**Reflection on the Final Project**

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Understanding and implementing one pattern was easy to do. After reading through the book, looking over the examples and then playing with the code made this process straightforward and simple. I started the final project early and implemented single patterns immediately. I started with the decorator pattern and then moved onto the factory pattern. I didn’t have any trouble with this. I started to run into trouble when I had to implement more than two patterns.

My biggest challenge was incorporating multiple patterns within the same program and programming the GUI.  I ended up with a GUI that worked and did what I intended but it looked terrible and cause me plenty of headaches along the way.  I now know why projects are often split between front and back end, the presentation requires an entirely different skillset.  The first problem of incorporating multiple patterns was my own doing.

I took one pattern and implemented it, then tried to force another one on top of it and tried to do the same with the third.  I didn’t have a plan for all the patterns going into it and therefore had to unnaturally force the patterns into the code.  I have a much better understanding of not using a pattern just to use it.  If it makes sense to use a pattern then it should be used but it should not be used just to use it. I didn’t have too many surprises along the way but looking back I would have had a plan to incorporate all four patterns into the design before starting.  Just having a simple concept of how I would do that would have helped immensely.