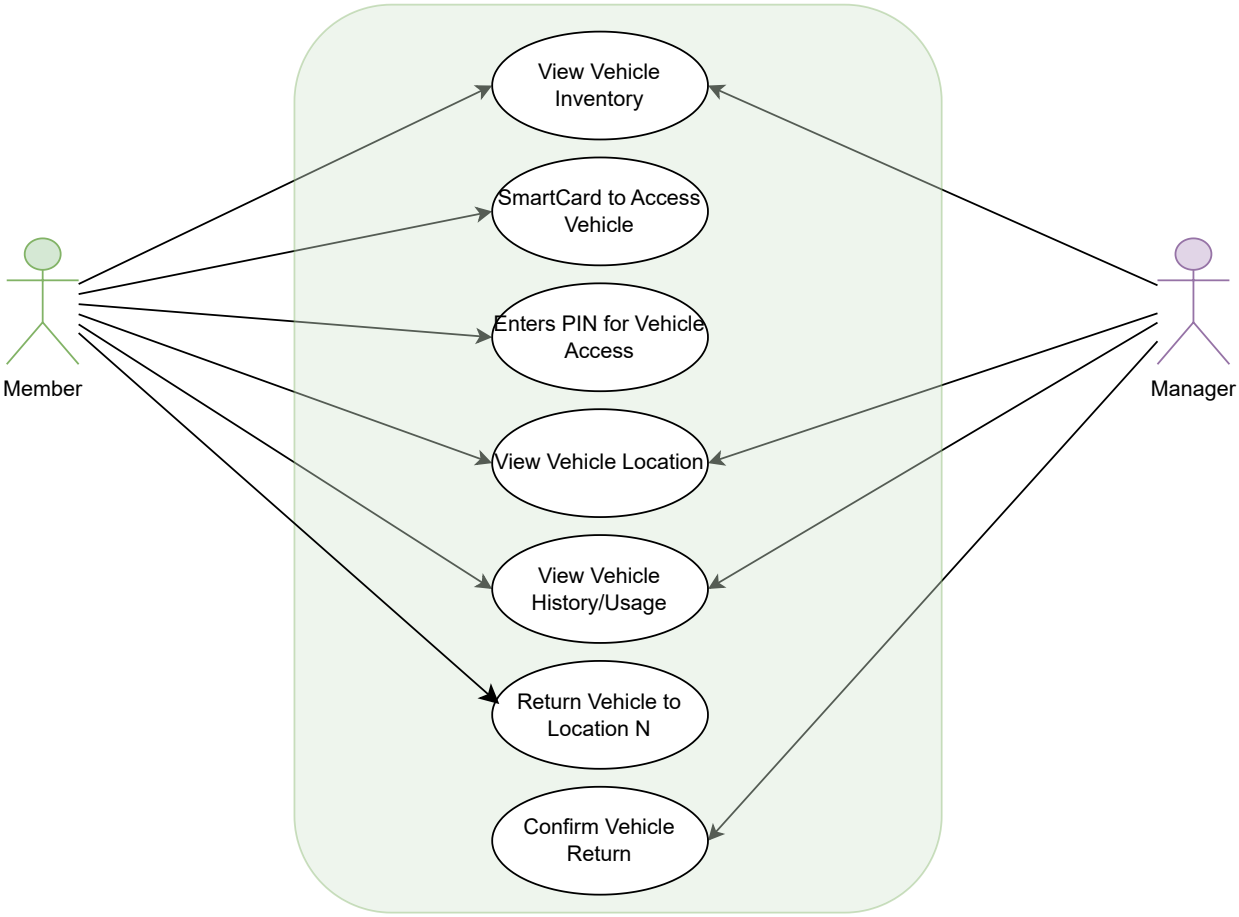
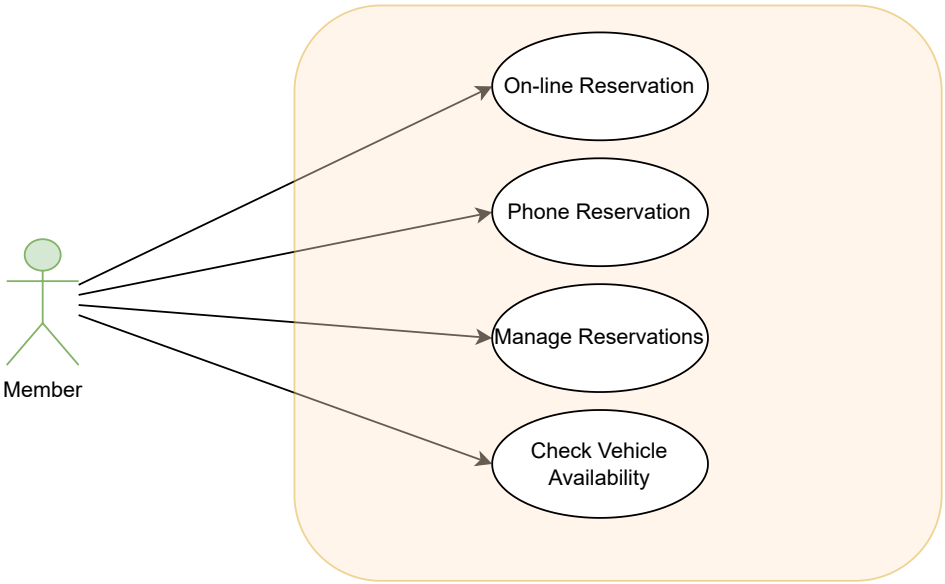
Part A: Use Case Diagram

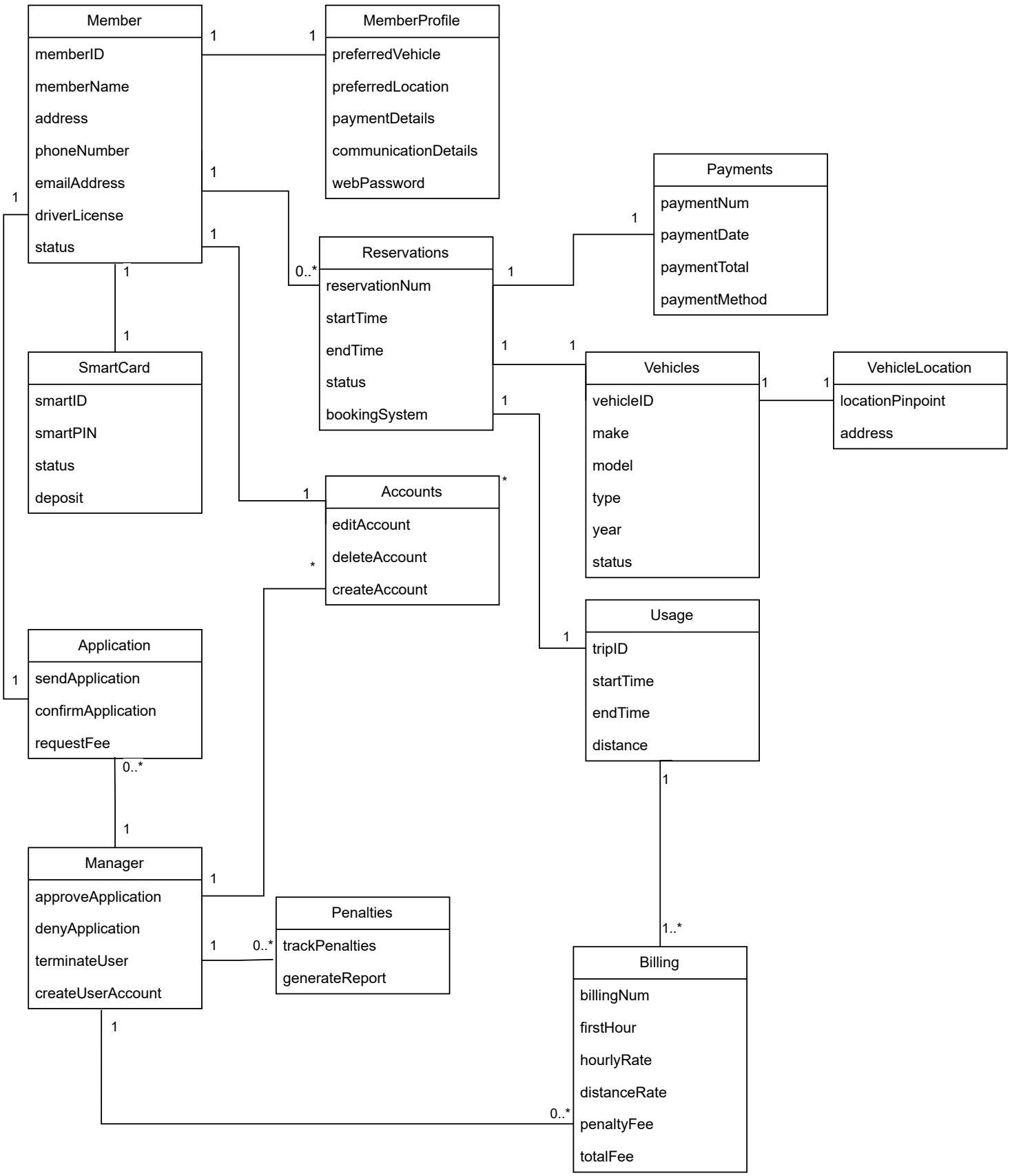
Vehicle Management Subsystem



Reservation Management Subsystem



Part B: Problem Domain Classes



Part C: Use Case Descriptions

Fully Developed Use Case

Use Case Name	Reserve Vehicle	
Scenario	Making a reservation over the Web	
Triggering Event	A member wants to make a reservation online.	
Brief Description	An online member fills out an online form with required information in order to make a reservation.	
Actors	Member	
Related Use Cases	Manage Reservations, View Vehicle Inventory	
Stakeholders	Billing, Management, Member	
Preconditions	Reservation subsystem must be available Member account must be in valid status Billing/payment subsystem must be available	
Postconditions	Vehicle reservation will be linked to member profile Member will be able to view and edit reservation Member will be able to view vehicle information and location Member's smart card will be activated for that vehicle Payment information must be validated	
Flow of Activities	**Actor**	**Subsystem**
	1. Member opens reservation page. 2. Member views vehicle inventory. 3. Member selects a vehicle. 4. Member enters required details. 5. Member selects payment method. 6. Member confirms the reservation.	1.1 System responds to member request. 2.1 System displays vehicle inventory. 4.1 System prompts member for details. 5.1 System prompts member for payment. 5.2 System verifies payment information. 6.1 System links reservation to member account. 6.2 System prompts member to confirm. 6.3 System records the reservation.
Exception Conditions	1.1 Member account is suspended or terminated. 3.1 Requested vehicle is not available. 4.1 Payment details cannot be validated.	

Membership Use Case Descriptions

Use Case	**Brief Use Case Description**
Member Sign-Up	Member sends a request to sign-up online or by phone. The member provides some personal details such as name, email and phone number. The request is forwarded to a manager.
Send Application Package	Manager inputs basic details and sends a new application package to the member along with instructions. Package is sent by email or by snail mail.
Receive Application Package	Member receives an application from a manager package with instructions by email or snail mail. Member fills out the application and returns it to the manager.
Request/Receive Application Fee	The manager requests the application fee, the member receives this request, and submits the fee by phone or by online form.
Receive Completed Application	Upon receiving the application fee, the manager receives the completed application and reviews it. The manager decides if the application is approved or denied.
Approve Application	The manager approves the application and sends confirmation to the member. The manager will then set-up the account and send account details to member.
Return Application	The manager rejects the application and sends it back to the member with instructions on what went wrong and how to re-submit.
Create SmartCard	The manager creates a SmartCard ID and PIN in the system for approved members. The SmartCard number is linked to a physical card and to a member account.
Create Member Profile	The manager prompts the system to create a member profile for the approved members. The system links the application information to the member's account, links the Smart Card to the member's account and provides the member with a unique ID number.
Edit Member Profile	Member accesses their profile and makes necessary changes or updates. Updates can include changes to personal details, vehicle preference, changes to payment preference, or changes to communication preference. Member confirms the changes and receives confirmation of changes.
Delete Member Profile	Member accesses their profile and selects 'delete profile'.

	The system will ask for confirmation and payment of unpaid fees (if any). System will confirm the deletion and send a confirmation email to member.
Terminate Member Profile	The manager terminates a member profile that has exceeded the maximum amount of penalties. System will ask for confirmation. Manager will confirm and receive a confirmation of termination. Manager will alert the member by email of the termination.
Check Account History	The manager accesses a member account. The account history, vehicle usage, penalties, payment information is displayed.
Track/Apply Penalties	The manager keeps a record of penalties on each account. The manager can apply new penalties to an account. The penalties will be viewable by the member when they view their account. When the maximum amount of penalties is reached, the account will be suspended pending termination.
Bill Member	An automated invoice is generated on each member account once per month. The invoice is sent to member by email or snail mail. The preferred payment method is used to take payment.

Reservation Use Case Descriptions

Use Case	**Brief Use Case Description**
On-line Reservation	Member logs in system and selects a vehicle. Member chooses an available time and date for the vehicle. Member confirms the reservation. Member receives a confirmation once payment details have been confirmed.
Phone Reservation	Member calls the reservation phone line. Member uses the automated phone system to select a vehicle, a date and a time. The member is asked to confirm the reservation and provide payment details (or to use saved preferred payment details). The member receives an email confirmation.
Manage Reservations	Member logs into their account and can view their past and current reservations. Past reservations can be viewed only. Current reservations can be edited or cancelled. The member makes the necessary changes to the reservation. The system confirms if the changes are possible, and redirects member to

	make different changes if not. All changes are confirmed by member. Member receives email confirmation.
Check Vehicle Availability (by vehicle, by date, by time)	Member accesses the vehicle reservation subsystem and can view available vehicles. Vehicles can be organized by vehicle type, by date available, by time available. Member chooses the filter and can then view which vehicles suit their needs.

Vehicle Usage Use Cases

Use Case	**Use Case Brief Description**
View Vehicle Inventory	Members can log onto the vehicle subsystem and view full vehicle inventory along with each vehicles availability. Member can use filters to find the perfect vehicle based on vehicle type, availability.
Change Vehicle Inventory	The manager accesses the vehicle subsystem to make changes or updates to the current vehicle inventory. System will prompt the manager to confirm changes.
SmartCard Vehicle Access	Member will use their assigned SmartCard to access a reserved vehicle at a predetermined location. If reservation details are correct, the member will gain access to the vehicle.
PIN for Key Access	Once a vehicle has been unlocked with a SmartCard, member can enter their unique pin code on a lockbox to get the vehicle's ignition key.
View Vehicle Location	Member logs into vehicle subsystem and can view the exact location of reserved vehicles on an online map.
View Vehicle History	Member logs into vehicle subsystem and can view their entire vehicle history including vehicle type, vehicle usage details etc.
Return Vehicle	At the end of the reservation time, the member will be given a location (N) to return the vehicle. Once the vehicle is returned and the member leaves the vehicle, the member's

	SmartCard will no longer be able to access this vehicle without a new reservation.
Confirm Vehicle Return	The manager can view vehicles that have been returned to ensure they have been returned to the correct location. Manager can mark this vehicle as available for new reservations or mark it for cleaning/maintenance/etc.