Final Deliverable 2

Subject: Software Design and Analysis

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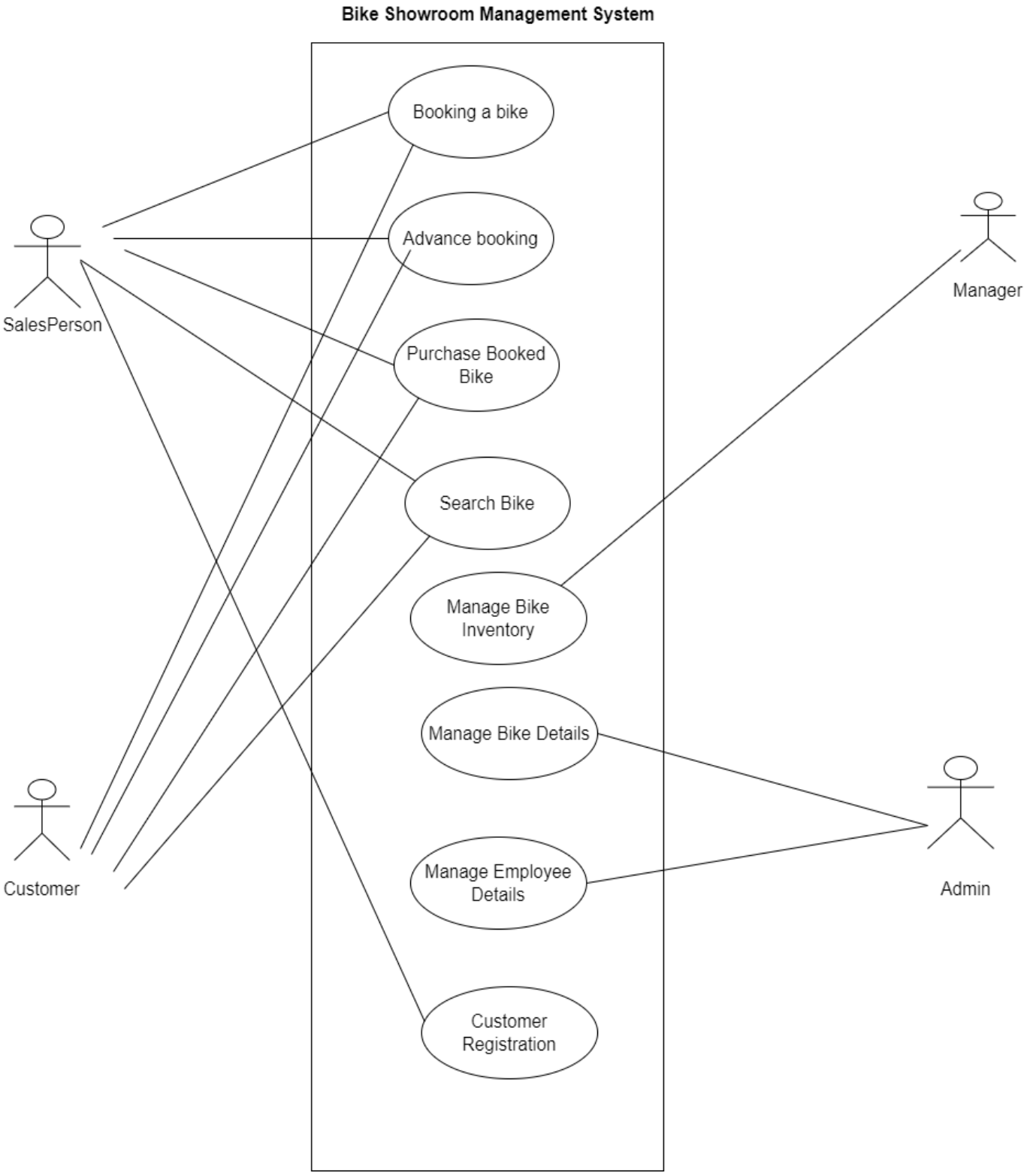
Use Case Diagram



Use Cases

Use Case: 1

Booking a bike

Pre-condition:

Customer must have its own original CNIC and a printed paper copy of that.

Actors:

Customer, Salesperson

Stakeholders:

Employees, Customers, Owner, Investors, and Suppliers

Post condition:

Customer must pay to get bike. Receipt must be generated. Update the system on every transaction. Payment and customer record must be stored for re-use.

Actor Action	System Response
1. Customer arrives at a Bike showroom's reception to book a bike.	
2. Customer demands to give bikes details.	
3. Salesperson at reception enters query in system.	
	4. System presents information related to bikes.
5. Salesperson tells bikes details to customer and ask which bike you wants to book?	
6. Customer choses a bike and request to book this bike.	
7. Salesperson enters the chosen bike details to check whether the stock is available or not.	
	8. System verifies and presents that bike is available.
9. Salesperson tells the customer to register yourself for booking. Salesperson initiates the registration process.	
	10. System starts the registration process.
11. Salesperson demands information for registration.	
12. Customer gives relevant data to salesperson.	
13. Salesperson enters the customer's data.	
	14. System handles registration.
	15. System starts a new sale

16. Salesperson enters the chosen bike details.	
	17. System records the bike line items.
	18. System calculates the amount including tax and presents, records the VIN number along with Customer details, updates inventory, and generate receipt.
19. Salesperson asks for payment.	
20. Customer pays.	
	21. System handles payment.
	22. System ends sale.
23. Customer takes the receipt along with purchased bike and leaves.	

Alternative scenarios

8. If stock is not available

1a.

Actor Action	System Response
	1. System verifies and presents that bike is not available.
2. then customer books bike.	
	3. System issue receiving date (whenever stock will come almost after fortnite) and generate booking receipt.
4. Customer take booking slip and leaves.	

After that

Actor Action	System Response
1. Customer comes on receiving date and tells the booking information and Salesperson enters.	
	2. System verifies the booking and customer.

All other steps remain the same.

2a.

If customer do not come with-in a month then booking cancels.

12. If Customer unable to provide personal details for registration

1a.

Actor Action	System Response
1. Salesperson cancel registration process.	

2a. If customer is already registered.

Actor Action	System Response
1. Salesperson enters the customer CNIC.	
	2. System verifies and presents customer information.

All other steps remain same.

19. If Customer wants to choose another method for payment instead of traditional cash payment method.

1a.

Actor Action	System Response
1. Customer wants to pay through debit card.	
2. Customer swipe the debit card and enters password.	
	3. System verifies and handles transaction.

All other steps remain same.

2a. If there is insufficient balance in account.

Actor Action	System Response
	1. System identifies and presents that customer have insufficient balance to purchase this bike.
2. Salesperson cancels the booking.	

19b. If Customer wants to choose another method for payment instead of traditional cash payment method.

1a.

Actor Action	System Response
4. Customer wants to pay through credit card.	
5. Customer swipe the credit card and enters password.	
	6. System verifies and handles transaction.

All other steps remain same.

2a.

Actor Action	System Response
	3. System identifies and presents that customer has reached the credit card limit and can't purchase this bike.
4. Salesperson cancels booking.	

Use Case: 2

Advance booking

Overview:

If customer wants advance booking of new coming model bikes then he should have to book bike along with advance payment.

Pre-condition:

Customer must have its own original CNIC and a printed paper copy of that.

Actors:

Customer, Salesperson

Stakeholders:

Employees, Customers, Owner, Investors, and Suppliers

Post condition:

Booking receipt must be generated. Update the system on every transaction. Payment and customer record must be stored for re-use.

Actor Action	System Response
1. Customer arrives at a Bike showroom's reception for advance booking of bike.	
2. Customer demands to give upcoming bikes details.	
3. Salesperson at reception enters query in system.	
	4. System presents information related to bikes.
5. Salesperson tells bikes details to customer and ask which bike you wants to book?	
6. Customer choses a bike and request to book this bike.	
7. Salesperson starts a new sale	
	8. System starts a new sale
9. Salesperson enters the chosen bike details.	
	10. System records the bike line items.
	11. System calculates the amount and presents. 12. System issue receiving date (whenever stock will come) and generate booking receipt.
13. Customer pays the advance amount.	
	14. System handles payment.

	15. System records the paid amount and Customer details.
16. Customer takes the booking receipt and leaves.	

Use case: 3

Purchase booked bike

Overview:

Customer will come with-in a month after releasing of new model bike which he already booked in advance.

Pre-condition:

Customer must have advance booking receipt.

Actors:

Customer, Salesperson

Stakeholders:

Employees, Customers, Owner, Investors, and Suppliers

Post condition:

Purchasing receipt must be generated. Update the system on every transaction. Payment and customer record must be stored for re-use.

Actor Action	System Response
1. Customer comes on receiving date along with booking receipt. Salesperson enters.	
	2. System verifies the booking and customer.
3. Salesperson indicates the system to calculate amount.	
	4. System calculates amount and presents.
5. Salesperson asks for payment.	
6. Customer pays.	
	7. System handles payment. 8. System records the paid amount and Customer details.
	9. System ends sale.

Alternate scenarios

1. If customer do not come with-in a month after due date then booking cancels and advanced paid amount is not refundable.

Use case: 4 Search Bike

Actor: Salesperson, Customer

Purpose: To check whether the bike is available in the showroom.

Overview: A customer arrives at a bike showroom reception and asks whether the bike is available or not. Salesperson searches for the desired bike in the system. If available then tell the customer that bike is available.

Actor Action	System Response
1.Customer arrives at the bike showroom to search whether a bike is available or not.	
2. Salesperson enters the bike id or the name in the system to search the bike required	
	3.Determines whether the bike is available in the showroom
	4. if available, presents the bike information like price and stock available. If not available, presents that the bike is not available
5.The Salesperson tells the Customer the information received by the system.	
6. Customer then either purchases (refer to purchase bike use case) or leaves	

Use case: 5 Manage Inventory

Actor: Manager

Purpose: To ensure stock is available in the showroom and customers can purchase bike

Overview: Manager restocks bikes and updates the records in the system if some kind of bike is running low or after a certain amount of time.

Actor Action	System Response
1. Admin wants to restock any bike.	
2. Admin prompts system to restock	
	3. System presents manager to enter bike id and quantity
4. Admin enters the bike id and quantity	
	5. System updates the bike quantity
6. Admin repeats steps 4 to 5 until no more bikes left to restock	

Alternate Course of Events:

4. Admin enters wrong bike id/ does not follow the ID format.

Use case: 6 Manage Bike Details

Actor: Admin

Purpose: Keep bike information up to date.

Overview: To change any bike details like name, model, or if there are any errors in existing details. Also, to add, delete and update the bike if required.

Actor Action	System Response
1. User case begins when admin receives any information update request from manager regarding bike details	
2. Admin prompts system to update bike details	
	3. System returns a set of different options to choose from.
4. Admin chooses a) Change bike description b) Add bike	
	5. System presents admin to enter the bike id for the bike to update
6. Admin enters the details and prompts system to do the changes	
	7. System updates the details
8. Admin repeats steps 4 to 7 until no new information change is required	

Alternate Course of Events:

6. Admin enters wrong bike id/ does not follow the ID format.
7. Then system presents error message.
8. Admin enter correct ID

Change Bike Description

Actor Action	System Response
1. After selecting change bike description, admin enters bike id	
	2. System presents bike details and presents user to confirm whether to change this bike's details
3. Admin confirms	
	4. System presents admin to enter new description
6. Admin enters the description	
	7. System updates the description

Add Bike

Actor Action	System Response
1. After selecting Add Bike, admin enters bike id	
	2. System presents the user to enter description, price and quantity.
3. Admin enters the details.	
	5. System adds the bike.

Use case: 7 Customer Registration

Actor: Salesperson

Purpose: A customer would be registered before he buys a bike.

Overview: Customer arrives at the bike showroom. First he needs to get registered before he can buy a bike.

Actor Action	System Response
1. Customer arrives at the bike showroom.	
2. Salesperson asks the customer to tell his/her name, age, gender, email, date of birth, address, phone number, cnic, occupation.	
3. Salesperson prompts system to record the customer details.	
4. Salesperson enters the customers details in the system.	
	5. System records the customer details.
	6. System generates the customer details along with the unique customer id.
7. Sales person tells the customer his/her unique customer id.	
8. Salesperson ends the registration.	

Alternate Course of Events:

4. Salesperson enters invalid customer information.

Use Case: 8 Manage Employee Details

Actor: Admin

Purpose: Manage information about an Employee

Overview: To change any employee details like name, address, phone number, promotion details etc if there is an old record of the employee. Also, to delete, add and update the employee if required.

Actor Action	System Response
1. User case begins when admin receives any information from manager regarding employee details	
2. Admin prompts system to update employee details	
	3. System returns a set of different options to choose from.
4. Admin chooses a) Update Employee Details b) Add a new Employee c) Delete an Employee	
	5. System prompts admin to enter the employee id for the employee to update
6. Admin enters the details and prompts system to update the changes	
	7. System updates the details/changes
8. Admin repeats steps 4 to 7 until no new information change is required	
9.Admin prompts system to end managing employees' details	

Alternative course of events:

5. Admin enters wrong employee id (System prompts to enter again)

Update Employee Details

Actor Action	System Response
1. After selecting change Employee details, admin enters Employee id	
	2. System displays Employee details and prompts user to confirm whether to change this Employee's details
3. Admin confirms	
	5. System prompts admin to enter new Details
6. Admin enters the description	
	7. System updates the Details

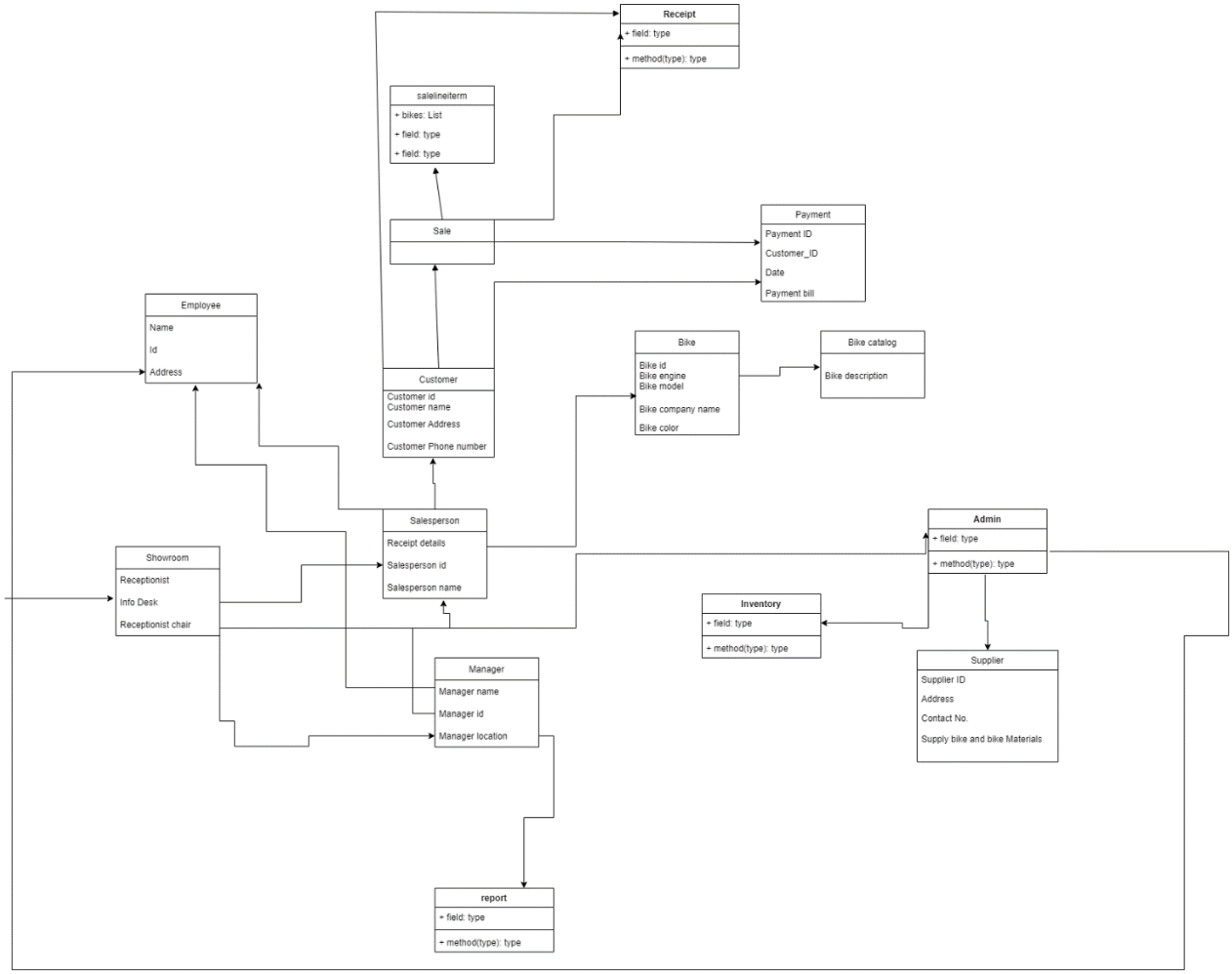
Add an Employee

Actor Action	System Response
1. After selecting Add a new Employee, admin enters details	
2. Admin tells system to add a new employee	
	3. System adds the Employee and shows the employee ID to admin

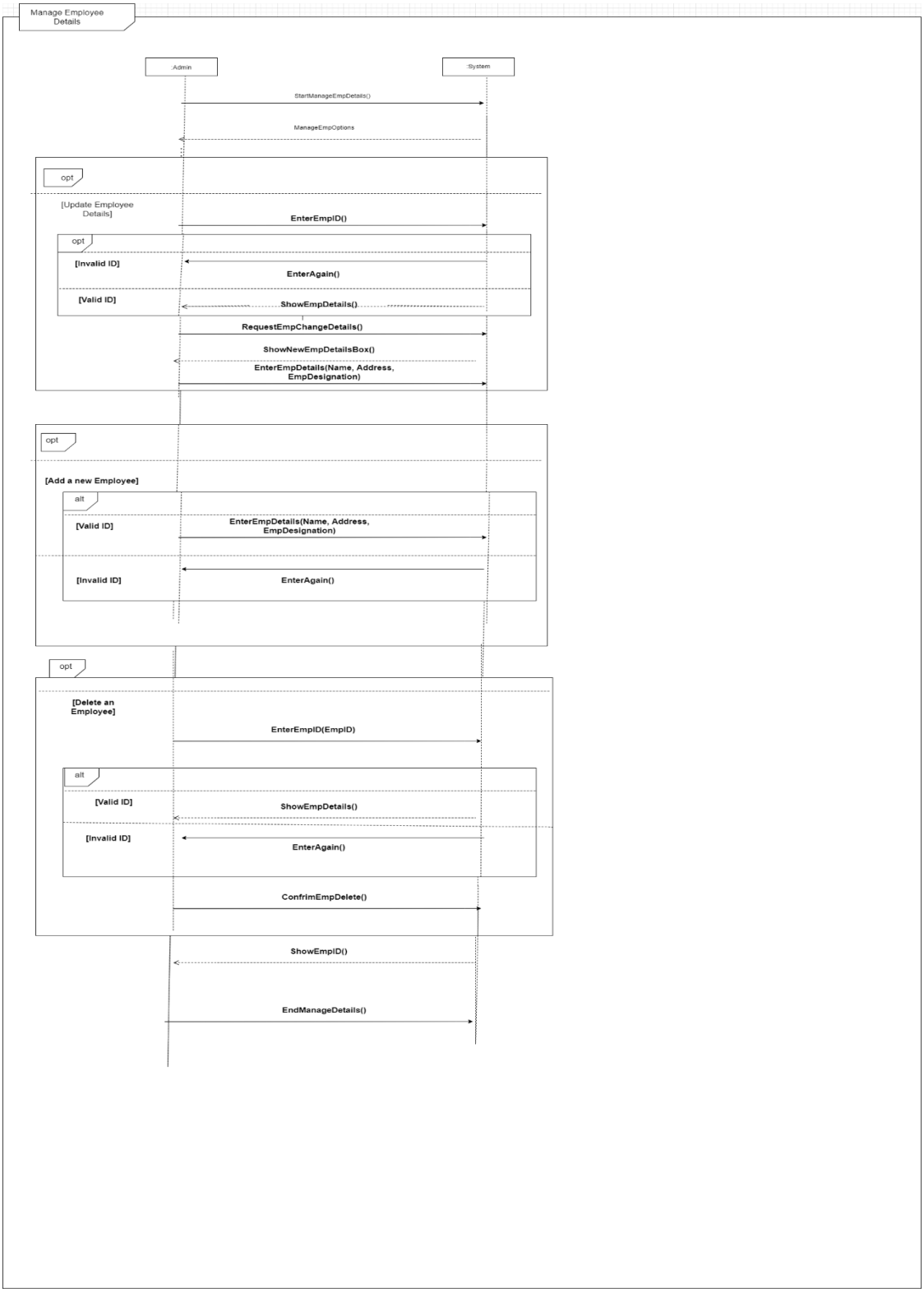
Delete an Employee

Actor Action	System Response
1. After selecting delete employee, admin enters employee id	
	2. System displays Employee details and prompts user to confirm the deletion of the Employee record
3. Admin confirms	
	5. System updates the records.

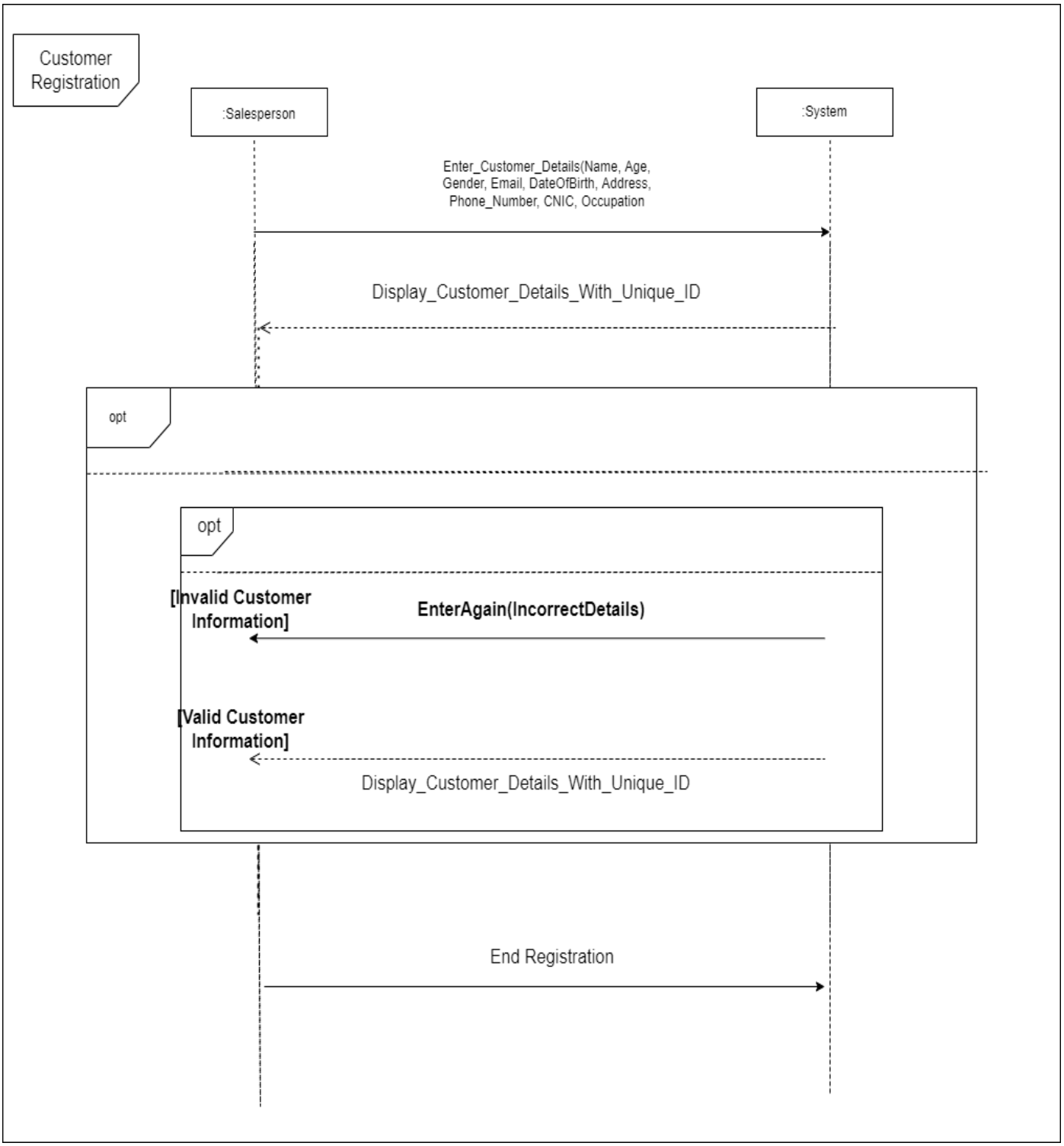
Domain Model:



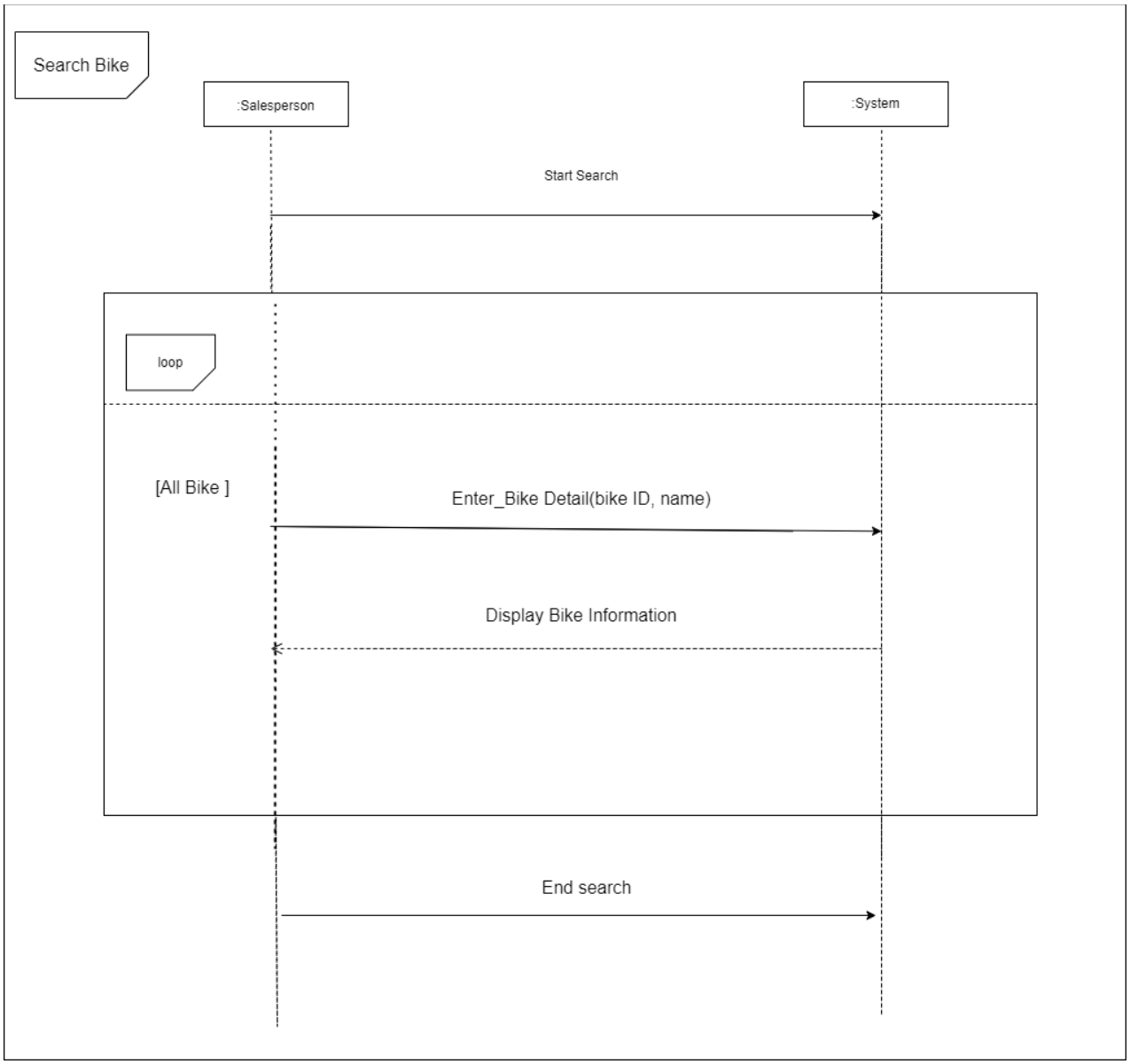
SSD: Manage Employee Details



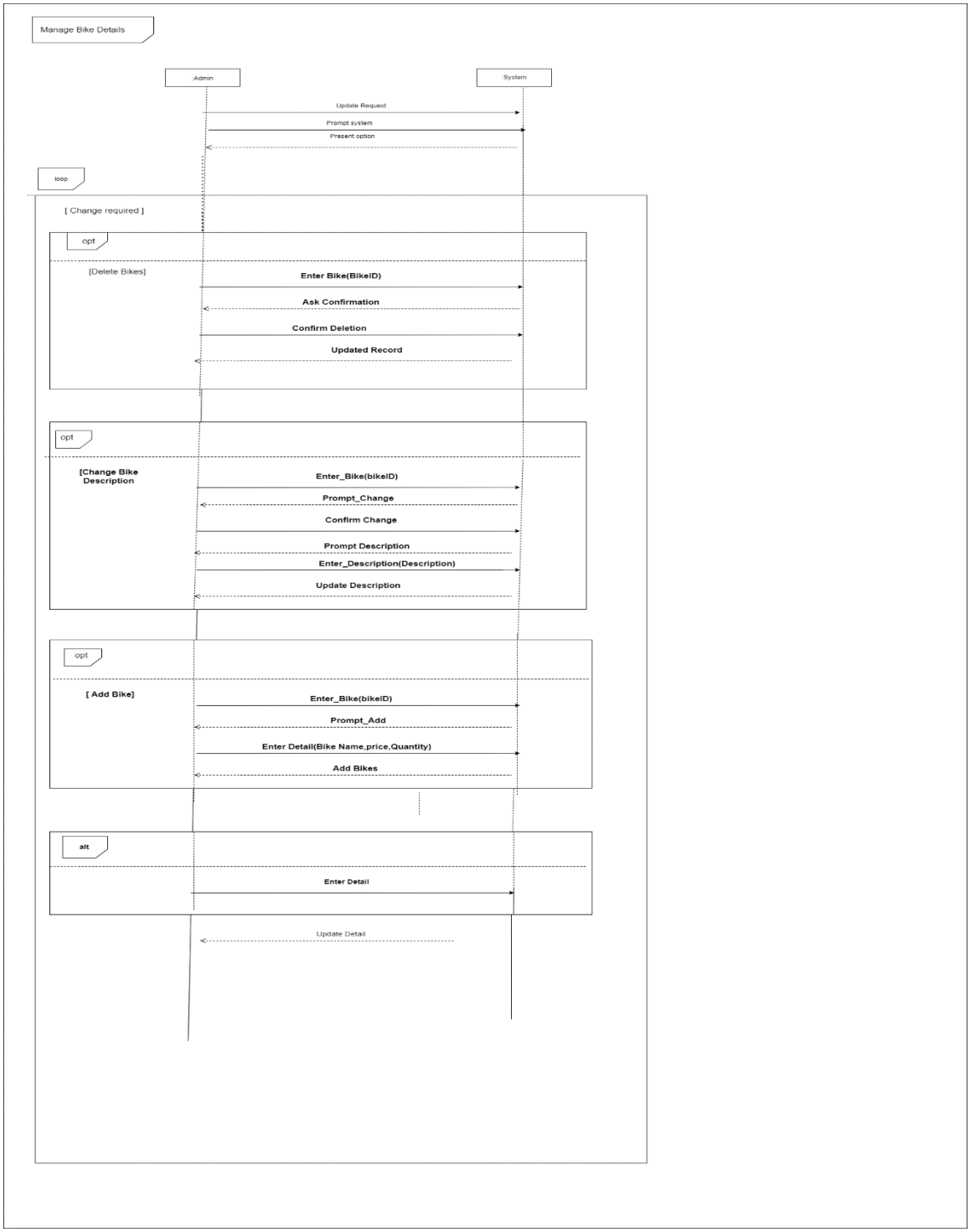
SSD: Customer Registration



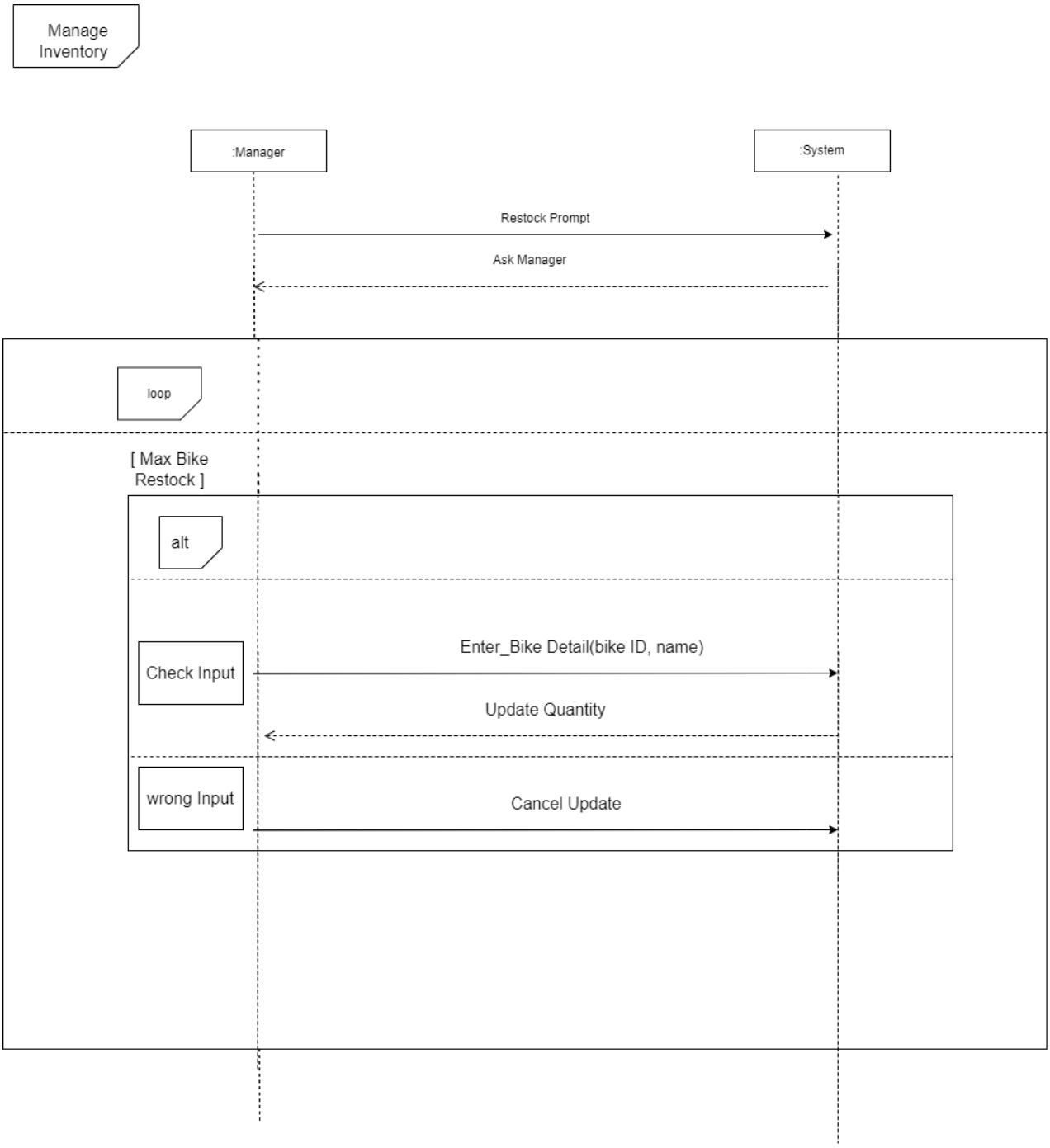
SSD: Search Bike



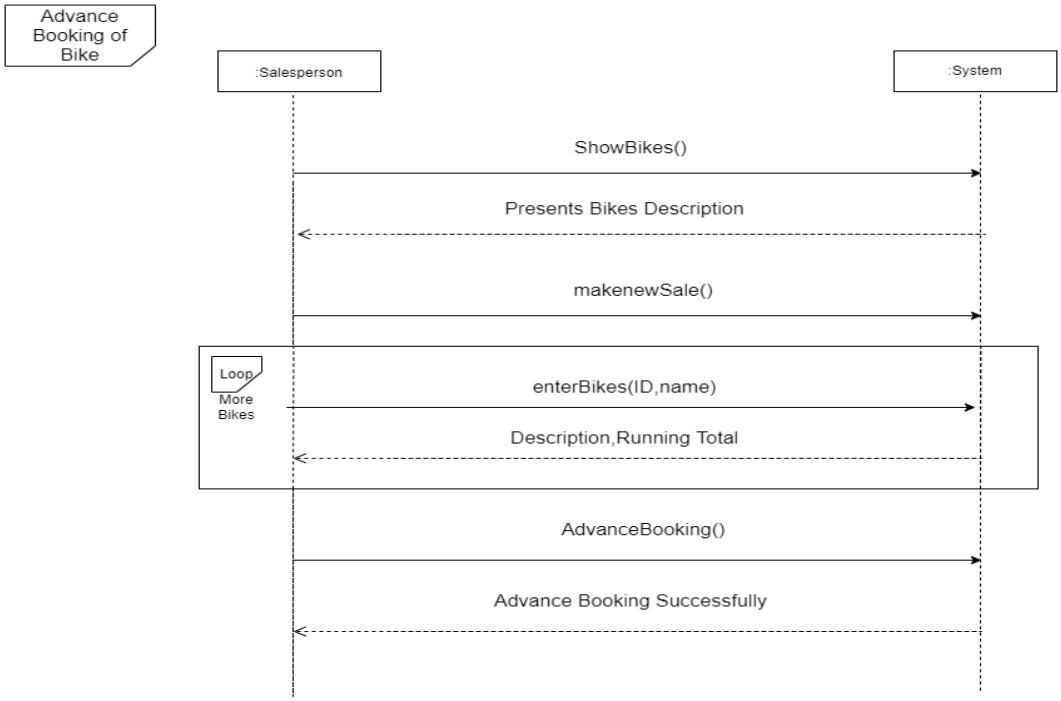
SSD: Manage Bike Details



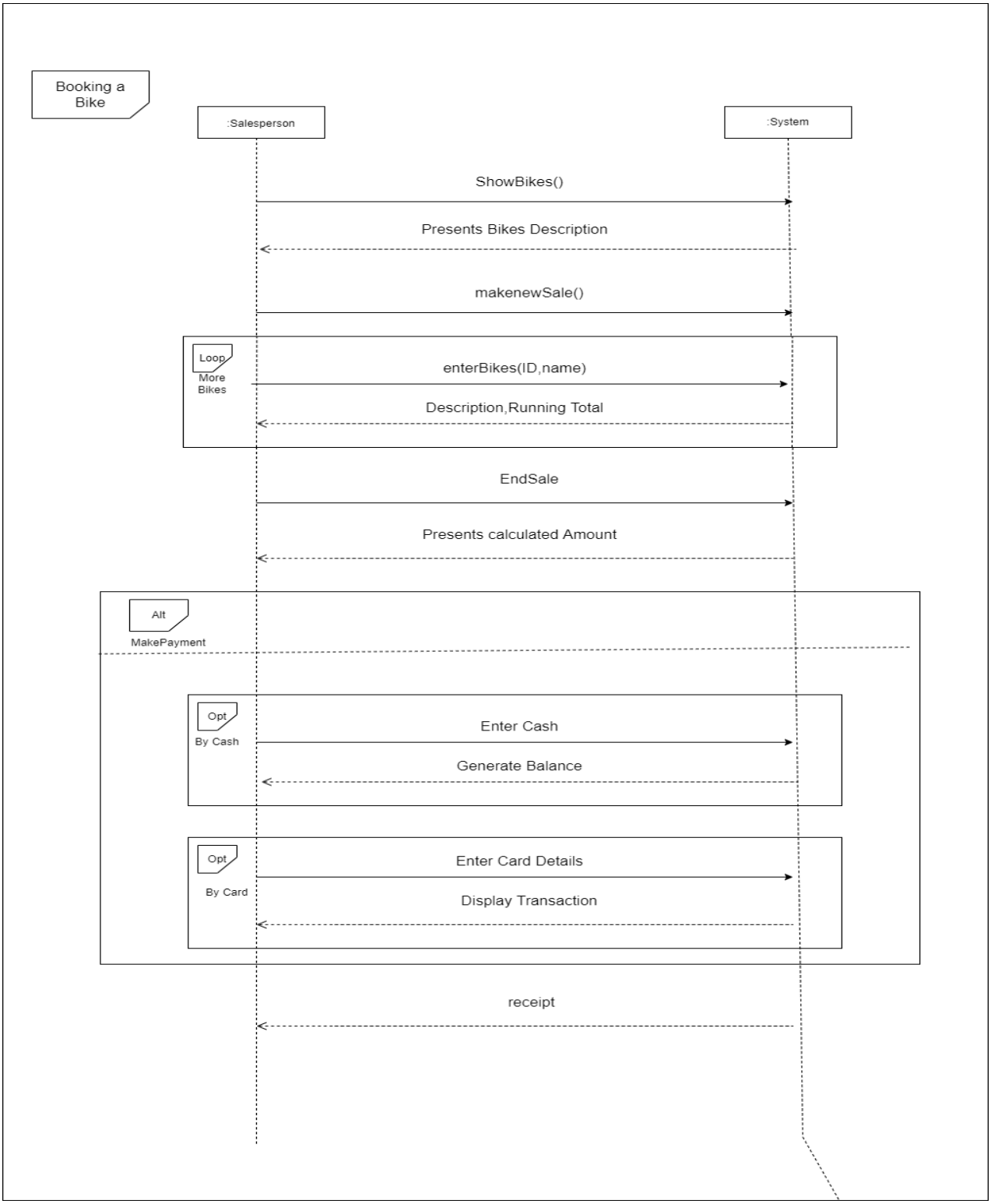
SSD: Manage Inventory



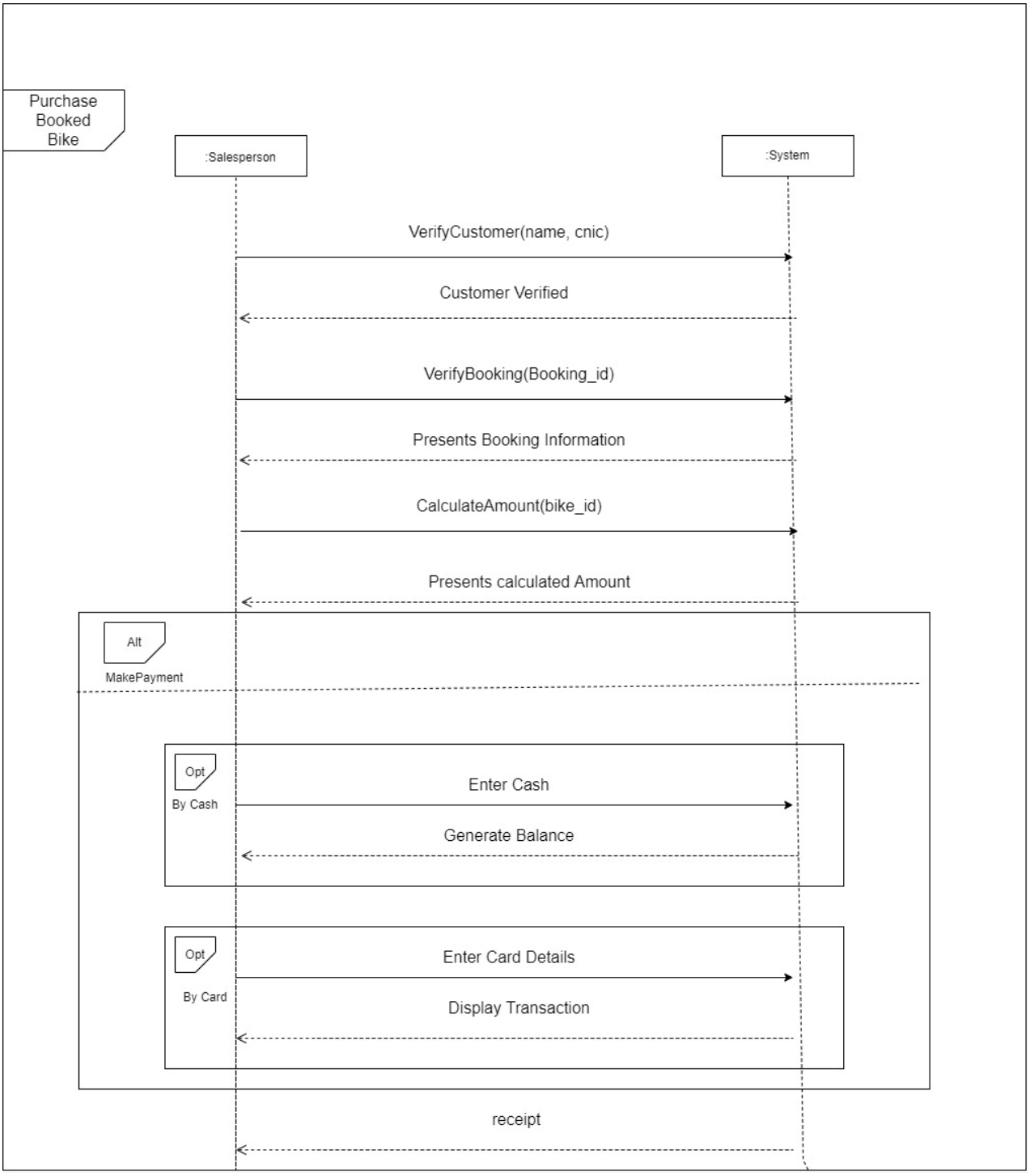
SSD: Advance Booking



SSD: Booking Bike

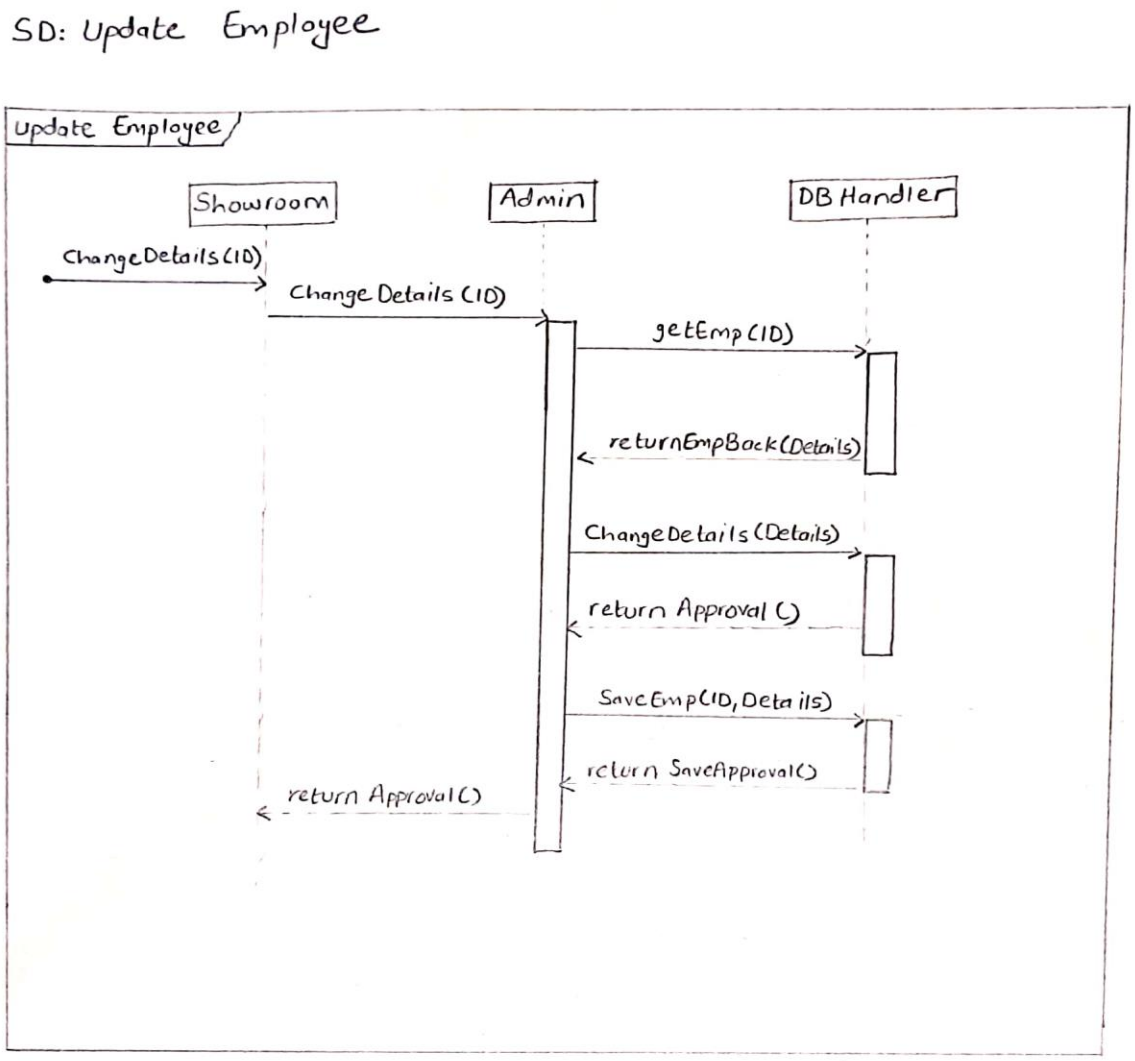


SSD: Purchase Booked Bike

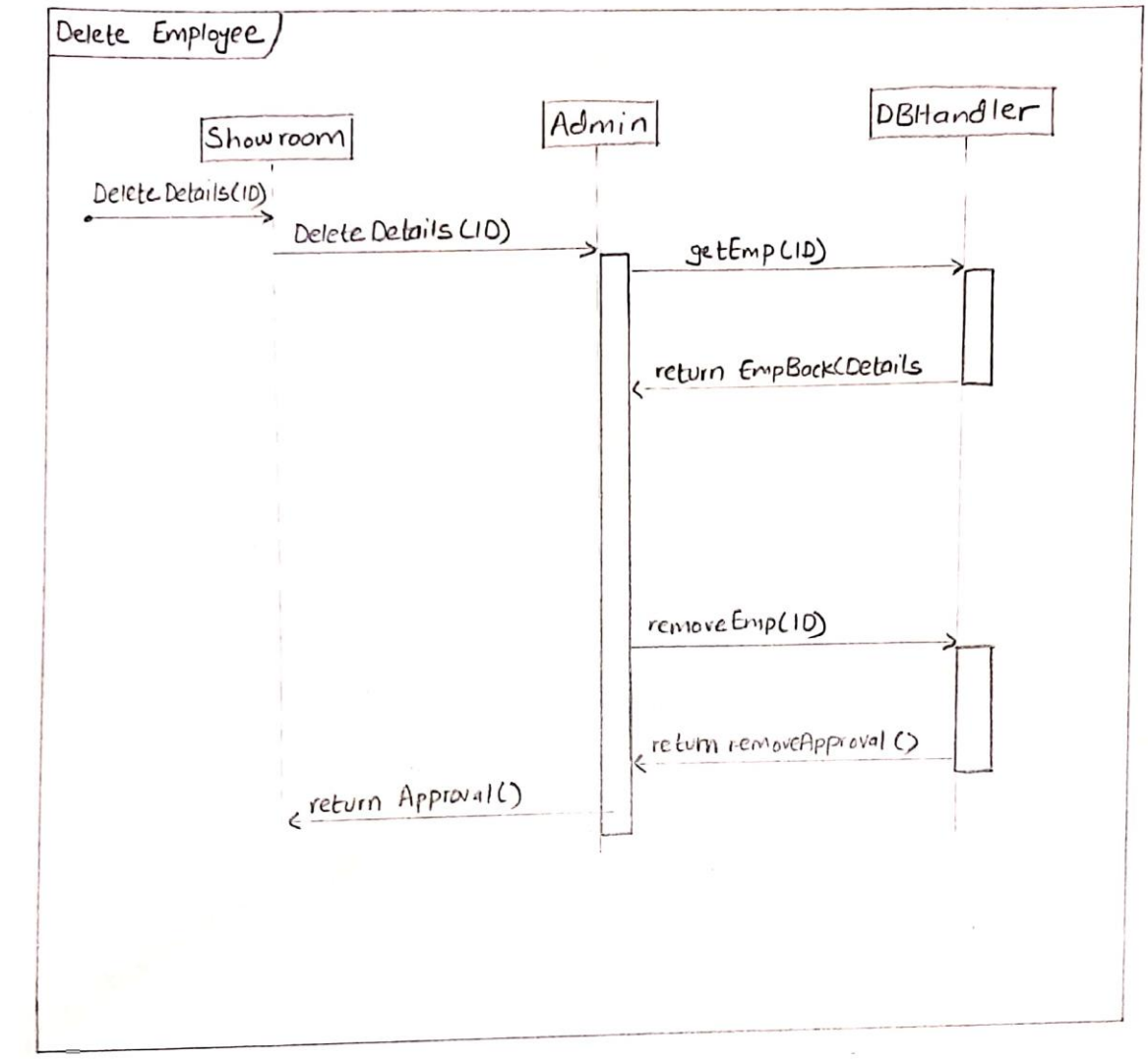


Sequence Diagram

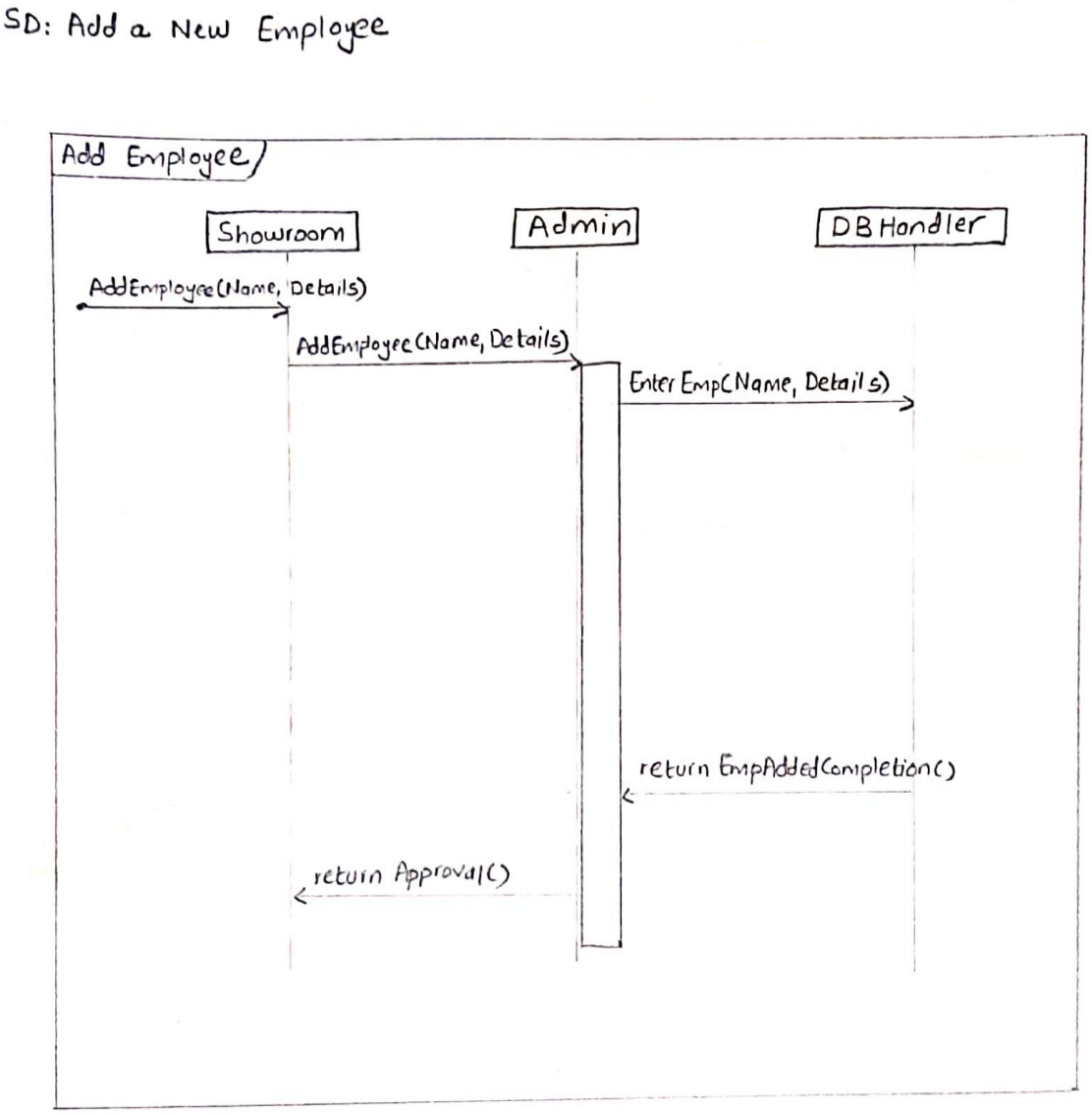
SD: Update Employee



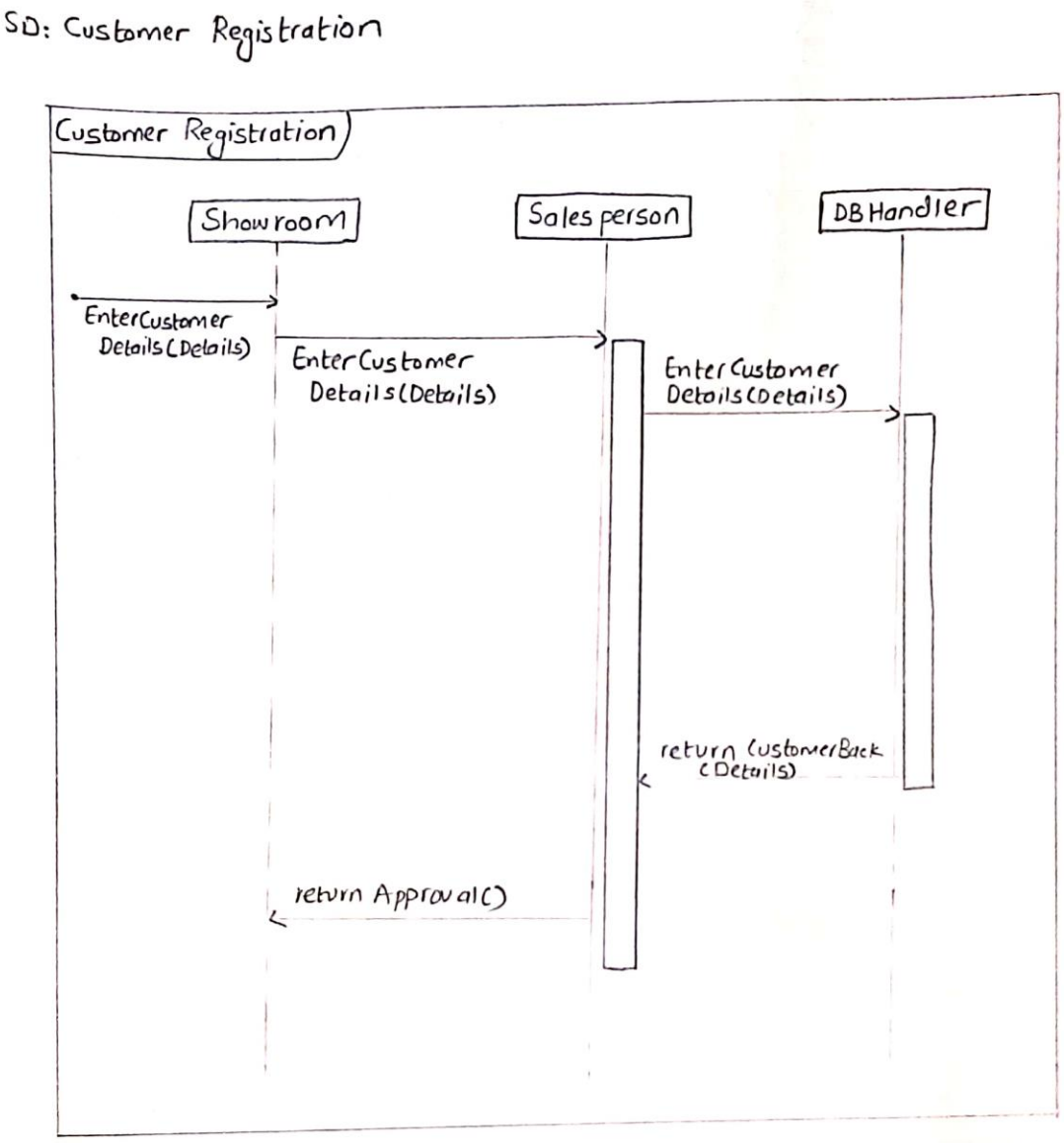
SD: Delete Employee



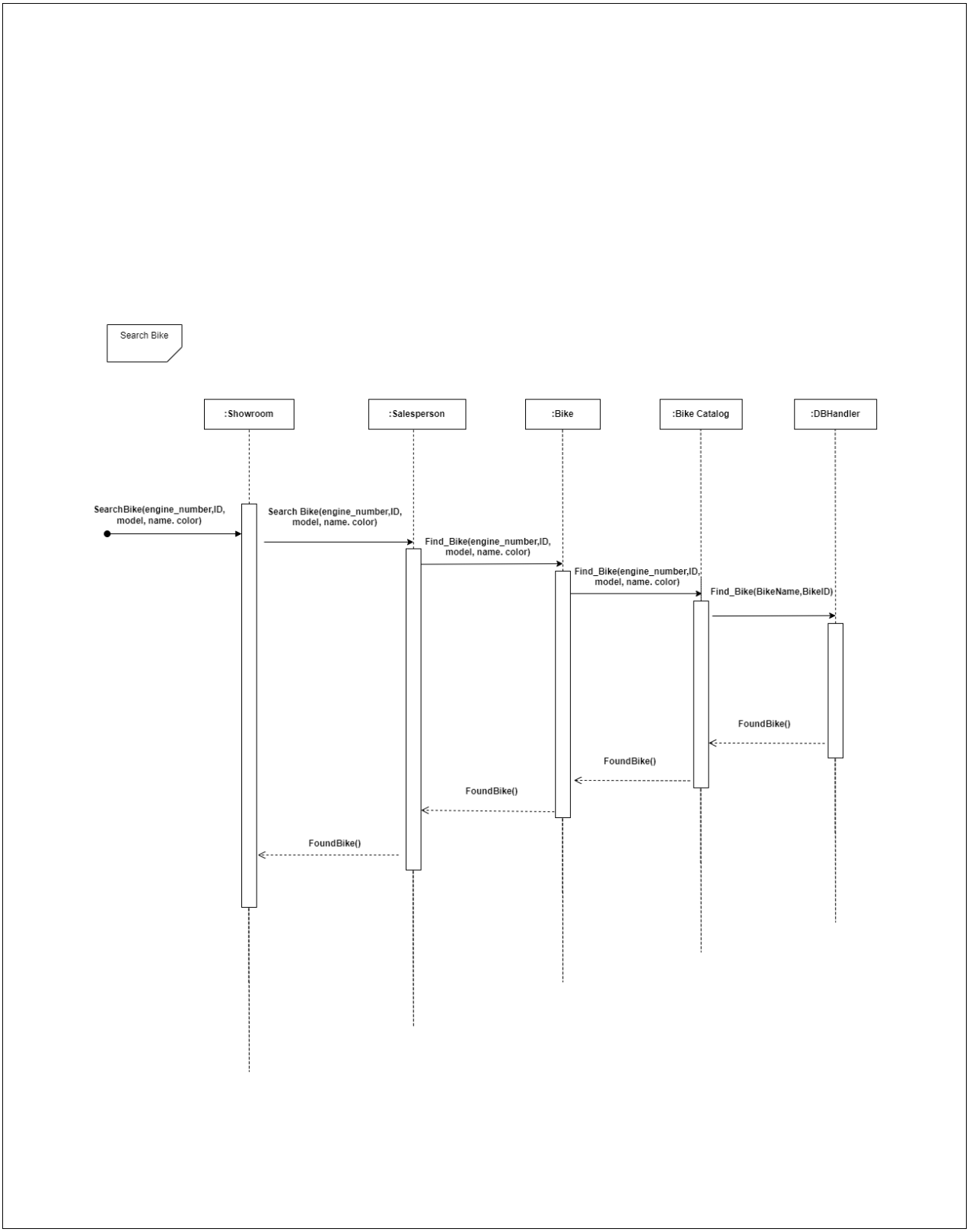
SD: Add A New Employee



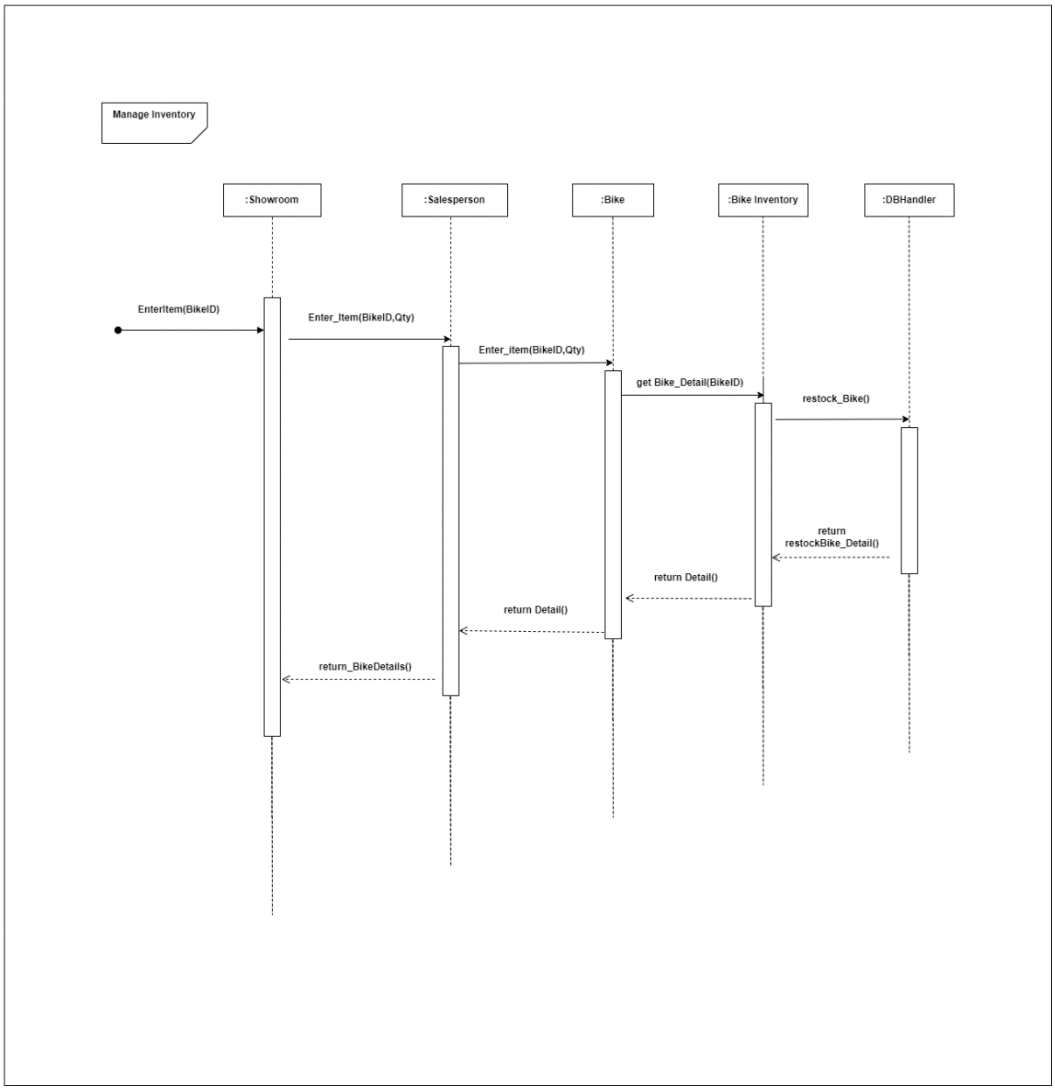
SD: Customer Registration



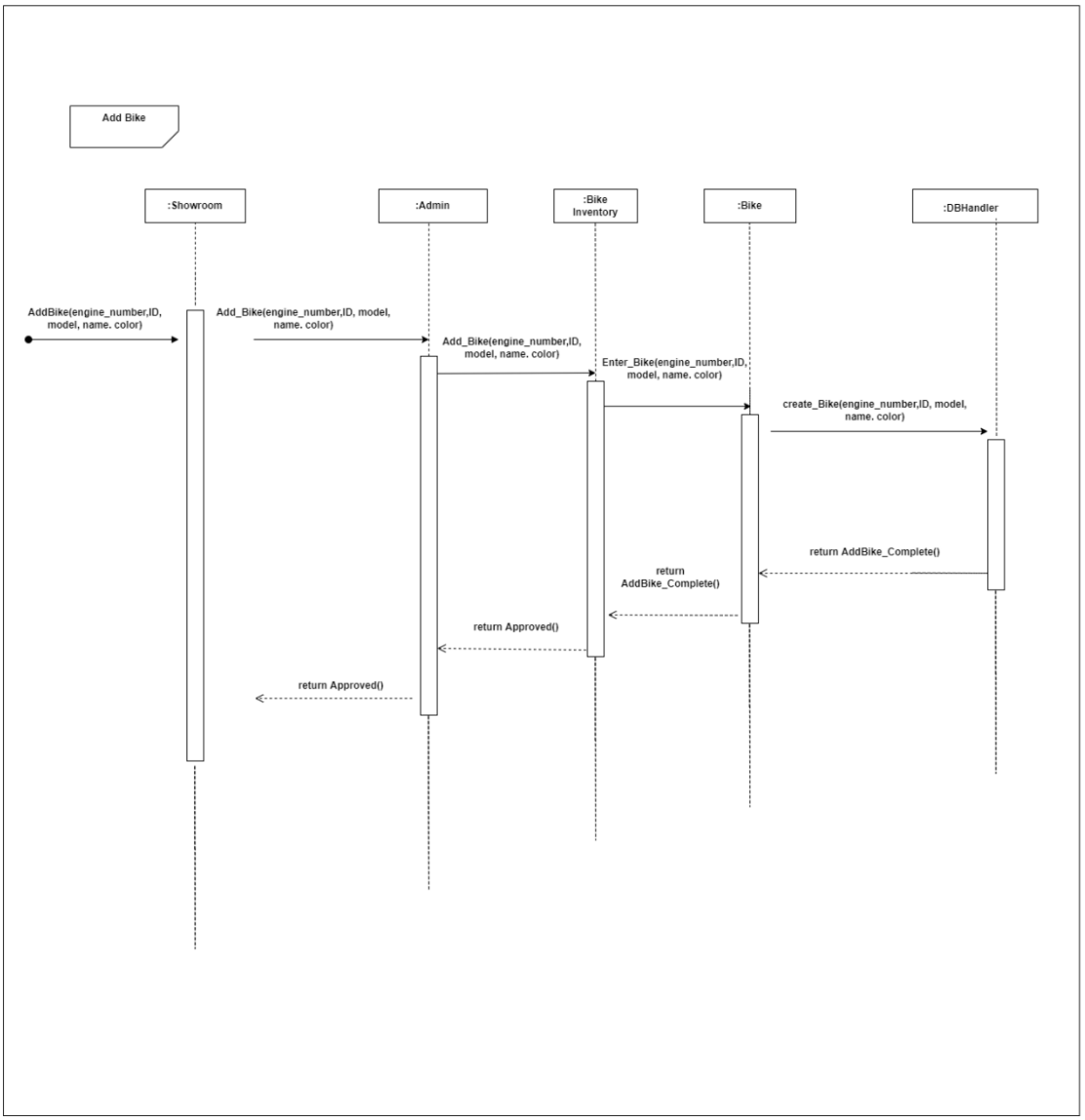
SD: Search Bike



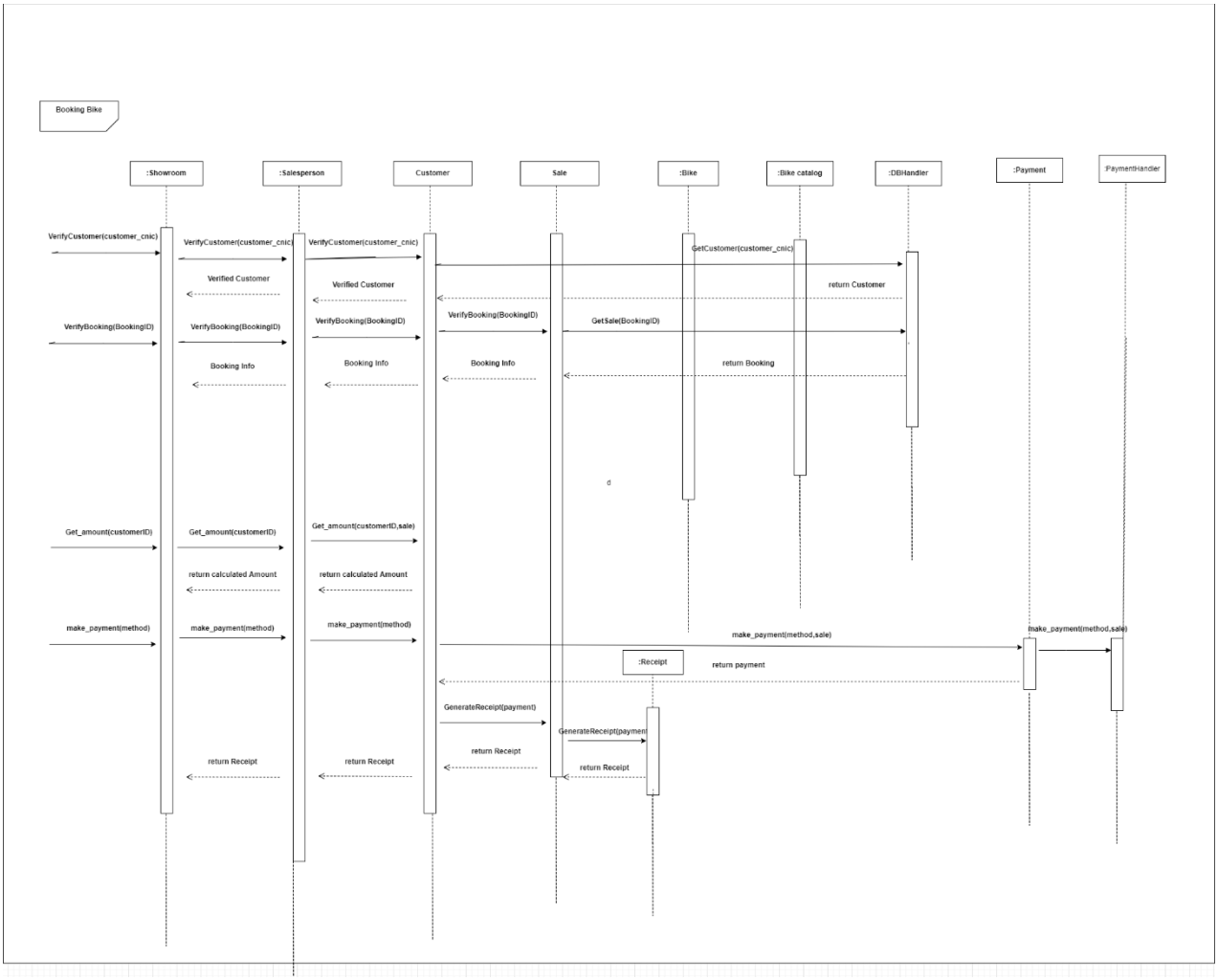
SD: Manage Inventory



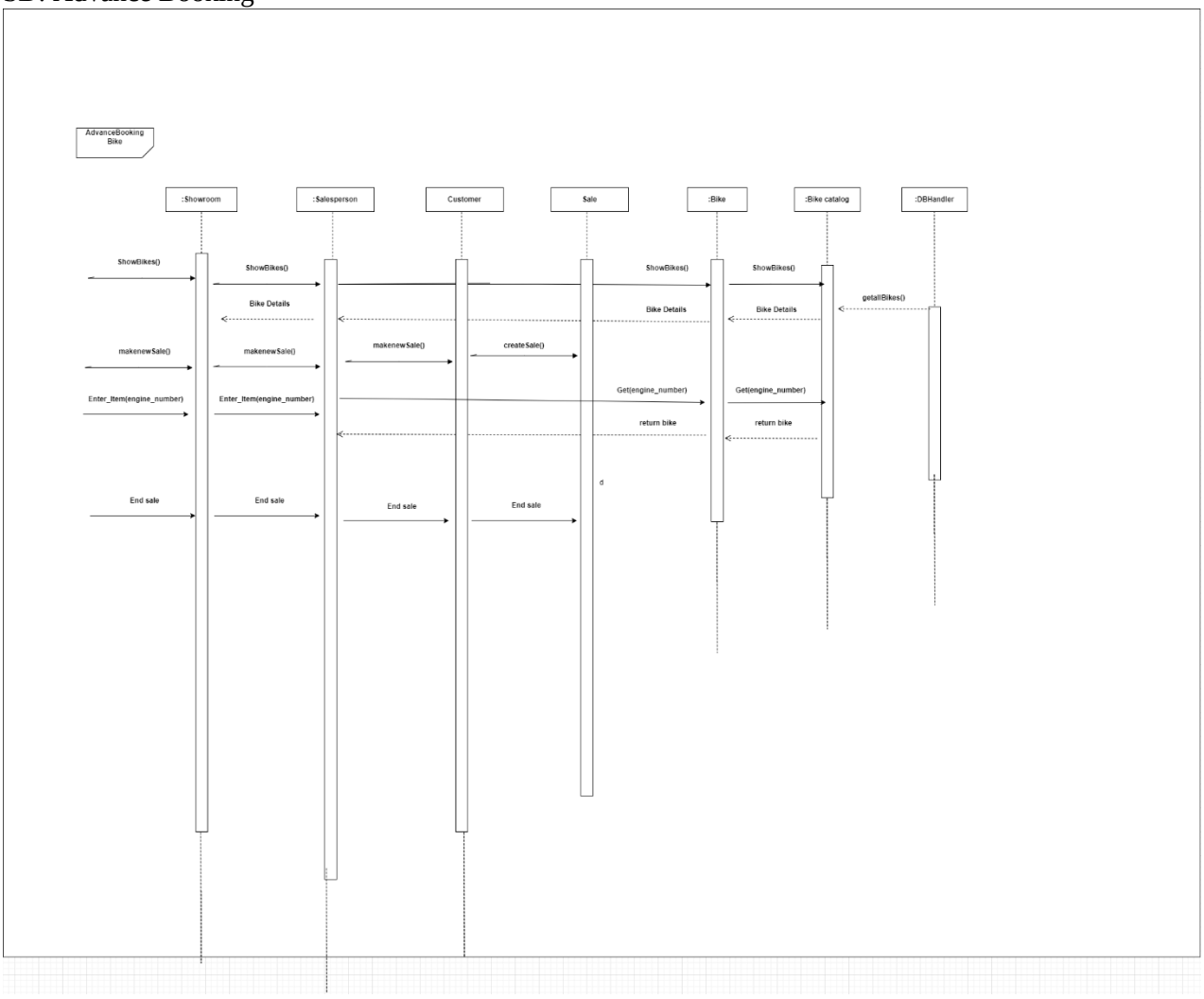
SD: Add Bike


Add Bike
:Showroom
:Admin
:Bike Inventory
:Bike
:DBHandler
AddBike(engine_number,ID, model, name. color)
Add_Bike(engine_number,ID, model, name. color)
Add_Bike(engine_number,ID, model, name. color)
Enter_Bike(engine_number,ID, model, name. color)
create_Bike(engine_number,ID, model, name. color)
return AddBike_Complete()
return AddBike_Complete()
return Approved()
return Approved()

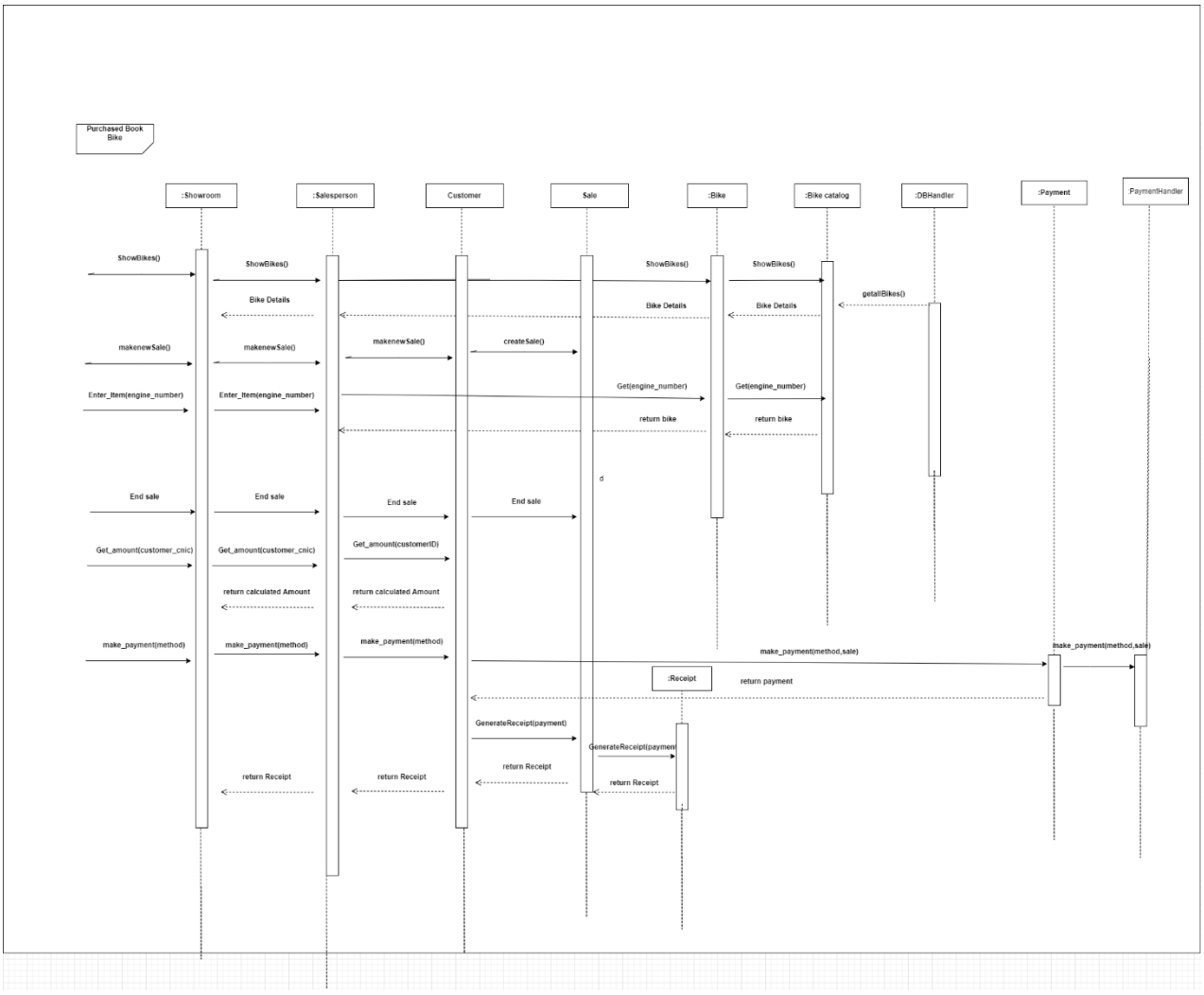
SD: Booking Bike



SD: Advance Booking



SD: Purchase Booked Bike



Class Diagram: