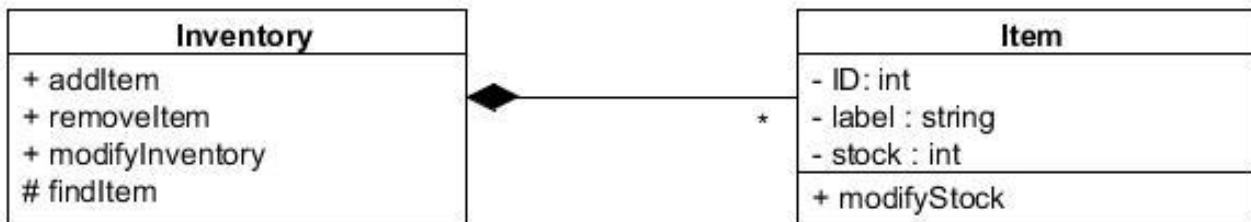**Q3 A, B)**

The Observer design pattern has been applied to a basic inventory system.

There are two important classes (excluding those for the design pattern). They are Inventory and Item. Item objects consist of an ID, a label, and a quantity in stock. Inventories are collections of unique items (no duplicates allowed).

The Inventory interface allows for adding and removing items, or modifying the stock of an existing item.

The use of the Observer design pattern is to keep track of the current Inventory. When any changes are made to an inventory object, the update() method of the InventoryObserver class prints the updated inventory to standard output.

UML without Observer pattern:

Inventory
+ addItem
+ removeItem
+ modifyInventory
# findItem

Item
- ID: int
- label : string
- stock : int
+ modifyStock

UML with Observer pattern: