Object Oriented Design Exercise

CS 162

Objective

The purpose of this exercise is to give you more practice turning a software specification into a specific object-oriented design. Design the classes that would be used to implement the description below. Describe the relationships between the classes and draw a diagram to illustrate those relationships. Determine what the member variables and methods of the classes should be. You do not need to write an implementation for the methods. If you use inheritance, interfaces, abstract classes, or abstract methods, please state so clearly. This exercise involves brainstorming, so feel free to sketch out a design, change it, refine it, use multiple sheets of paper, etc.

1. Specification #1

You need to implement a video store in Java. The video store contains a list of videos that are currently available. Each video consists of a title, a genre, and a rating. The video store allows customers to check if a video is available using only the name of the video. Additionally, the video store allows a customer to rent a video by providing the name of the video and their rental card. When a video is rented, then the video is removed from the list of currently available videos and added to the list of currently rented videos by the customer, which is maintained on the rental card. When a customer has finished watching a video, they can return it. A returned video is simply removed from the list of currently rented videos on the customer's rental card and added back to the list of available videos in the store. Customers can also ask for a video recommendation, which uses the information stored on the rental card. Specifically, the recommendation system determines the dominant genre in the list of currently rented videos and combines that information with the age and gender of the customer to recommend a video that is currently available in the video store.

2. Specification #2

Now take a look at the specification of Assignment #2 on the class website. Plan out the design of the entire assignment like you did above. Show your design to the TA.