

Elaboration

Advanced Software Engineering

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Use case: Process Rental

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Primary Actors: Clerk

Basic flow (main success scenario):

1. The customer arrives with the empty cases of the DVDs that he/she chose to the checkout counter.
2. Clerk starts a new rental and asks the customer to show membership card.
3. The customer shows membership card to the clerk who enters membership ID into the system.
4. The system displays membership info with any late fees on non returned DVDs.
5. The clerk enters DVD identifier.
6. The system records rental line item and presents video description, rental fee, and running total. Fee calculated from a set of business rules.
7. Clerk repeats 5-6 until indicates done.
8. System presents total.
9. Clerk tells Customer the total, and asks for payment.
10. Customer pays and system handles payment.
11. System logs completed rental and updates inventory.
12. System prints receipt showing list of DVDs and return dates.
13. Clerk fills the empty cases with the DVDs.
14. Customer leaves with DVDs and receipt.

Domain model

The conceptual classes and their attributes used for this use case are shown in Picture 1.

The classes are derived from the noun phrase analysis and Conceptual Class Category List from resources from the book. Most of the classes listed are intuitively and logically derived from the use case.

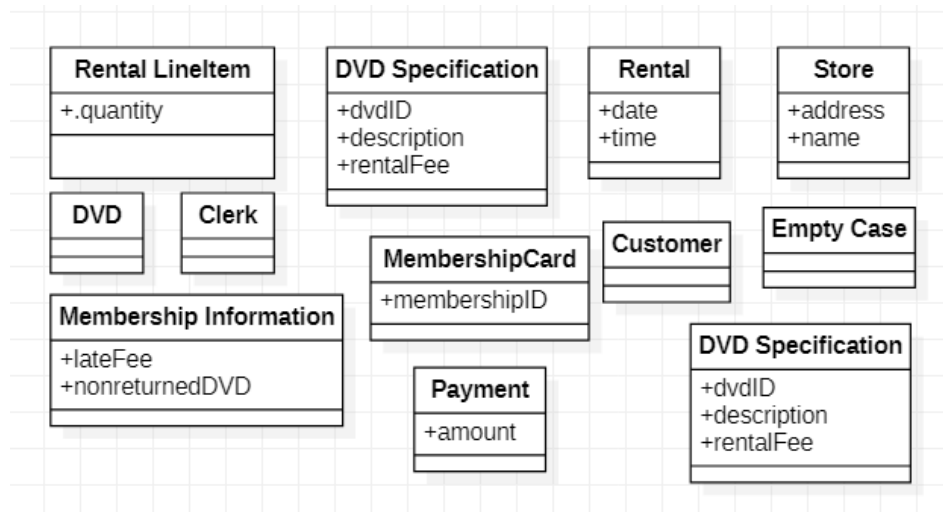
Membership Information was derived by noun phrase analysis, as well as from the logic described in the resources for non-primitive data types classes guidelines.

Empty case class is shown since it affects how the rental process flows and since it was stated in the resources that if unsure, it is better to show a class than to not.

Rental LineItem class was chosen since it is useful for when the same DVD is rented more times.

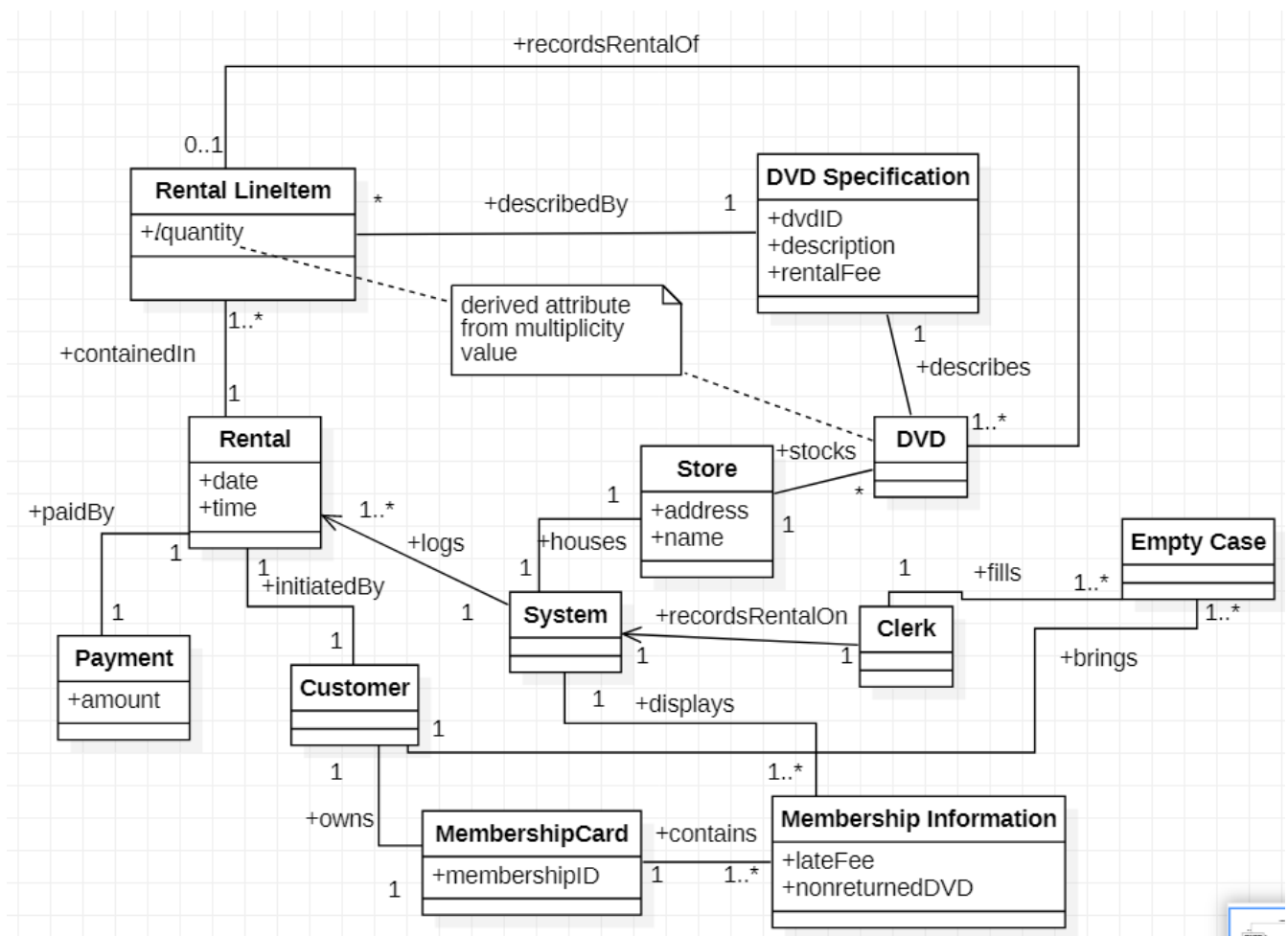
DVD Specification class was chosen in order to represent the attributes all DVDs must have, even if they are not currently available in the inventory – just because a DVD is not currently available in store does not mean that information about it should be deleted, which would happen once all copies of a certain DVD were rented and the information about it were stored in DVD class.

Classes that were detected by noun phrase analysis but are not shown in Picture 1 (such as Receipt or Inventory) are not considered classes for this specific use case, since they are not relevant for the Rental process. However, these classes could be considered for another use case, such as *Handle Return* use case or *Inventory management* use cases, since they would be more relevant then.



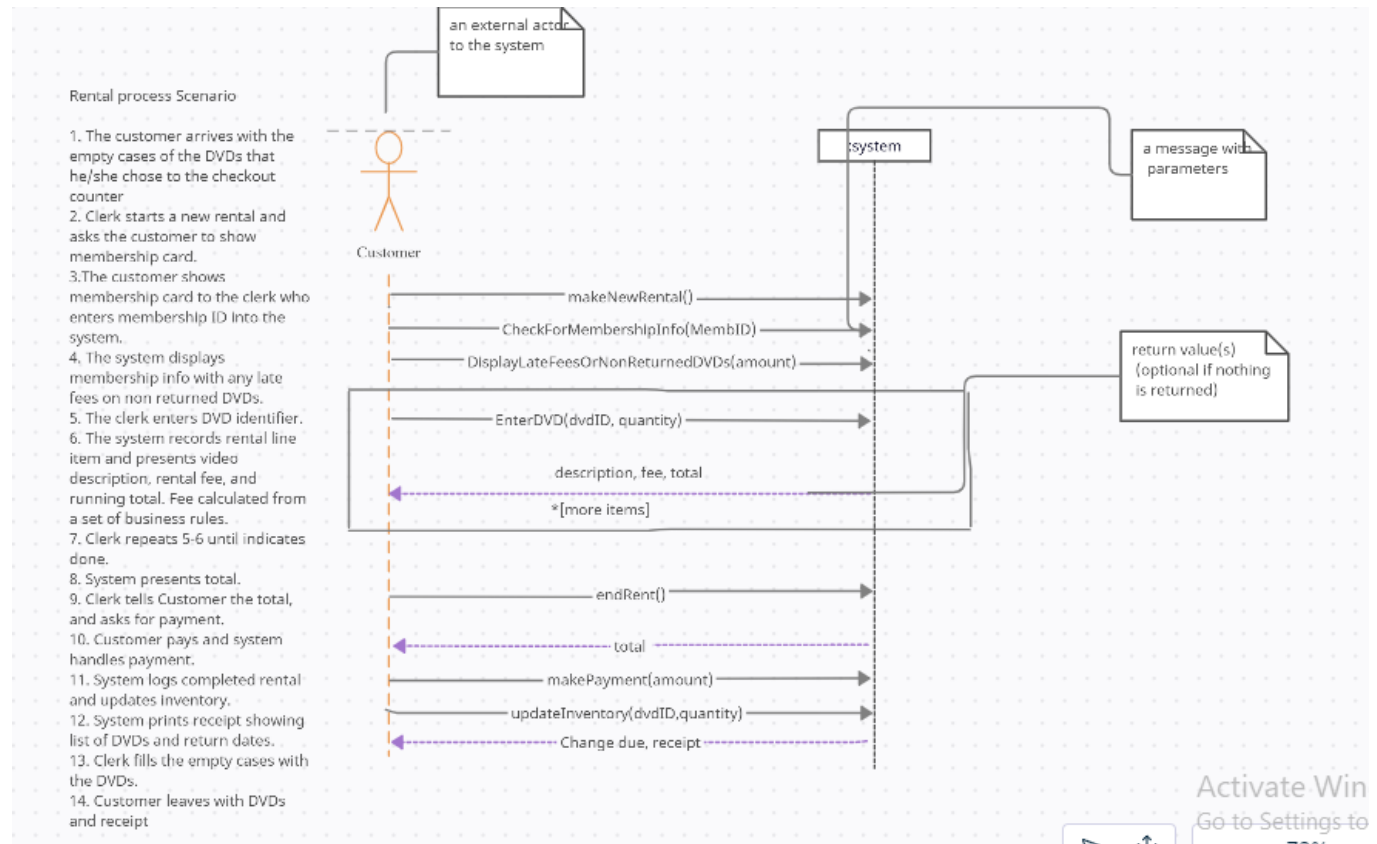
Picture 1 – conceptual classes

Picture 2 shows the domain model, with all classes, their attributes and associations.



Picture 2 – Domain model

System Sequence Diagram (SSD)



Picture 3 - SSD