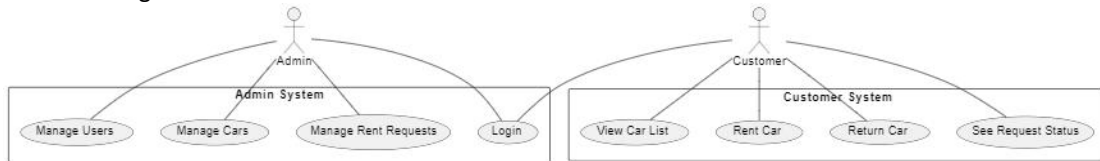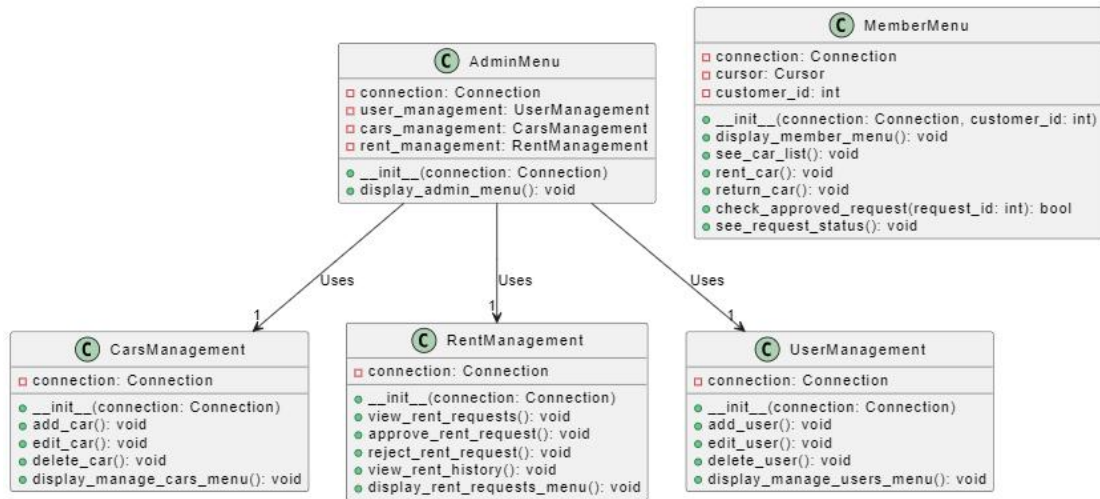Use case Diagram

Class Diagram

Sequence Diagram (User Management by Admin/Employee)

User Management Interaction
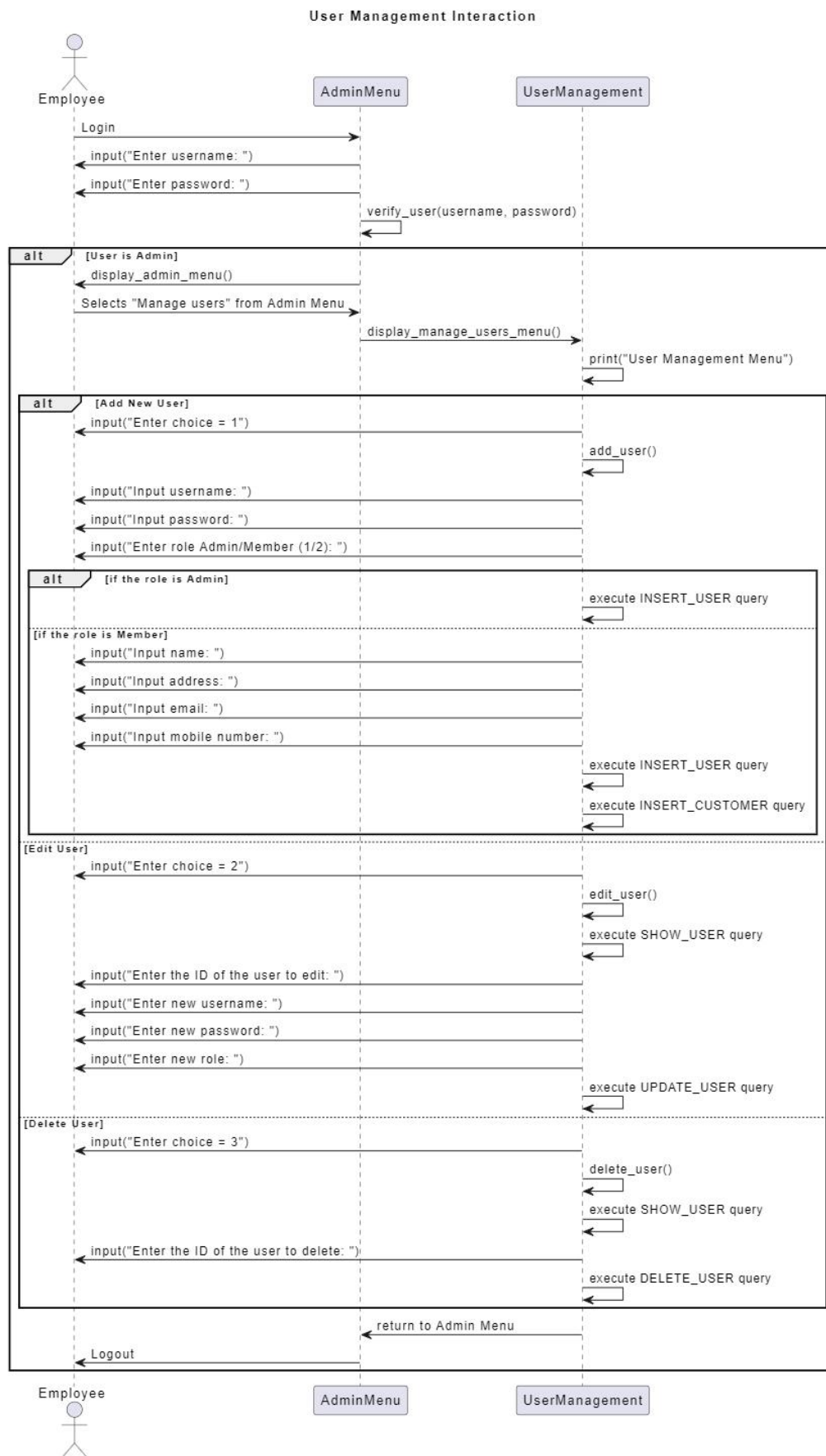
Sequence Diagram (Cars Management by Admin/Employee)

Cars Management Interaction
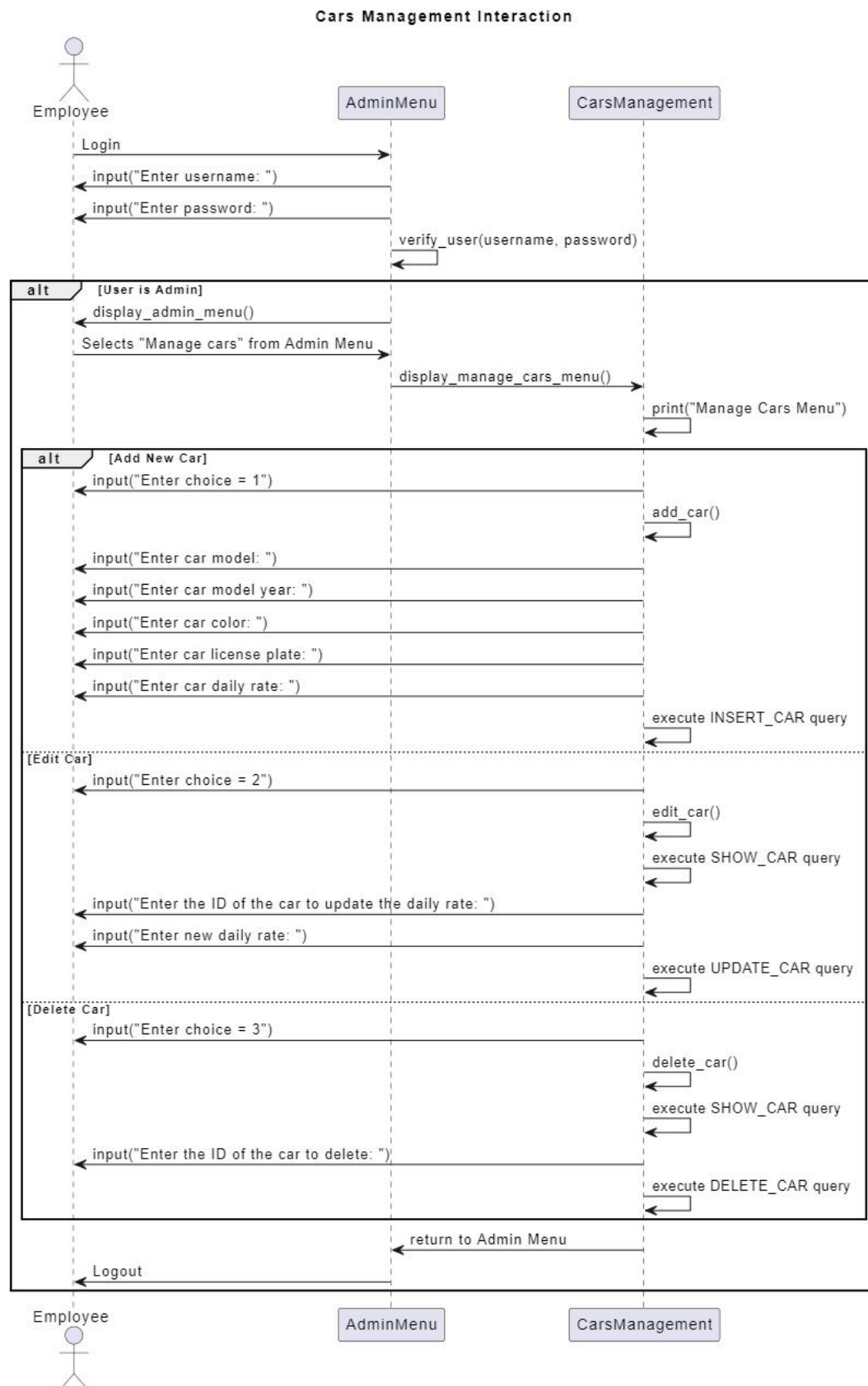
Sequence Diagram (Rent Management by Admin/Employee)

Rent Management Interaction
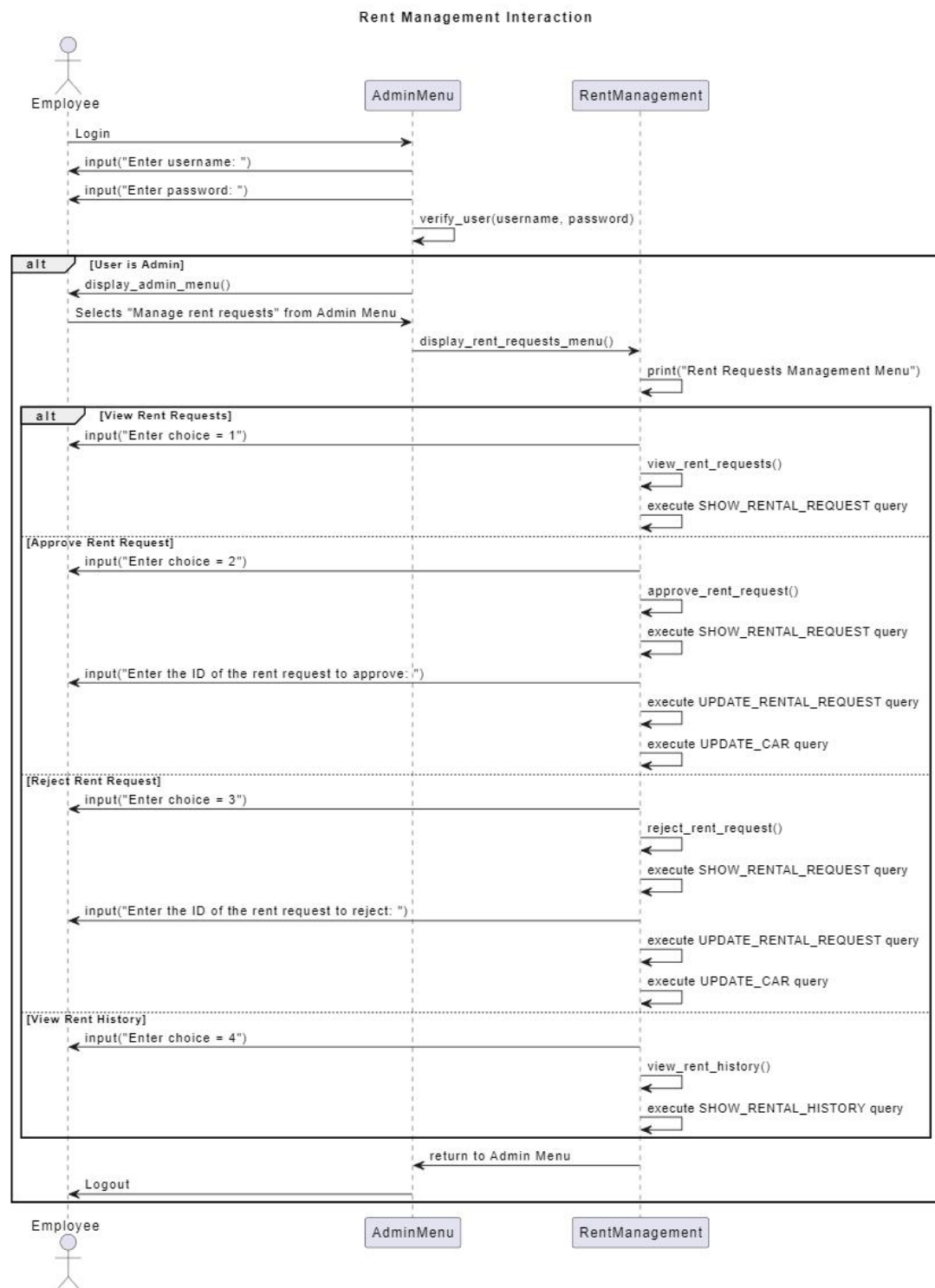
Sequence Diagram (Customer side)

Customer | MemberMenu | Database

Customer → Database: login(username, password)
Database → Customer: Authentication result (success/failure)

alt [Authentication Successful]

MemberMenu → Customer: display_member_menu()
MemberMenu → Customer: Show menu options

alt [See Car List]

Customer → MemberMenu: Select option 1
MemberMenu → Database: execute_query(SHOW_CAR)
Database → MemberMenu: Return list of cars
MemberMenu → Customer: Display car list

[Rent Car]

Customer → MemberMenu: Select option 2
Customer → MemberMenu: enter car_id, rental_start_date, rental_end_date
MemberMenu → Database: execute_query(GET_CAR_AVAILABILITY)
Database → MemberMenu: Return car details (daily_rate, availability)
MemberMenu → Database: cursor.execute(NEW_REQUEST)
Database → MemberMenu: Return request_id
MemberMenu → Database: execute_query(SET_CAR_UNAVAILABLE)
MemberMenu → Customer: Display success message with Request ID

[Return Car]

Customer → MemberMenu: Select option 3
MemberMenu → Database: execute_query(SHOW_RENTED_CAR_BY_USER)
Database → MemberMenu: Return rented cars
MemberMenu → Customer: Display rented cars
Customer → MemberMenu: enter request_id, return_date
MemberMenu → Database: execute_query(GET_RENTED_CAR_DETAIL)
Database → MemberMenu: Return rental request details
MemberMenu → Database: execute_query(COMPLETE_AND_UPDATE_REQUEST)
MemberMenu → Database: execute_query(SET_CAR_AVAILABLE)
MemberMenu → Customer: Display success message with total cost

[See Request Status]

Customer → MemberMenu: Select option 4
MemberMenu → Database: execute_query(SHOW_RENTED_CAR_BY_USER)
Database → MemberMenu: Return rental requests
MemberMenu → Customer: Display rental requests

[Authentication Failed]

MemberMenu → Customer: Show error message

Customer | MemberMenu | Database