CIS-18B

Advanced Java Objects

Assignment Breakdown

Assignment Title: Observer Pattern

Point Value: 20 points

Description: The Observer Design Pattern is a powerful way to reduce the coupling between objects that are changing and objects that need to be informed of that change. We see examples of the observer design pattern in our every day lives everywhere we look. Any time that you have opted in to receive more information when it becomes available (like in a newsletter or a magazine) and have received updates when they are ready to be distributed, you’ve just participated in a real-life example of the observer design pattern.

For this assignment, you’re going to demonstrate your knowledge of this design pattern by creating a basic system that allows you to add subscribers and push an update to them. Let’s pretend that you work for National Geographic and your system is built to handle magazine subscribers.

1. Create a text-based menu that gives you two options:
   1. ADD NEW SUBSCRIBER
   2. REMOVE EXISTING SUBSCRIBER
   3. SEND MESSAGE TO ALL SUBSCRIBERS
2. When the user elects to ADD NEW SUBSCRIBER, allow them to enter a street address. If the address already exists in a list of subscribers, tell the user that this address is already in the system and return them to the main menu. If the address is unique, add it to the list of subscribers.
3. When the user elects to REMOVE EXISTING SUBSCRIBER, allow them to enter a street address. If the address already exists in a list of subscribers, remove it from the list. If it doesn’t exist, tell the user that the record couldn’t be found and return them to the menu.
4. When the user elects to SEND MESSAGE TO ALL SUBSCRIBERS, allow the user to type in a text entry and demonstrate that it is received by all subscribers.

Goals: Remember to follow the Observer Design Pattern. It’s possible to create an implementation that deviates from this. Remember that in order for this to truly follow the pattern, the Observed object (National Geographic) needs to send a message that is received by all of its subscribers (the Observers). It is not satisfactory to simply have the Observed (National Geographic) name all of its subscribers. It truly needs to pass a message to its subscribers, so that they receive the message.

Submission: Please submit your assignment as series of individual .JAVA files, as well as a video file demonstrating your completion and walkthrough of the code.