Refactoring and Design Change

# Overview of Approach

This application builds on the solution provided in Homework #5 and adds the following functionality: support for different items types, selling and renting items, and ensuring that the discounts and coupons still apply. The solutions for each of these items are presented below.

# New Item Types/Sales and Rentals

The shopping cart from HW#5 has been extended to use a more generic ‘**ShoppingCartItem’** that can support both rentable and sellable items. The diagram below shows how new product types can be added and designated as **Rental**, **Purchase**, or both by implementing the appropriate interface.

Diagram

Description automatically generated

Note: Only Movie, CD, and Souvenir product types are implemented in the application. Other items such as book and video games can be easily added but were not included in the code for clarity.

# Coupons and Discounts

The discount mechanism developed for Homework #5 works with the new **ShoppingCartItem** implementation. The **Discounts** decorator has access to both rental and purchase items when it examines the shopping cart and individual discounts can be applied to either type.

Diagram

Description automatically generated