

CS 4500 Homework

Due Start of Class, Tuesday, October 11

Propose a UML information model to cover shopping at a grocery store. You can make it a plain vanilla store or you can make it fancy like Whole Foods.

For scope, your model should cover everything needed to answer questions about products, products on shelves (which products are on which shelves), and product prices. In other words, your model should be able to answer questions that would enable a shopper to peruse shelves, pick products, and put products into a cart.

More details about the information the model should support:

1. Products may be food or non-food items
2. Food products may be packaged or loose
3. All products have a price.
4. All products may be a sale item (discounted).
5. Loose products are sold by count or weight.
6. All packaged products have a UPC code.
7. All loose products have store code.
8. Food products are not taxed. Non food items are taxed (6%).
9. Customers may be known to the store. They may not be known. They are known through phone numbers.
10. Customers may have a wallet, which may have zero or more credit cards.
11. Customers may select which credit card to pay for a purchase. Customers may have a preferred credit card (a default card).
12. Credit cards are composed of a cc number, expiration date, user's name, CVV, type (AMEX, MC, Visa, Discover), and possibly a bank.
13. Customers may pay in cash.
14. Receipts contain information about day/time, customer, items purchased, taxation, item categories (e.g. dairy, produce, deli, packaged goods, dry goods), cashier number, register id, payment method.
15. Cashiers have names and ID numbers.
16. Cash registers have ID numbers.
17. Shelves can handle a fixed number of items based on the size of the items. Shelves are arranged into rows. More than one shelf may be in a row. Rows have names (numbers). Shelves have names (numbers).

Your modeling should include behaviors for shopping and check-out. Assume normal credit validations during check-out. Check-out generates a receipt, which saved for later data science work.

Hand-drawn models may be submitted, but the images must be clear and not require massive magnification. You may use modeling tools. There are a few inside confluence. You may also consider using violet, the UML extension for eclipse, or papyrus. There's a long list of tools at Wikipedia if you don't like any of these.