FIT3077 – Software Engineering: Architecture and Design.

System Report

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Design Principles and Patterns

We wanted our system to be flexible to API changes and to requirement changes from the very beginning of the project. We knew that the requirements and API specifications would change within the second stage of the assignment. This meant that we would use a pattern that was extendable and flexible for storing object instances. We decided to go with the factory pattern in order to produce objects that would hold locations and monitors. In order to store these objects logically and to manage them as a group by leveraging object oriented behavior, we stored them in a collection pattern. So, we have factories, producing objects that are stored in collections.

Our two factory types are LocationFactory and MonitorFactory which extends the former factory. These factories are stored within LocationCollection and Monitor Collection.

In the case of Stage 2, we noticed that there were two separate lists of locations provided by the two separate APIs, thus we simply created another instance of LocationCollection and Monitor Collection for the new API and then implemented what needed to happen for the new API to be displayed by adding a switch case based on the API type selected for the monitor that differentiates the way the monitor updates using the API.

We focused on making sure our classes served one purpose each, this makes sure that our classes are highly cohesive, all the while making sure that coupling is kept to a minimal level.

Our Collections and Factory produced objects, when working together to update the data stored inside of all the factory produced objects stored within the collection do exhibit behavior that would be expected from an observer pattern.

We tried to keep the design and patterns used simple in order to aid in making the application simple and easy to understand.

References:

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