武汉大学计算机学院

2017-2018 学年第 2 学期《UML 及软件建模实验》

上机/实验考核任务书及评分标准

年 级： 2016　　专 业： 软件工程（卓越班）

一. Task

Part 1: Case study for a video store system

You are to design a system to track the activities of a video store.

1. A “video” can be in any medium: tape, DVD, and so on.
2. For the video store system, clerks in the video store perform daily operations
3. Customers must register with the store as memberships before they can rent videos. Registration information includes standard demographic information such as address, phone number, driver’s license, etc. Each customer has a separate membership
4. The store tracks the videos that each customer currently has rented, which of them are overdue, and what outstanding overdue charges the customer is liable for.
5. When a video is rented, it is moved from in-store inventory to the customer’s possession. When it is returned, it goes back into in-store inventory.

6. When a customer rents one or more videos, a rental agreement is generated, and the customer pays the rental fees for them. When the videos are returned, overdue charges are determined, where appropriate. The customer either pays the fines at that time.
7. Clerks in the video store can manage memberships
8. Clerks and manager in the video store can query video catalogs and rental information. Manager can examine the rental report(system should generate weekly report)
9. Administrator can manage the users for the video store system.
10. All the users must log in the system before they can use the system.

Problem 1: draw a use case diagram for the system.

Problem 2: the following is the description of ***rent videos*** use case (minimized version)

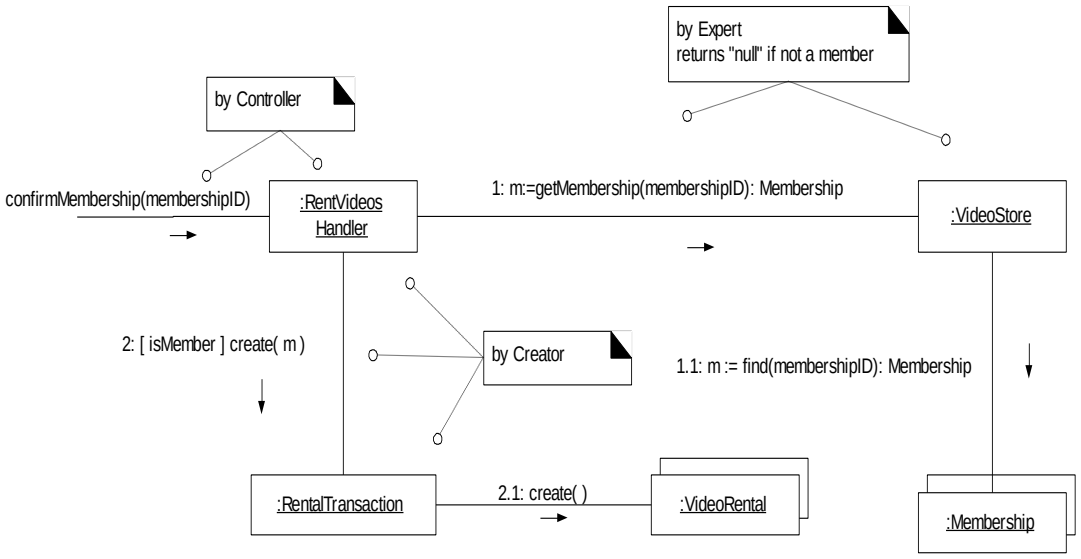
Actor Actions	System Response
1. This use case begins when a Customer arrives at a checkout with videos to rent.	
2. The Customer presents their membership identification to the	3. Presents membership information, and status of loans (usually

Clerk, who enters it into the system.

4. For each video, the Clerk records the item identification into the system.
5. Presents accumulating list of rental video titles, due dates, and total rental fee.
6. Clerk informs Customer of total rental fee, and asks for payment.
7. Customer pays cash to Clerk.
8. Clerk records payment into system.
9. Generates receipt and loan report.
10. Clerk gives receipt and loan report to Customer, who then leaves with the rental items.

nothing on loan, and no outstanding fines).

draw a collaboration (**or** sequence) diagram for the above "***rent videos***"



use case with annotated messages with GRASP(Expert, Creator, and so on), for example, the form is like the above diagram

Problem 3: develop a complete class diagram for the system, the class diagram should includes

a) Class attributes, private/public methods

b) Class relationships

Part 2: write an essay on how to allocate responsibilities to class (or you can talk about your experiences on GRASP)

二. Scoring criteria

（1）Part 1 accounts for 40%, and Part 2 accounts for 60%。

（2）Both two problems have not standard answers, but rationality and originality are required.