Exercise: Hospital Bed – Configuration

In this exercise, you will continue to work with the Hospital bed, the exercise you have already started. We will extend the solution to use a configuration file written in Json to configure your system.

If you like, you can use an XML configuration file instead.

The last few weeks you worked on the hospital bed system, which could detect the presence or absence of a patient in a hospital bed and sound an alarm if the patient left the bed. You have implemented a multi-threaded system using publisher-subscriber, and you have used GoF Strategy to enforce OCP and make the filtering and alarm methods very flexible, even run-time configurable. You have also used the GoF Observer pattern to decouple the Bed Controller and the alarming.

So far, the filtering and alarm methods can be changed at runtime, but they always have the same settings when the program starts.

Today, we are going to continue the exercise by writing a proper configuration fil in Json and using the .Net built-in facilities to read the configuration.

Exercise 1:
Suggest the necessary changes to your system so that the configuration of filtering, alarming method and logging method can be specified in a Json configuration file.

Exercise 2:
Define the format of the Json file and the corresponding C# class into which the configuration is going to be read. Among other things, you should consider:

- What are going to be the names of the individual components of the file?
- What are going to be the data type?
- How is the default configuration going to be defined?

Exercise 3:
Modify your implementation so that your program uses a JsonSerializer to read the configuration from a Json file and uses the contents of it to configure the system.