Business Modeling Project: Solution

Solution

Step 1

Following are sub-scenarios extracted from the problem scenario:

- **Sub-scenario 1**: MedEq and customer negotiate, and may agree to exchange medical equipment for certain price. *Commercial transaction* pattern models this scenario.

- **Sub-scenario 2**: MedEq employs a shipper to ship the order (medical equipment) to the customer. *Outsourcing* pattern models this sub-scenario.

- **Sub-scenario 3**: MedEq buys replenishment stock from a contract manufacturer at a certain price. *Commercial transaction* pattern models this sub-scenario.

- **Sub-scenario 4**: The contract manufacturer employs a shipper to ship the order (medical equipment) to MedEq. *Outsourcing* pattern models this sub-scenario.

Step 2

Following are the roles and the agents adopting those roles for each of the sub-scenarios:

- **Sub-scenario 1**:

Role	Agent
Company	MedEq
Customer	A customer of MedEq

- **Sub-scenario 2**:

Role	Agent
Company	MedEq
Customer	A customer of MedEq
Shipper 1	FedUp, UpFed

- **Sub-scenario 3**:

Role	Agent
Company	MedEq
Manufacturer	FlexMan, SoleMan

- **Sub-scenario 4**:

Role	Agent
Company	MedEq
Manufacturer	FlexMan, SoleMan
Shipper 2	A shipper that the manufacturer employs for shipping the order to MedEq

Step 3

Following are the business tasks executed by each role:

- **Sub-scenario 1**:

Role	Task
Company	goodsCust
Customer	payComp

- **Sub-scenario 2**:

Role	Task
Company	goodsCust, payShip1
Customer	
Shipper 1	goodsCust

- **Sub-scenario 3**:

Role	Task
Company	payMfg
Manufacturer	goodsComp

- **Sub-scenario 4**:

Role	Task
Company	
Manufacturer	goodsComp, payShip2
Shipper 2	goodsComp

Step 4

- **Sub-scenario 1**:

- **Sub-scenario 2**:

```
         ┌────┬──────────────┐
         │ C3 │   payShip1   │
         │    ├──────────────┤
         │    │  create(C5)  │
         └────┴──────────────┘
       ↗                    ↘
  ( Company )          ( Shipper 1 )
       ↑    ↖          ↙        │
       │     ┌────┬──────────┐  │
       │     │ C4 │ create(C5)│  │
       │     │    ├──────────┤  │
       │     │    │ payShip1 │  │
       │     └────┴──────────┘  │
       ↓                        ↓
┌────┬──────────┐      ┌────┬──────────┐
│ C2 │ goodsCust │      │ C5 │ goodsCust │
│    ├──────────┤      │    ├──────────┤
│    │ payComp  │      │    │    T     │
└────┴──────────┘      └────┴──────────┘
       ↘                ↙
          ( Customer )
```

- **Sub-scenario 3**:

```
         ┌────┬──────────────┐
         │ C6 │   payMfg     │
         │    ├──────────────┤
         │    │  goodsComp   │
         └────┴──────────────┘
       ↗                    ↘
  ( Company )          ( Manufacturer )
       ↖                    ↙
         ┌────┬──────────────┐
         │ C7 │  goodsComp   │
         │    ├──────────────┤
         │    │   payMfg     │
         └────┴──────────────┘
```

- **Sub-scenario 4**:

```
         ┌────┬──────────────┐
         │ C8 │   payShip2    │
         │    ├──────────────┤
         │    │  create(C10)  │
         └────┴──────────────┘
       ↗                    ↘
( Manufacturer )        ( Shipper 2 )
       │    ↖          ↙        │
       │    ┌────┬──────────────┐ │
       │    │ C9 │ create(C10)  │ │
       │    │    ├──────────────┤ │
       │    │    │  payShip2    │ │
       │    └────┴──────────────┘ │
       ↓                          ↓
┌────┬──────────┐        ┌─────┬──────────┐
│ C7 │ goodsComp │        │ C10 │ goodsComp │
│    ├──────────┤        │     ├──────────┤
│    │ payMfg   │        │     │    T     │
└────┴──────────┘        └─────┴──────────┘
       ↘                  ↙
          ( Company )
```
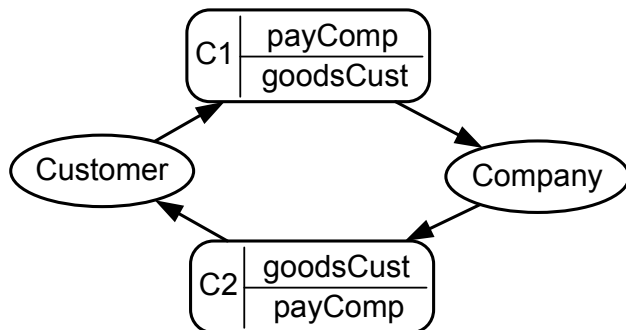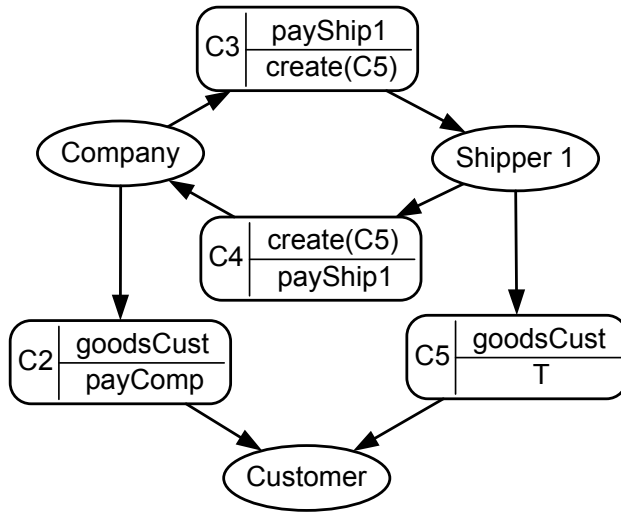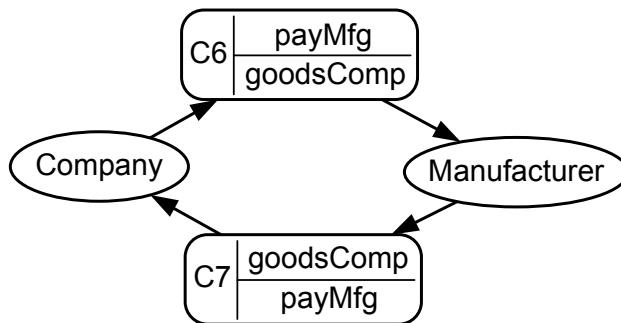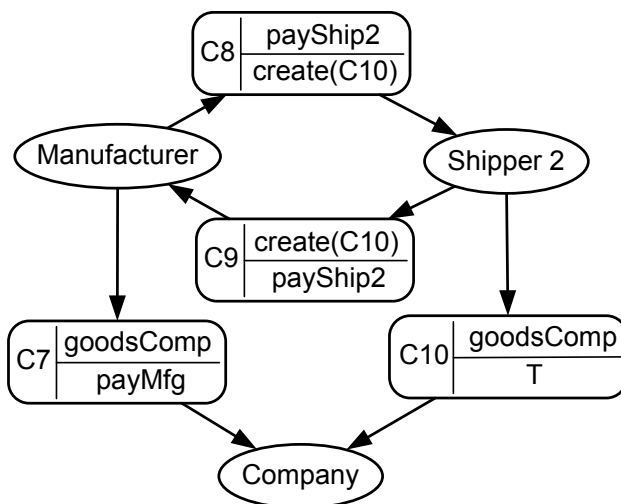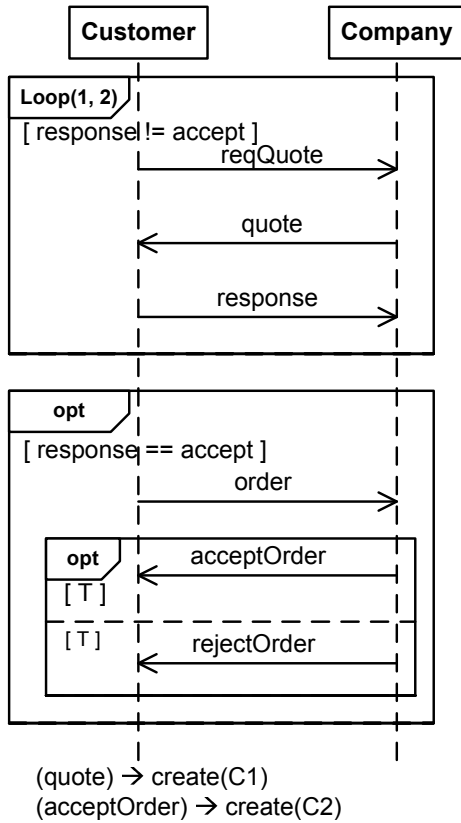
- **Business model:**
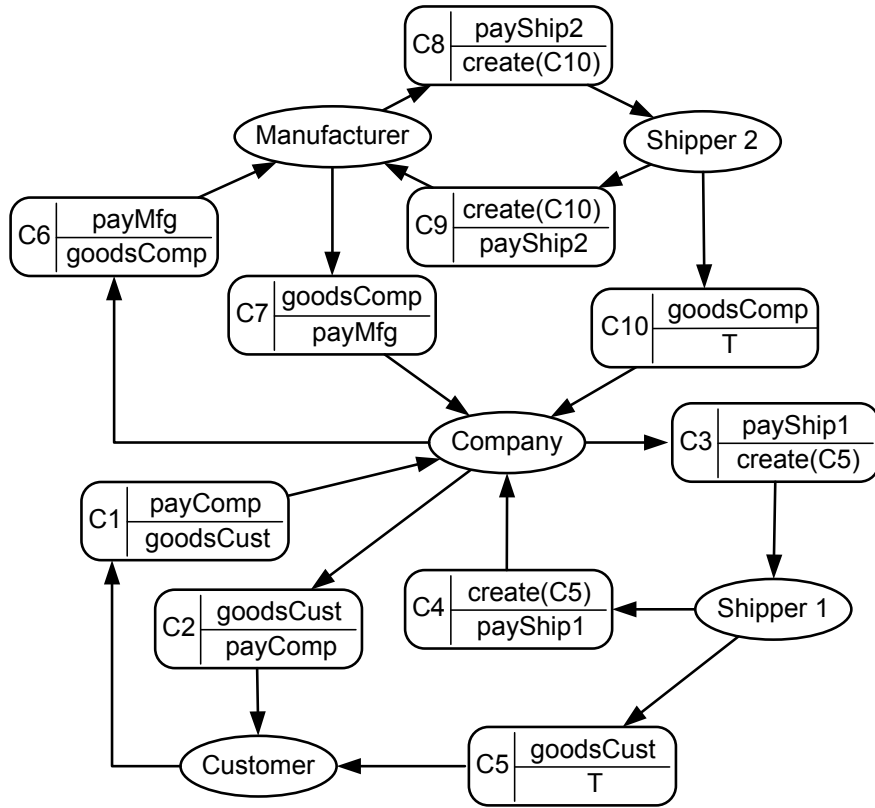
Step 5

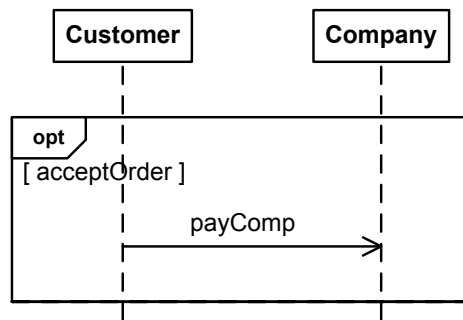Following are the sequence diagrams for sub-scenarios 1 and 2:

Customer · **Company**

Loop(1, 2)
[response != accept]
reqQuote →
← quote
response →

opt
[response == accept]
order →

opt
[T] ← acceptOrder
[T] ← rejectOrder

(quote) → create(C1)
(acceptOrder) → create(C2)

(a) Customer negotiates with company and places an order

Company · **Shipper 1** · **Customer**

opt
[acceptOrder
&& inStock]
reqShip →
← ackShipComp
ackShipCust →
goodsCust →

(reqShip) → create(C3)
(ackShipComp) → create(C4)
(ackShipCust) → create(C5)
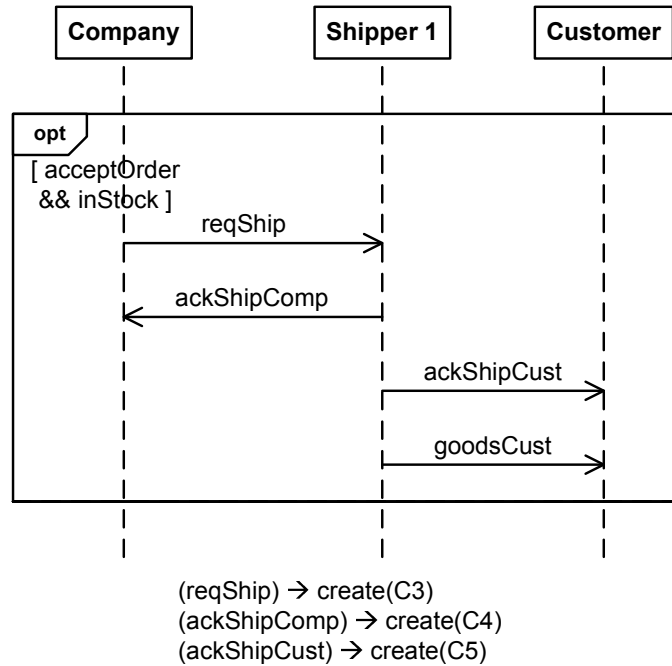
(b) Company requests a shipper to ship the goods (order) to the customer if the goods are in stock

Company · **Shipper 1**

opt
[ackShipComp]
payShip1 →
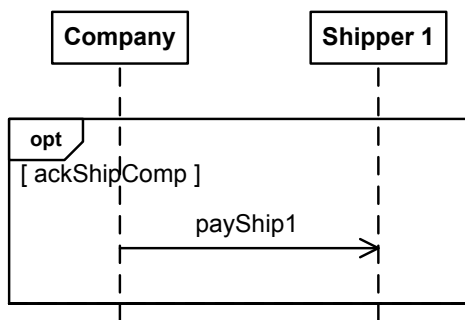
(c) Company pays Shipper 1 for shipping goods (order) to the customer

Customer · **Company**
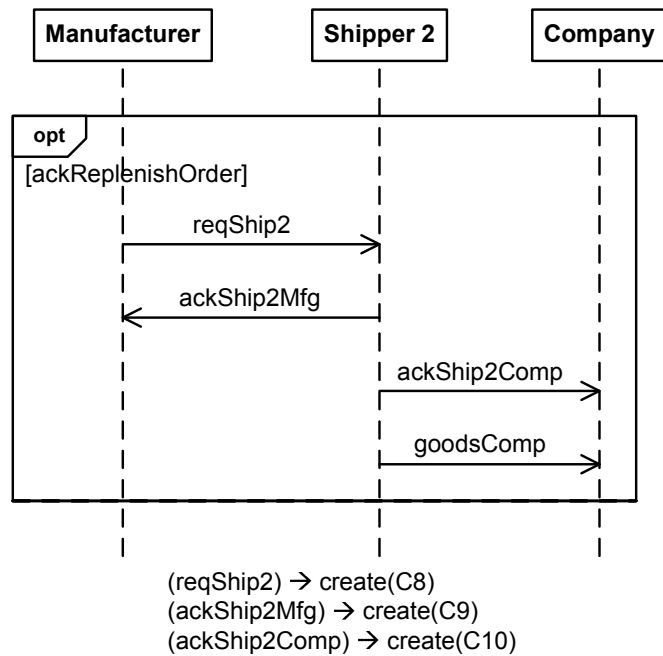
opt
[acceptOrder]
payComp →

(d) Customer pays Company for the goods (order)
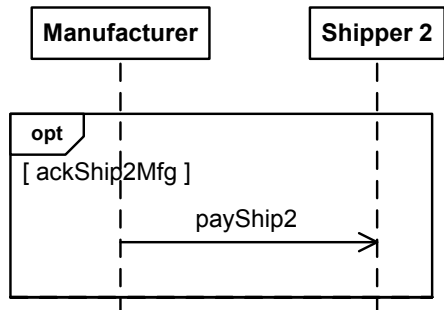
Following are the sequence diagrams for sub-scenarios 3 and 4:
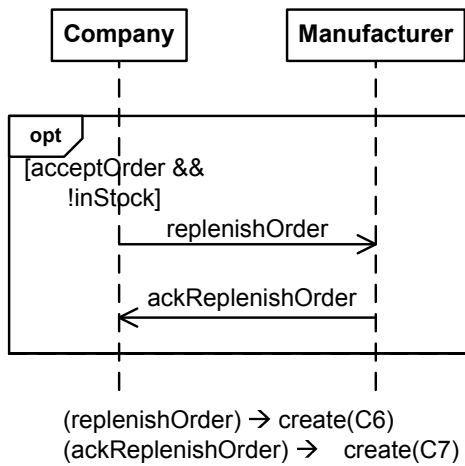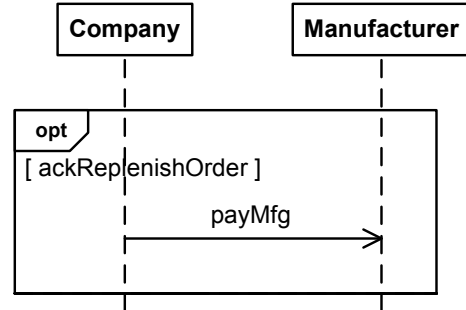

(a) Company places a replenishment order with a Manufacturer

(b) Manufacturer requests Shipper 2 to ship replenishment order to Company

(c) Manufacturer pays Shipper 2 to ship replenishment order to Company

(d) Company pays Manufacturer for the replenishment order