

CSSE 374 – Software Architecture and Design I

Homework 6

Objectives

Practice working with GoF design patterns by applying three of them (Adapter, Strategy, and Composite) to designing portions of a Video Store System.

Practice with activity diagram notation.

Due Date

11:55 p.m., Tuesday, Week 8, February 1nd, 2011.

Tasks

1. Review the attached Domain Model for the Video Store. Identify three different system operations that would be sensible in this domain where you could apply the GoF design patterns Adapter, Strategy, Abstract Factory and Composite. If a system operation that you used for Homework 5 or 6 also serves to illustrate one of the new principles, then feel free to reuse (or extend) the diagram.
2. For each system operation listed in Task 1, sketch a (partial) design class diagram and an Interaction Diagram (either Sequence Diagram or Communication Diagram), and briefly describe the tradeoffs and rationale for your design decisions as follows:
 - a. For one operation, describe how you used the Adapter pattern (Chapter 26.1) in your design.
 - b. For one operation, describe how you used the Strategy pattern (Chapter 26.7) in your design.
 - c. For one operation, describe how you used the Abstract Factory pattern (Chapter 36.7, page 505) in your design. For this one, you may need to make an assumption about things which could vary enough in the BBVS that it would require such a factory!
 - d. For one operation, describe how you used the Composite pattern (Chapter 26.8) in your design.
3. Sketch an Activity Diagram showing the entire life cycle of a video rental (from rental through to return) using the UML activity diagram notation given in Chapter 28. Be sure to use partitions to show the parties involved in the process (see Fig. 28.1) and a time signal (see Fig. 28.6) to trigger a notice of some sort if a video isn't returned on time.

As always, please provide accompanying text and/or embedded notes indicating what you did in your modeling. **Please recall that scans of neatly drawn pen and paper sketches are adequate for homework** (though not for projects).

There is a scanner in F217.

Submitting Your Work

Steve's Section: You can submit either a **pdf** file or a **Word** document. Name your document *HW6-GOF*, with the appropriate extension (*pdf*, *doc*, or *docx*). Please include your name on the first page of the document.

Shawn's Section: Please submit a **pdf** file with a cover page containing your Name, Assignment Title, Date, and Campus Mail number, to the Angel dropbox for Homework 6. Please name the document: <your last name>HW6-GRASP2.pdf (e.g., Bohner-HW6-GoF1.pdf).

Domain Model for the BBVS: (Note that this is an updated DM for the assignment that incorporates the notion of catalog.)

