

The first exercise uses a model view controller pattern, the advantages of this pattern is it allows views/controllers to be added, removed, or modified without having to disturb the model. The views can also be added and modified during execution. The disadvantage of using this approach is that it introduces complexity. Views and controllers are hard to separate, and it makes the user interface components highly dependent on model components. The third exercise uses an observer pattern, which is similar to the model view controller pattern as you can add and remove observers during execution. Advantages of the observer pattern is that when one object changes its state, all its dependents are notified and updated automatically. The disadvantage of the observer pattern is that the subscribers are notified in a random order, in some projects this can be a very bad thing. Also like the MVC pattern, there is a lot of complexity introduced into the code.