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CSCI 4448

Project 3

1. Design
    a. Overview : We designed a fully functional hardware retail store chain using object oriented programming in Java that keeps a point of sale system. The program includes objects like customers and rentable tools as well as returns a simulation of activity for 35 days at our store.
    b. Patterns:
        i. **Observer:** We created an observer that essentially looking for days that there are no customers available to buy tools. The days where there are none, all customers will either return tools or do nothing at all. When there are no customers, the observer notifies the update() function to update the observers on the status. From there, the observer will print out a prompt explaining that there are no customers renting new tools, they are just returning.
        ii. **Factory:** We created a simple factory pattern that can return a variety of customer types, where the "customer" that is "returned" matches the criteria or "type" we specify. We create customers by specifying whether the customer is a business, casual, or regular customer and the customer factory will give us the type of customer we asked for.
        iii. **Decorator:** With this pattern, we decided to implement it with an Extension cord. When we make a new extension cord, we decorate it with the price per cord and the random number of cords that a customer might want with their order. This was the best way we could implement it because it created the "decoration" for the cord.

2. UML Class Diagram