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CS255 Module Four Assignment

**Functions of the Online Storefront**

The online storefront does several things, which are shown in the object model:

1. **User Registration and Login**: The User class handles logging in, registering, and updating profiles with methods like verifyLogin(), register(), login(), and updateProfile().
2. **Catalog Management**: The Administrator class updates the product catalog using updateCatalog().
3. **Shopping Cart Operations**: The Shopping Cart class manages items with methods like addCartItem(), updateQuantity(), viewCartDetails(), and checkOut().
4. **Order Management**: The Order class handles placing orders using placeOrder().
5. **Shipping Information**: The Shipping Info class updates shipping details with updateShippingInfo().
6. **Order Details**: The Order Details class calculates prices using calcPrice().

The model shows three different user types:

1. **Customer**: Inherits from User and has extra details like customerName, address, email, creditCardInfo, shippingInfo, and accountBalance.
2. **Administrator**: Inherits from User and includes adminName and email.
3. **User**: The base class with userId, password, loginStatus, and registerDate.

**Relationships Between Classes**

1. **Customer and Shopping Cart**: A customer can have many shopping carts.
2. **Customer and Order**: A customer can place many orders.
3. **Order and Shipping Info**: Each order has one shipping info.
4. **Order and Order Details**: An order can have many order details.

**How Objects Use Their Variables and Functions**

* **Customer**: Uses methods to register, log in, and update their profile.
* **Shopping Cart**: Uses methods to add items, update quantities, view details, and check out.
* **Order**: Uses a method to place an order.
* **Shipping Info**: Uses a method to update shipping details.
* **Order Details**: Uses a method to calculate the price.

The model seems to cover the main functions for managing users, orders, and catalogs. However, without all the details, it's hard to say if it includes everything Hamp Crafts wants. For example, we might need more info on payment processing or managing inventory. The solid diamond shape shows composition, a strong form of aggregation. This means the composed objects (like Shopping Cart and Order) can't exist without the parent object (Customer). The solid diamond is used to show that these objects are closely linked to the parent object.

**Process Model**

* **Good Points**: Shows the steps in activities, making it easier to understand the flow of tasks and information.
* **Bad Points**: Might not clearly show relationships between different parts of the system. Less good at showing the system's structure.

**Object Model**

* **Good Points**: Clearly shows the system's structure, including relationships between objects and their properties and methods.
* **Bad Points**: Might not show the sequence of activities and interactions well. Harder to understand the workflow and processes.

Both models are useful. The process model is better for understanding how things happen over time, while the object model is better for seeing how things are set up. Using both together can give a complete picture of the system.