

CSC 454/554 Homework #3

I've sort of figured out a better (cough) process for grading these homework problems. It's easy as one, two, three:

1. I'll describe the problem... you take your best shot, describing your solution in UML. Do it using your existing toolbox without peeking at the next step. (2 points)
2. Then, I'll point you to a pattern to try. Please read the relevant chapter in DPE and try to apply it toward solving the problem... with OO principles driving every fiber in your being. The deliverable here will be a UML class diagram as well. (2 points)
3. Implement your pattern-based solution in Java or C++ (just stubs) and place it on the k: drive. (1 point)

So, usually these problems will be worth 5 points. I hope we'll get 6 of them in over the term.

In grading, I'll be looking for completeness and correctness, and a sign that you have spent some time working and thinking on this problem. So, I'll be looking for your notes and thoughts and other artifacts in addition to your final UML diagrams. Your code only has to be class stubs.

OO Design Problem: Too much caffeine

The pony-tailed manager of the hip new coffee joint "TMC" (for too much caffeine) has hired you to write some software for their tasty beverages. Initially, we want to calculate the cost of these fancy coffee drinks with many options, but more tasks will come later, of course.

TMC currently offers 4 beverage types:

- House Blend
- Dark Roast
- Decaf
- Espresso

Each of these beverage types has a cost associated with it. The list of beverages offered by TMC will definitely grow over time!

Any beverage may be enhanced by any combination of the following condiments:

- steamed milk,
- soy,
- mocha, or
- whipped cream.

Each of these condiments, when added to a beverage, adds to its cost. This will also be an area of change in the condiments offered and also their cost.

I expect that most of us will have a `Beverage` class at the top of our hierarchy, so let's agree to that. Let's also agree to a `cost()` method in `Beverage` that returns the calculated cost of said `Beverage`. After that, it's up to you.

For this homework, your **three steps/deliverables** are:

1. Show me your UML and notes on a design for this problem before reading the pertinent patterns chapter.
2. Read Chapter 17 of DPE on the Decorator pattern and have another hack at things. Complete a new (improved?) UML class diagram, with your notes on why you think things are better.
3. Code up your classes in Java or C++.

Additionally:

- Hey, you want 5/5 points on this homework? It would really rattle my cage is if you showed me multiple solutions prior to reading the patterns chapter. Show me that you've explored the space on your own... design notes are great too.

My email is wtkrieger@noctrl.edu
good luck... yow, bill

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