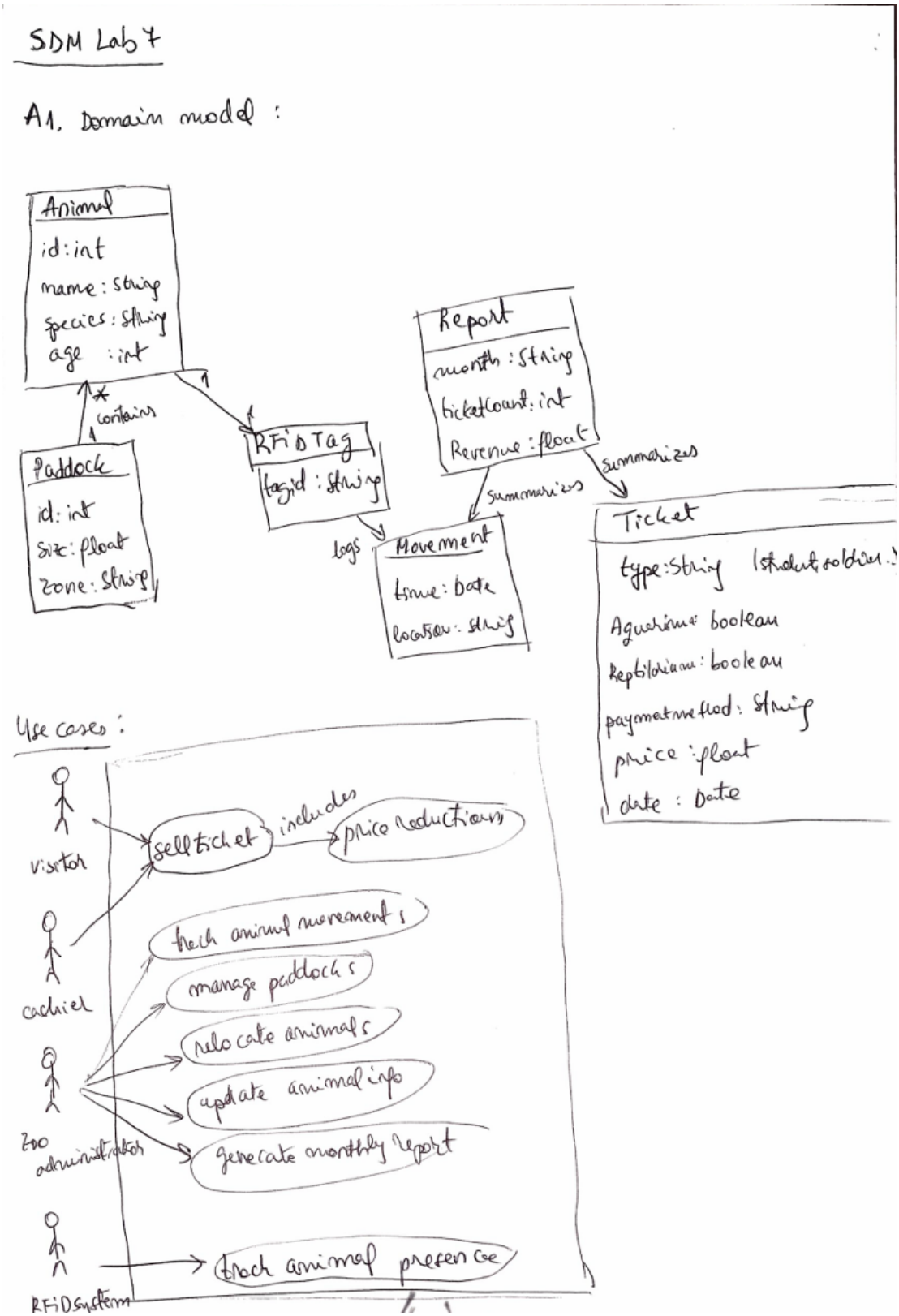
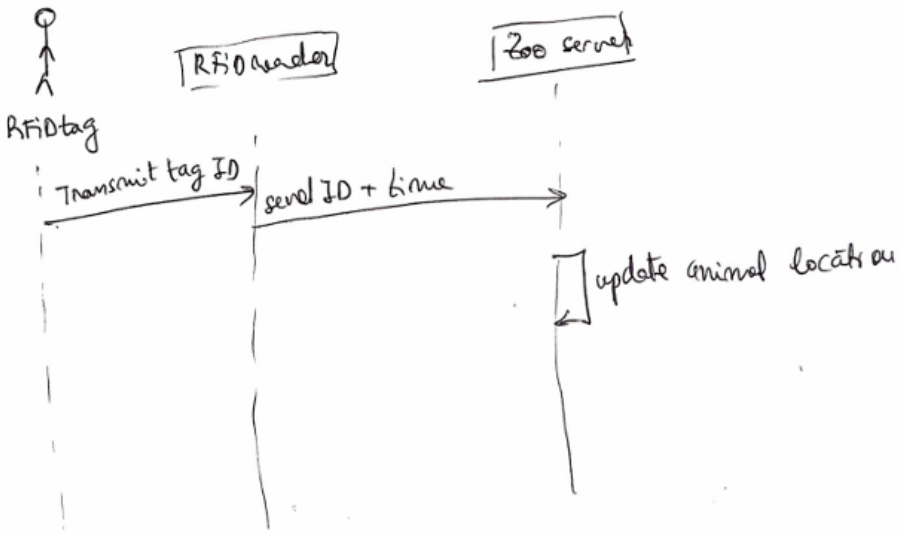
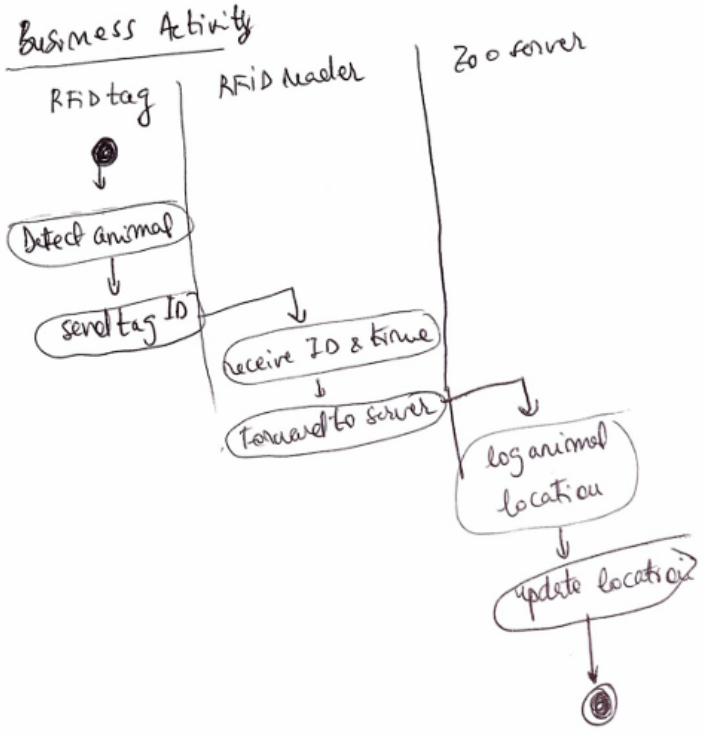
Lab 7 sdm


SDM Lab 7
A1. Domain model :
Animal
id: int
name: String
species: String
age : int
contains
Paddock
id: int
size: float
zone: String
RFIDTag
tagId : String
Report
month : String
ticketCount: int
Revenue : float
summarizes
summarizes
logs
Movement
time: Date
location: String
Ticket
type: String
Aquarium: boolean
Reptilarium: boolean
paymentmethod: String
price : float
date : Date
Use cases :
visitor
cachier
Zoo administration
RFIDsystem
sellticket
includes
price reductions
track animal movements
manage paddocks
relocate animals
update animal info
generate monthly report
track animal preference

Business interaction (animal monitoring)



Business Activity



A2 **Software Use Case Descriptions**

Use Case: Sell Ticket

Name: Sell Ticket
Primary Actor: Cashier
Goal: Sell a ticket with correct price and print it
Preconditions: Zoo system is running
Postconditions: Ticket is recorded in the system and printed

Main Flow:

1. Cashier selects ticket type (student, group, retiree, etc.)
2. Cashier selects attractions (aquarium, reptilarium)
3. System calculates total price (applying reductions)
4. Cashier selects payment method (cash or credit card)
5. System stores ticket info
6. System prints ticket

Alternative Flows:

- If invalid input: display error message
- If payment fails: prompt retry

Use Case: Relocate Animal

Name: Relocate Animal
Primary Actor: Zoo Administrator
Goal: Move an animal to a new paddock
Preconditions: Animal exists in the system
Postconditions: Animal's location is updated

Main Flow:

1. Admin selects animal
2. Admin selects new paddock
3. System checks if paddock is compatible (zone/species)

4. System updates animal location
5. System logs relocation as a movement

Alternative Flows:

- If paddock is full or not suitable: show warning and cancel

Operation: sellTicket()

Name: sellTicket
Parameters:

- ticketType: String
- includesAquarium: Boolean
- includesReptilarium: Boolean
- paymentMethod: String

Preconditions:

- Ticket type is valid
- Payment method is valid

Postconditions:

- A new Ticket object is created and stored
- Ticket includes all selected options and computed price
- Printed for visitor

Operation: relocateAnimal()

Name: relocateAnimal
Parameters:

- animalId: int
- newPaddockId: int

Preconditions:

- Animal and paddock exist

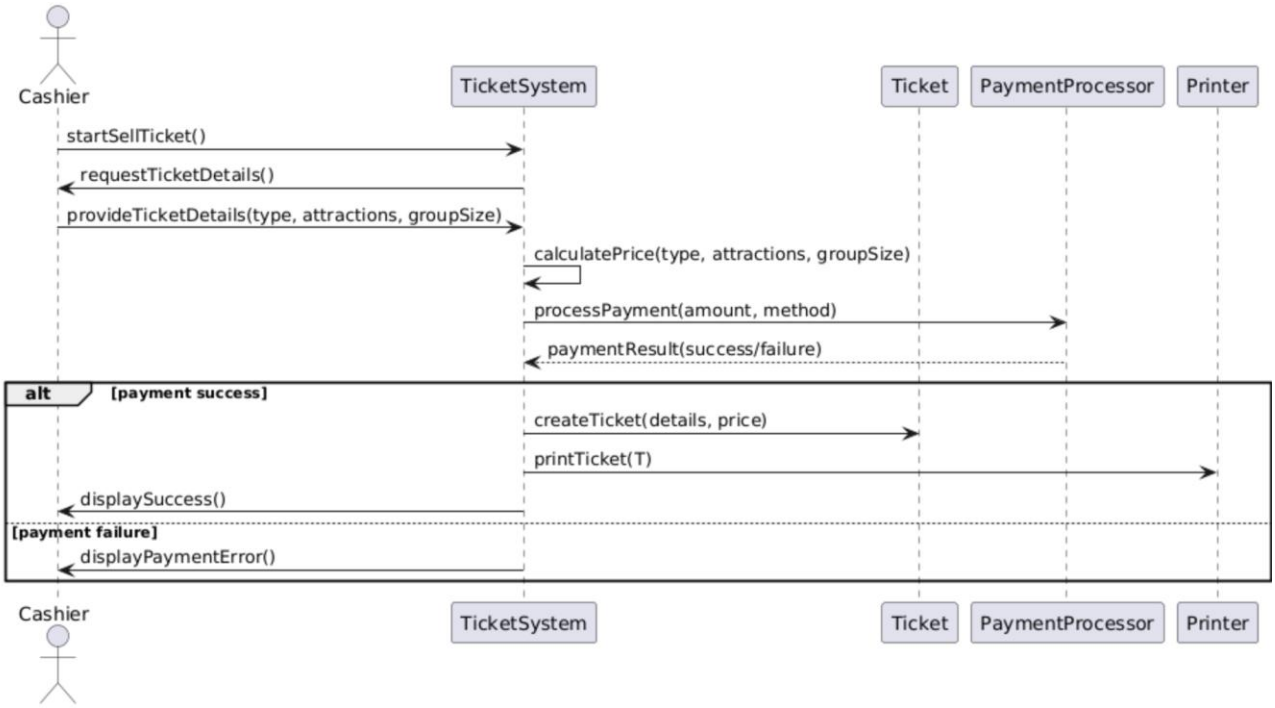
- New paddock accepts this species

Postconditions:

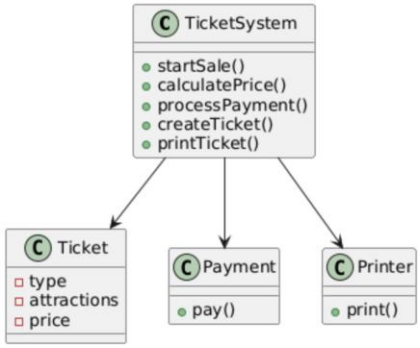
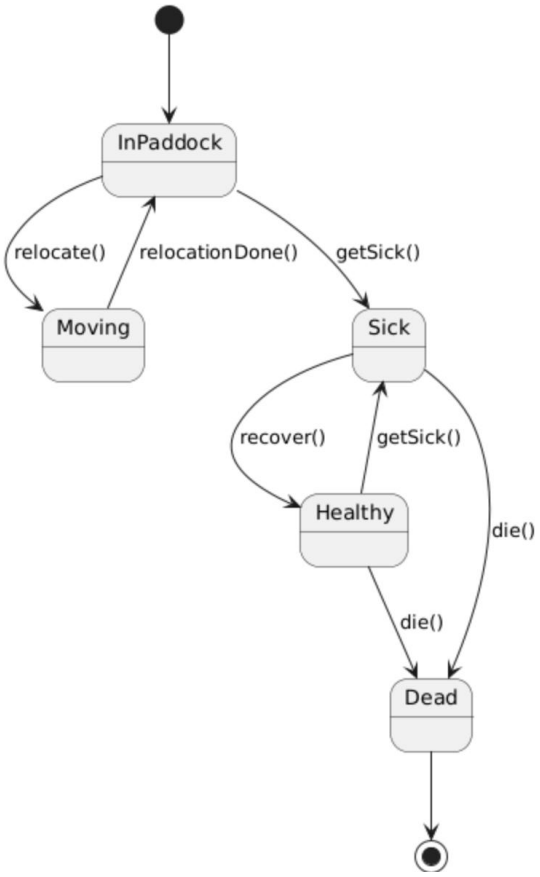
- Animal's location updated
- A movement record is added
- Animal status is unchanged (unless moved due to status change)

A3

interaction diagram :



Design class diagram



A4: Statechart diagram: