TBD: Inventory System

CMPE 135

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What is our application?

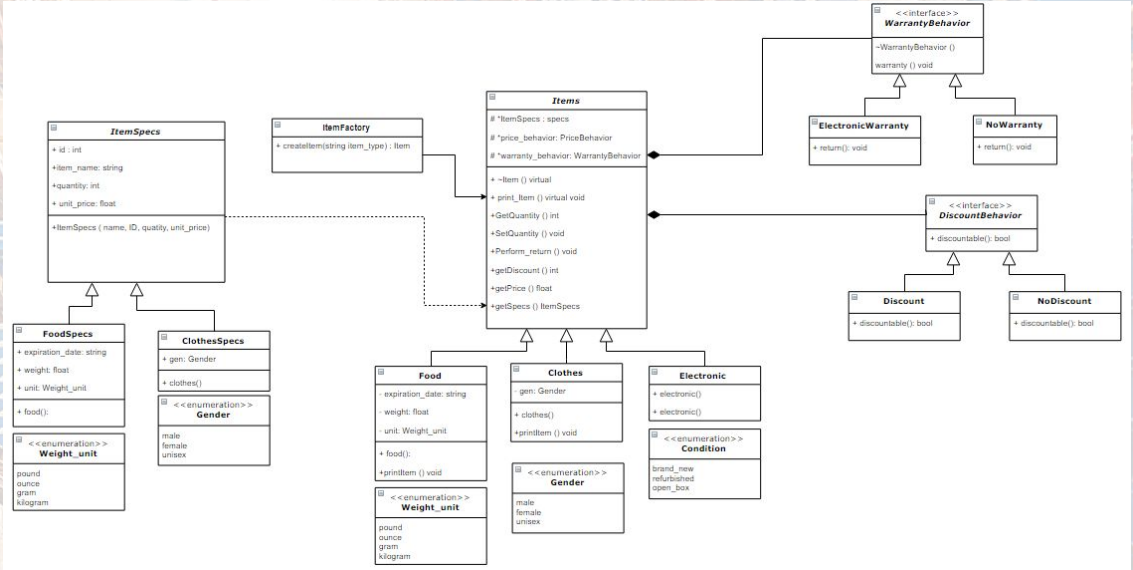
We designed an application to monitor the items which are stored in warehouses.

- A store keeps track of items in a warehouse by subscribing
- A store is able to order items from different warehouses
- The warehouses could have different types of items
- Different types of items could have different behaviors

Architecture and Technologies

Used C++11

Command line application



Design Principles

Dependency : high level module should not depend on low-level module.

Information hiding : Few public member variables + functions (still support reliability and flexibility)

Encapsulate what varies

Favor composition over inheritance

Design Patterns

Strategy

Encapsulate the behavior of the items (Different items→ Different behaviors)

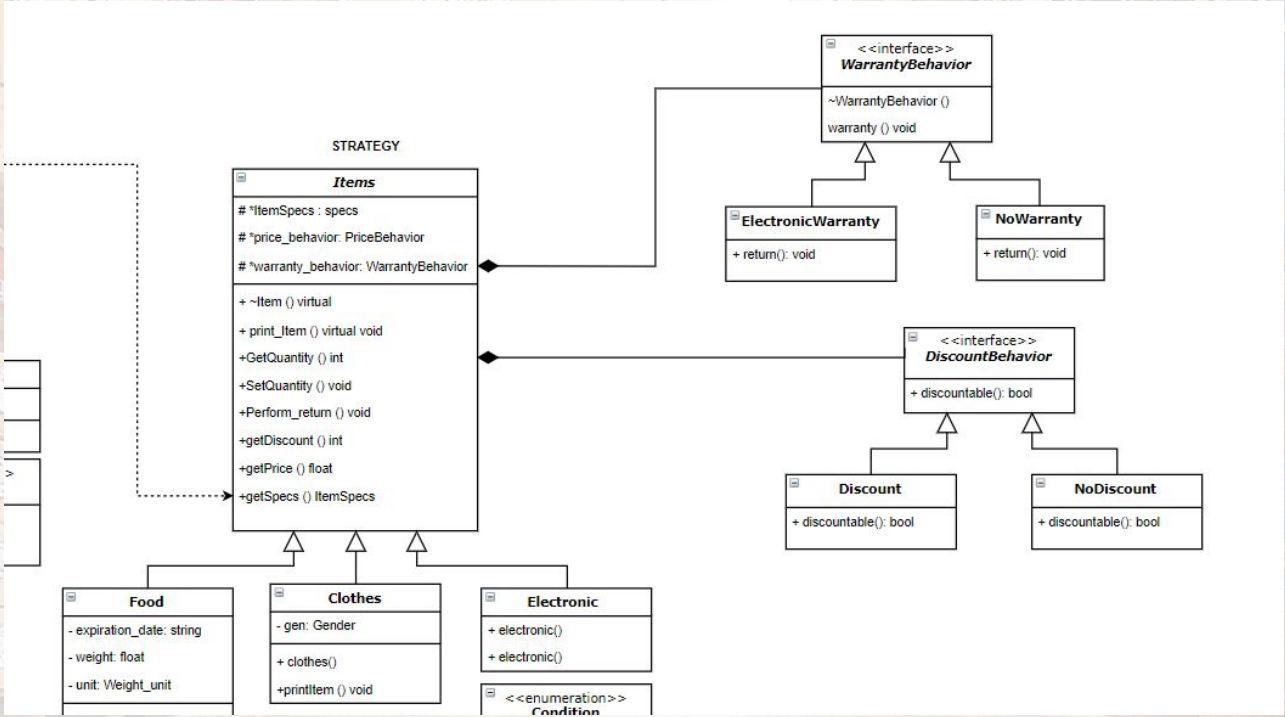
Observer

Keep track the warehouse item list (List updated → Store receives notification)

Factory class

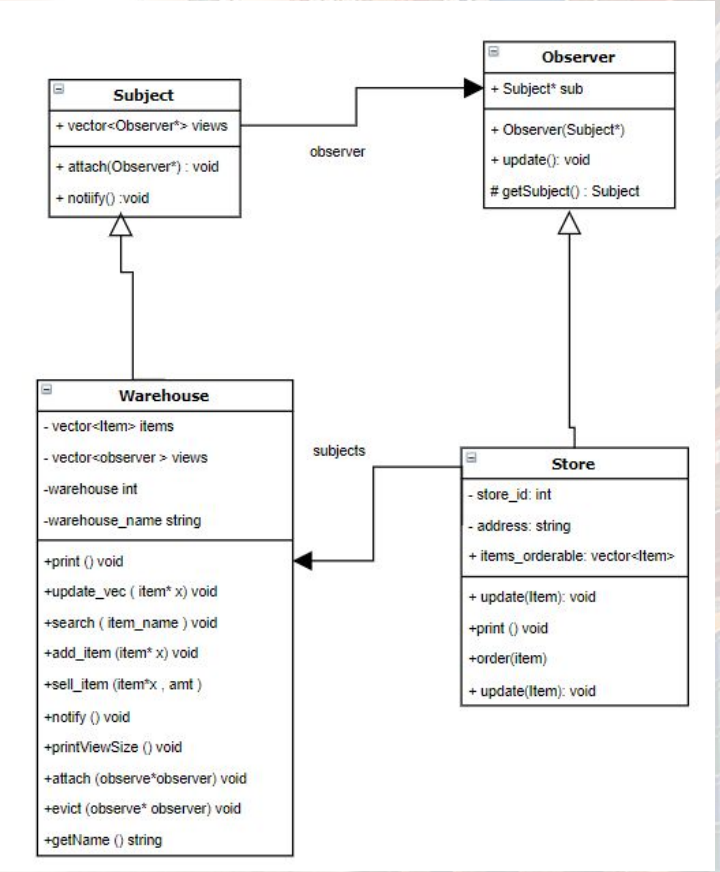
Handle Item generation (Create new items at runtime)

Strategy


STRATEGY
<<interface>>
WarrantyBehavior
~WarrantyBehavior ()
warranty () void
Items
*ItemSpecs : specs
*price_behavior: PriceBehavior
*warranty_behavior: WarrantyBehavior
+ ~Item () virtual
+ print_Item () virtual void
+GetQuantity () int
+SetQuantity () void
+Perform_return () void
+getDiscount () int
+getPrice () float
+getSpecs () ItemSpecs
ElectronicWarranty
+ return(): void
NoWarranty
+ return(): void
<<interface>>
DiscountBehavior
+ discountable(): bool
Discount
+ discountable(): bool
NoDiscount
+ discountable(): bool
Food
- expiration_date: string
- weight: float
- unit: Weight_unit
Clothes
- gen: Gender
+ clothes()
+printItem () void
Electronic
+ electronic()
+ electronic()
<<enumeration>>
Condition

Observer

- Warehouse notify all observing store whenever there is an update on the item list
- One to many for now

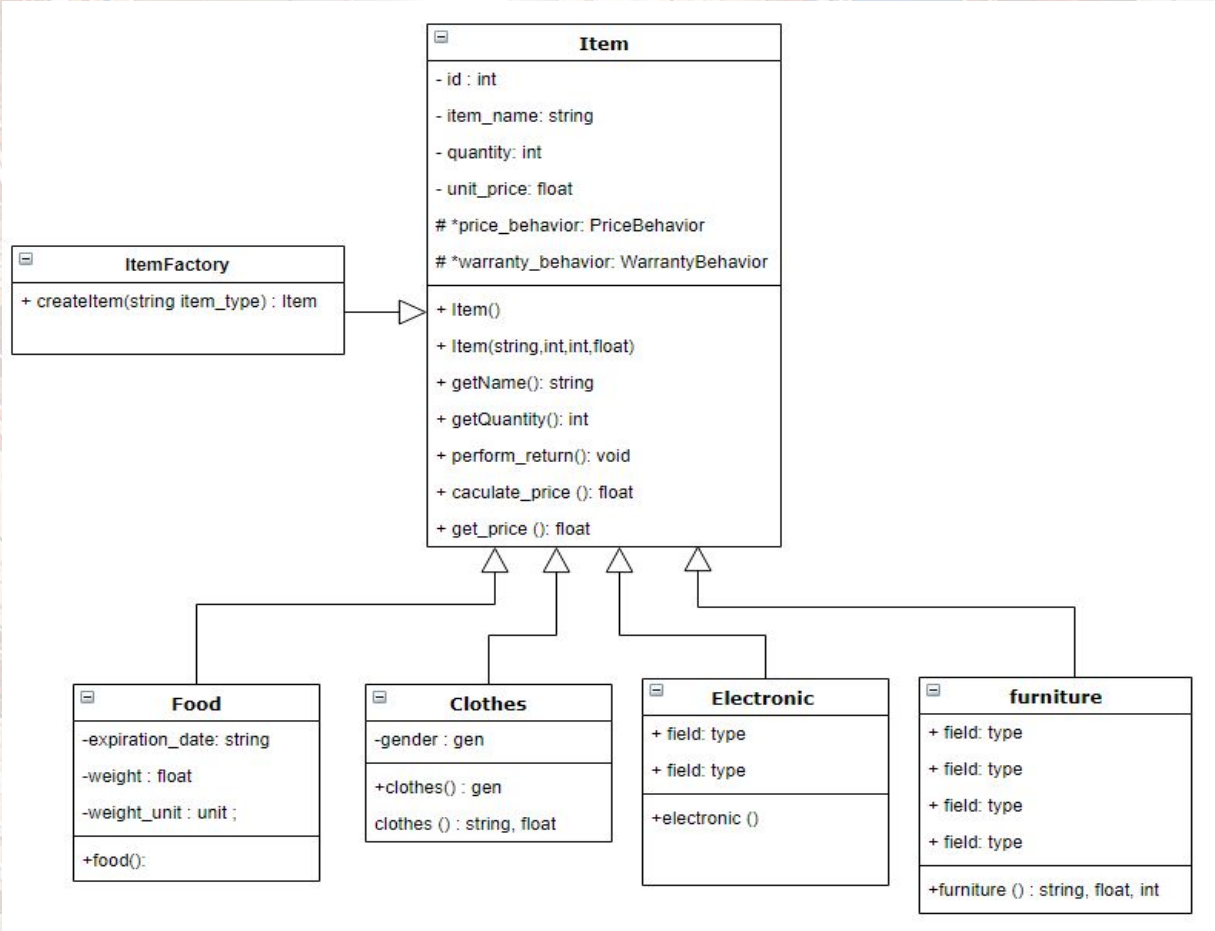


Factory

Handle item gererization

New type of item can also add by create a new class

=> expand the factory method




Demo

Conclusion/Future Work

- Design patterns' benefits not fully displayed
  - Should be more apparent on larger scale applications
- Scaling Up:
  - Implement many-to-many relationship between Stores and Warehouses
  - Implement database
  - Implement Graphical User Interface(wxWidgets maybe?)


Q&A