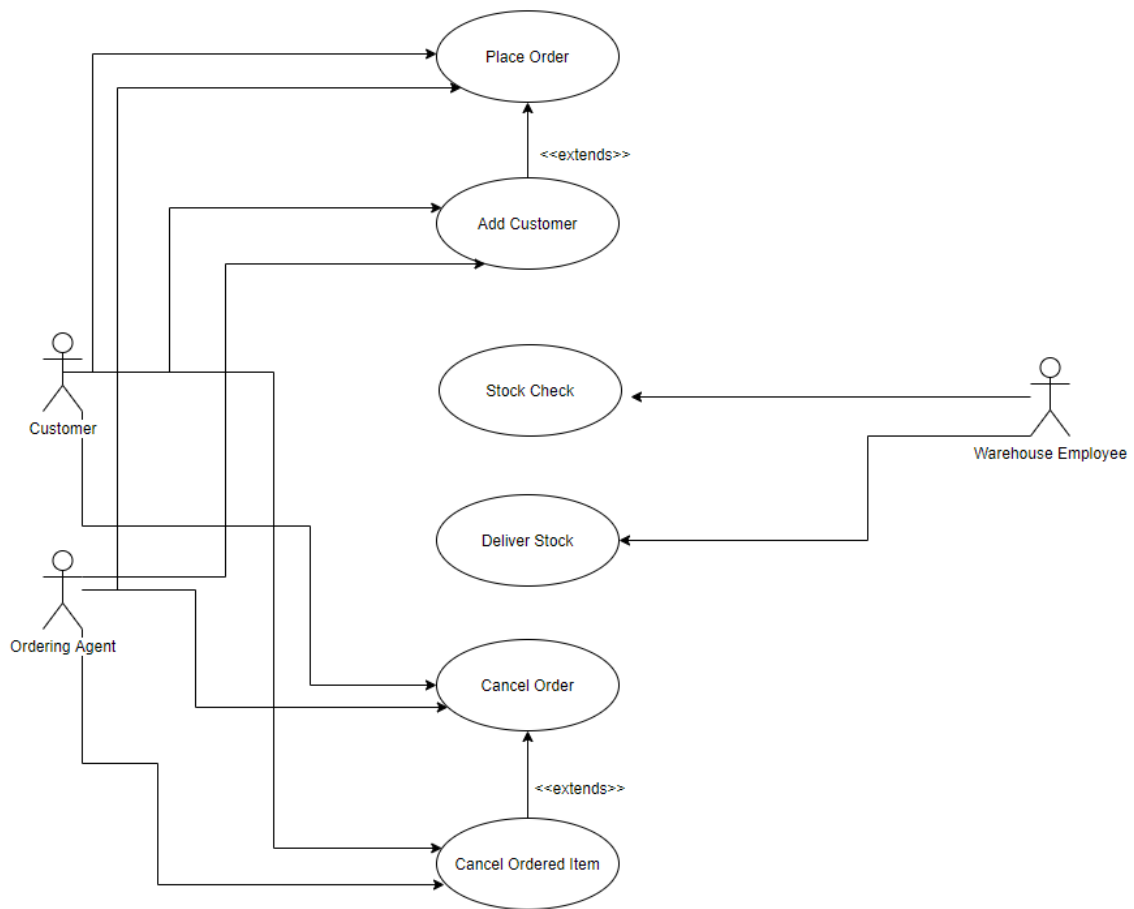Authenticator

Identity Provider

Payment Service

Order processing

GoF Pattern: Observer because it allows the object to send a message to the window to authenticate the service being provided.
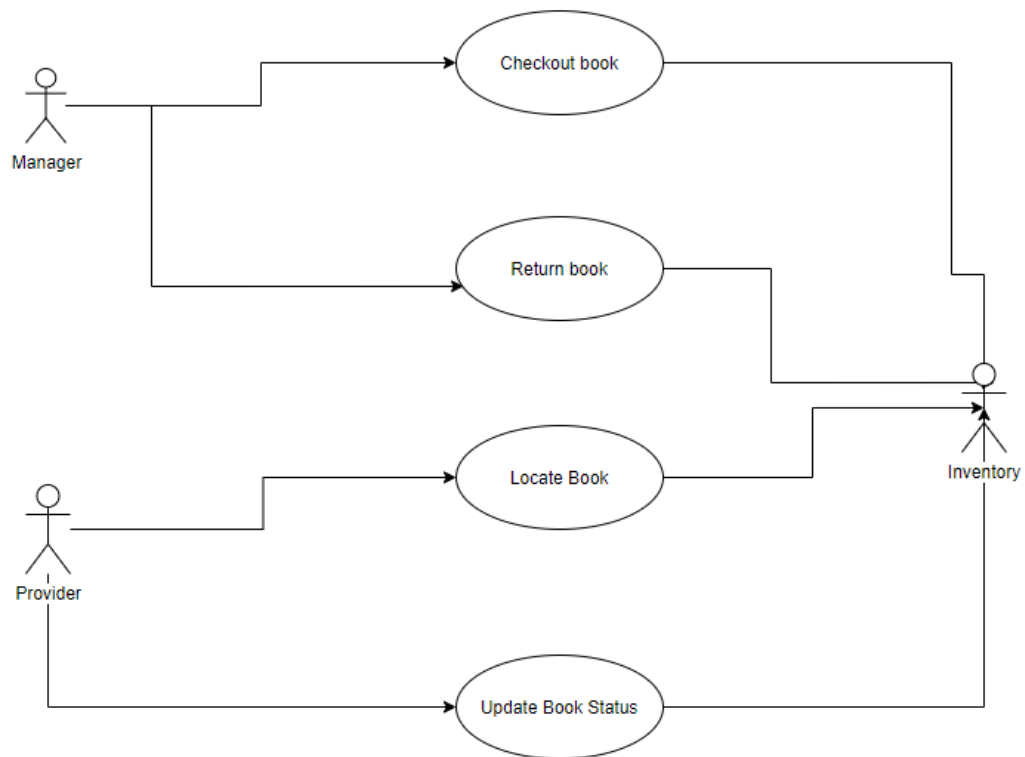
Order Cancellation

GoF Pattern: Adapter because it essentially an inventory System.

Return of books

GoF Pattern: Adapter because the returning of books is an inventory updating system, combined with an accounting system which only solidifies it for adapter GoF.

Q2)

User

user:userName
user:guestUser

+ password()
+ createpassword()
+ guest()

Customer

user:customerType

+ guest()
+ registeredUser()

place   1

Clerk

clerk: Employee

employeeType()
jobDesc()
permissions()

1

edit

*

Order

order:orderType

addOrder()
editOrder()
cancelOrder()
createOrder()

1...*   has   1

Payment

payment:paymentMethod
verify:verifyCredentials

paymentCash()
paymentCard()
paymentPaypal()
paymentCheque()
verifyPayment()

1...*

has

*

Shipment

shipment:shipmentType

shipmentMethod()
cancelShipment()
amendShipment()
createnewShipment()

1   contains   *

Book

book:genre

bookTitle()
bookAuthor()
bookPublisher()
bookStock()