

# Exercise

Class diagrams



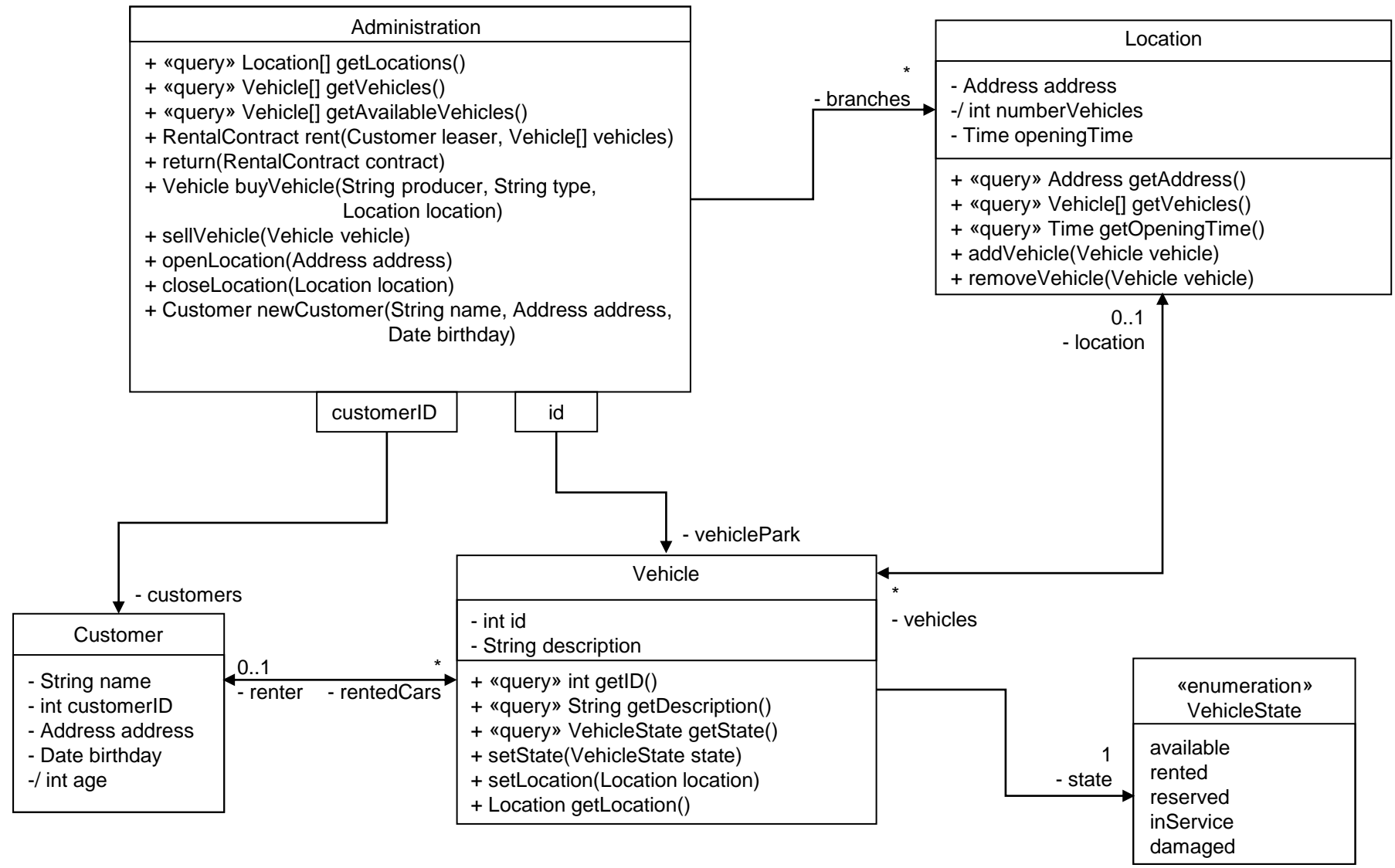
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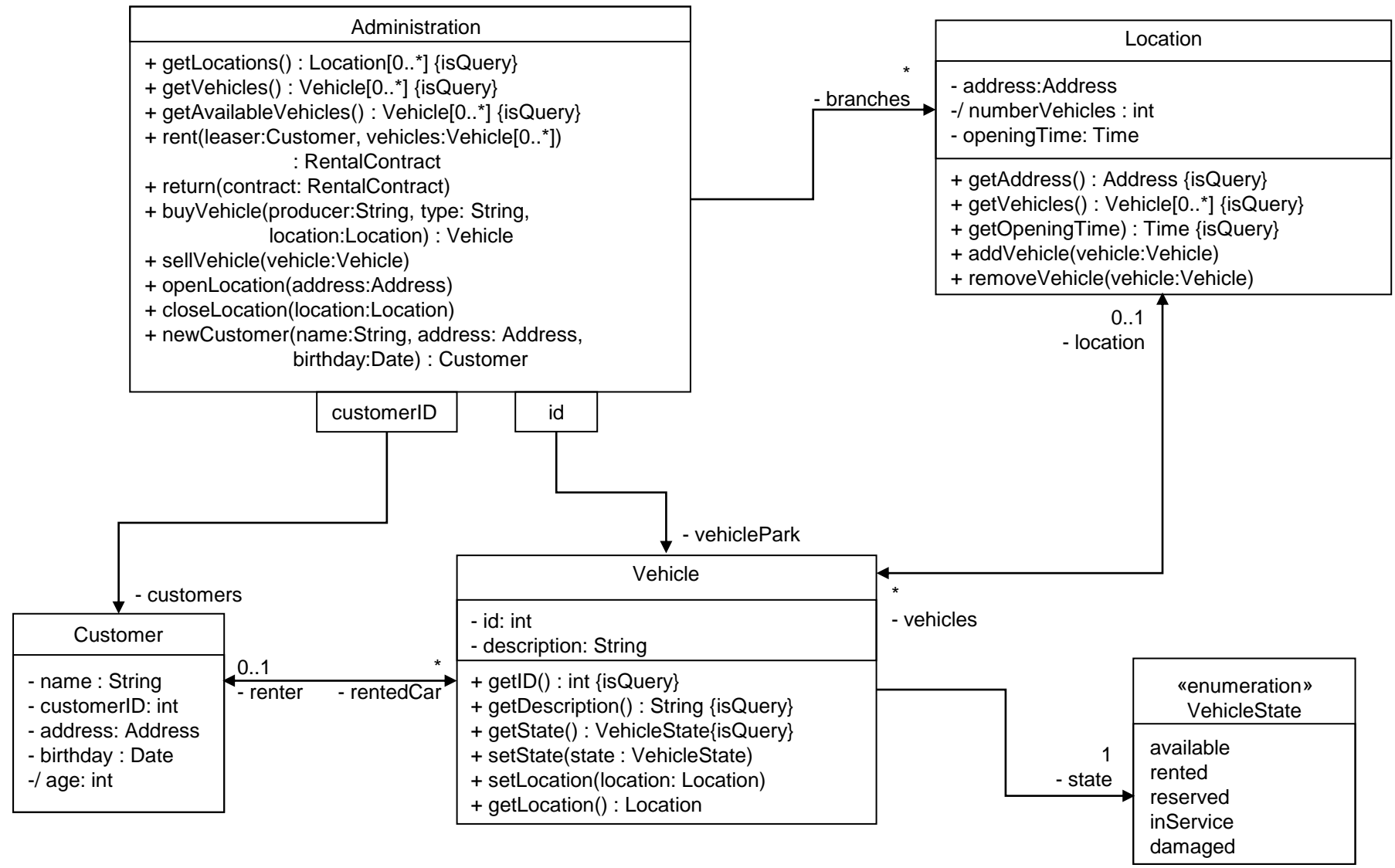
# Exercise 1.1

- Model a class diagram of a car rental service. The car rental consists of a central administration, several locations, vehicles and customers with the following qualities:
  - The administration offers methods to manage locations, vehicles and customers and methods to transact leases. In addition to that, the administration is acquainted with all vehicles in its fleet, all branches and all customers.
  - A location has an address and an opening time. Furthermore, it is aware of all vehicles which are available there.
  - A vehicle consists of an unique ID, a description and a state (*available*, *rented*, *booked*, *inService* or *damaged*). When applicable, it knows a location and a leaser. The administration can access directly a vehicle through the ID.
  - A customer consists of a name, an address, a customer ID and a date of birth. Through the customer ID, the administration can access directly the customer's data. A leaser can rent more than one vehicle.

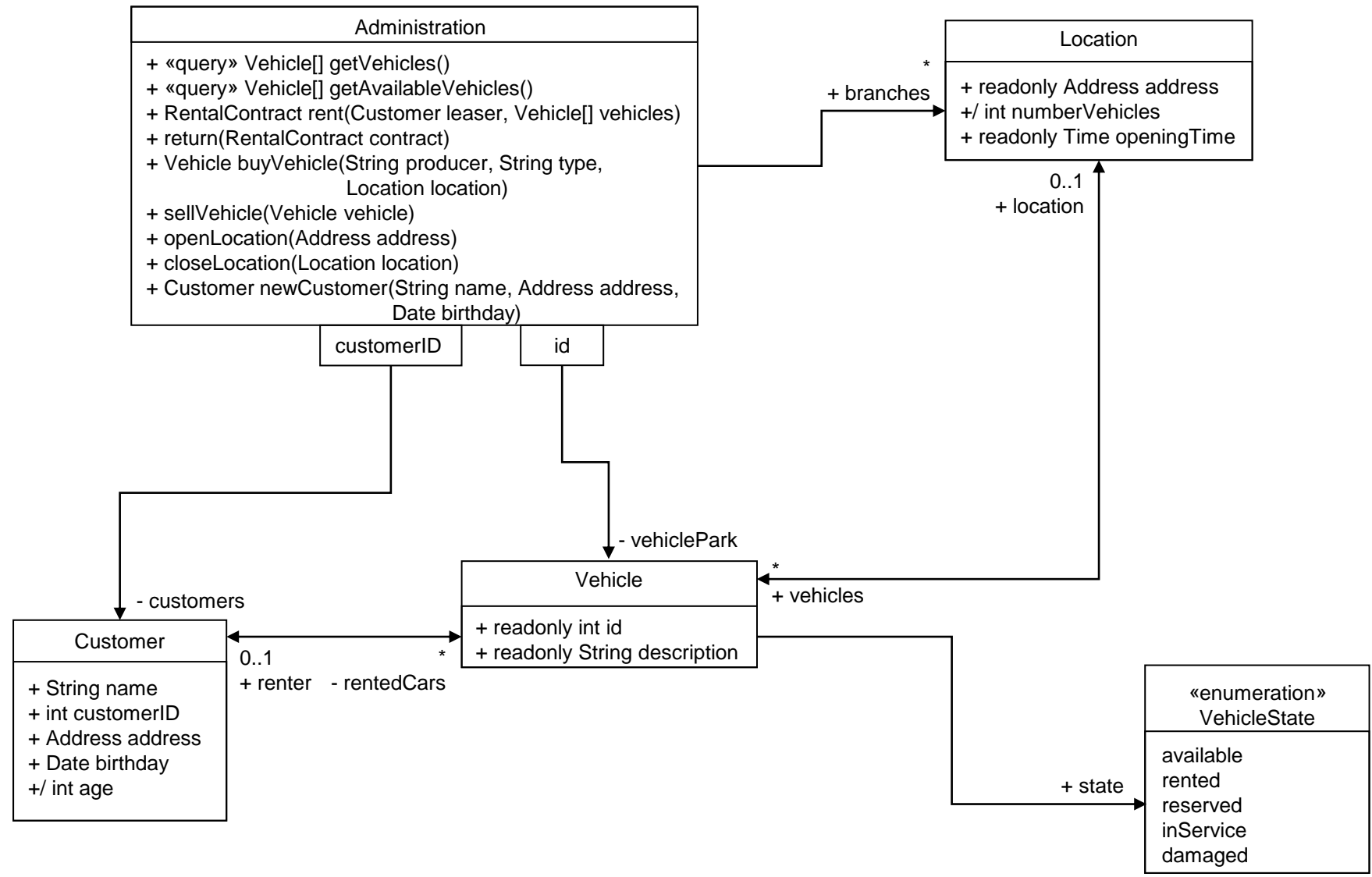
# Solution 1.1



# Solution 1.1 – OMG-Version

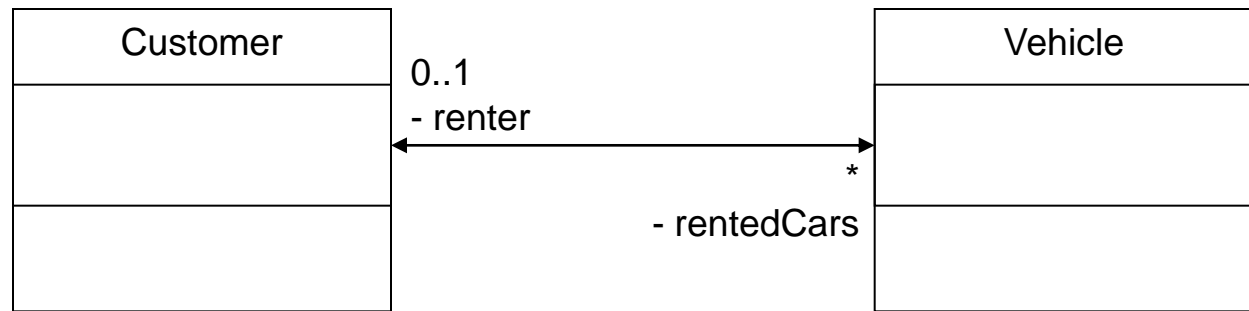


# Solution 1.1 – More Abstract Version



# Exercise 1.2

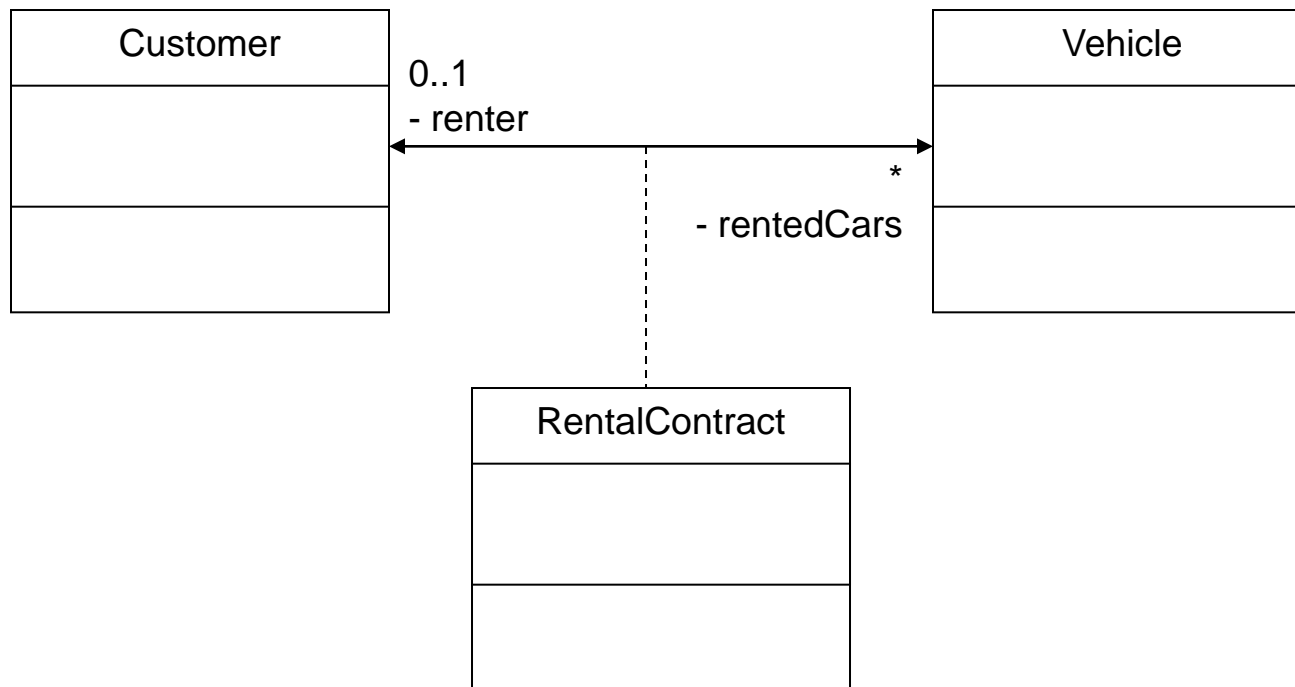
- The following extract from the class diagram of the car rental is given:



- Change the association between customer and vehicle by creating a further class "rental contract".

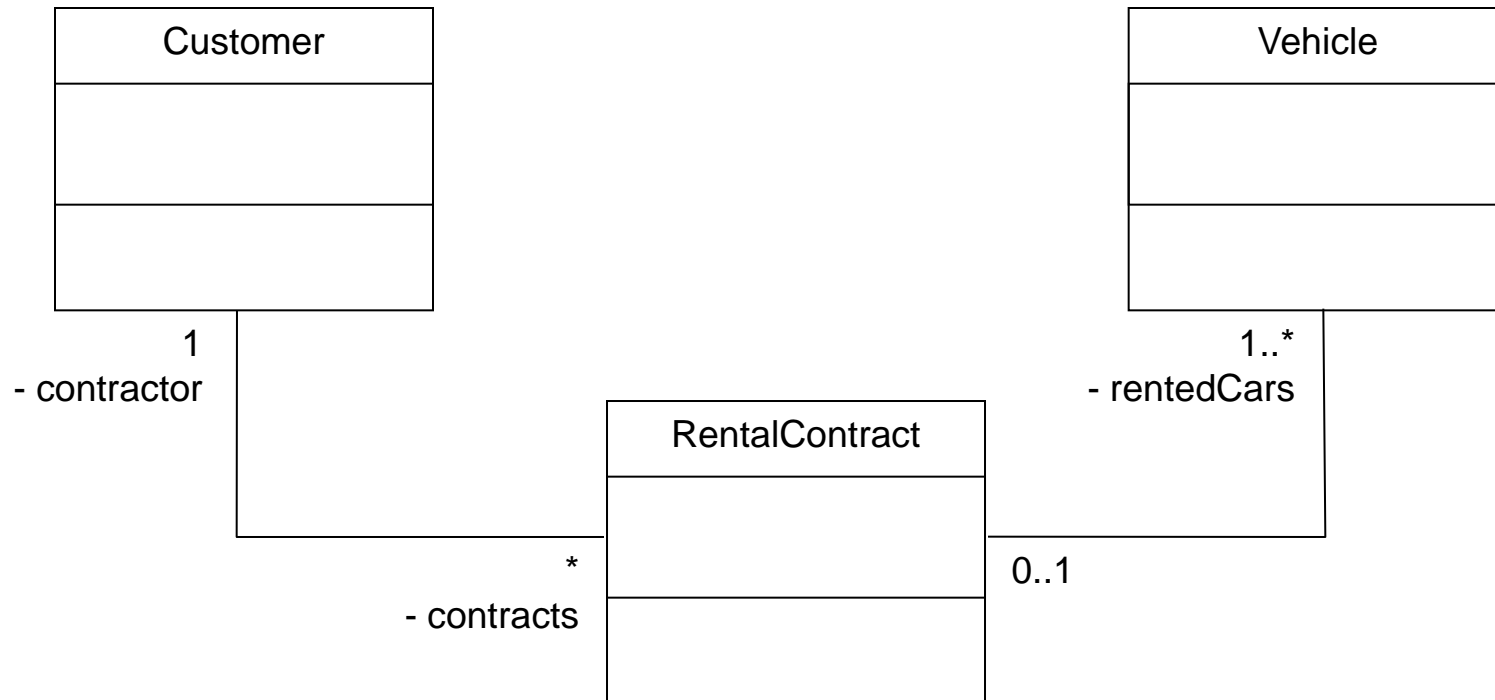
# Solution 1.2

- 2 possible solutions
- Classified association:



# Solution 1.2 (2)

- Independent class:





# Exercise 1.3

- The car rental extends its offer by trucks. Change the class diagram from 1.1 in such a way that cars and trucks can be distinguished.

# Exercise 1.3

