CSSE 374: Lab 7-1

Background

Assume that you work for a company that builds data processing and analysis engines. The current framework for data processing includes the following packages:

- **problem.model**: Models the general format of the data

- **problem.framework**: Provides classes to generate the data (**DataGenerator**) and accepts the logic (**IHandler**) of filtering and handling the data

- **problem.client**: Contains a sample usage of the data processing framework in which only the data that exhibit the primality behavior are processed

Your company is a true believer of the Hollywood Principle as reflected in the current design of the data processing framework (i.e., in **DataProcessingApp.main()**, your **IHandler**'s code is invoked internally by the **DataGenerator.process()** method. You relieve the control to the framework when you call the **process()** method.)

Feature

Google recently bought your company as they like the implementation of your data processing framework. However, Google engineers did not like the idea of relieving the control of execution to the framework. They want you to convert the framework to a library, where the client code has the control. Here is the proposed sample use-case for the re-designed library:

```java
public class DataProcessingApp {

    public static void main(String[] args) {
        IFilter filter = new PrimeFilter();
        DataGenerator generator = new DataGenerator(1, 20, filter);

        for(IData d: generator) {
            System.out.format("[%d] %s%n", d.getId(), d.getContent());
        }
    }
}
```

Design

Create **Lab7-1/docs/Answer.pdf** with answers to the following problems:

Q1. Create a **UML Class Diagram** to present your new design idea. Explain the design in a few lines. [**10 points**]

Implementation

Q2. Implement your code in the appropriate subpackages (**problem.library** and **problem.newclient**) of the **Lab7-1/src/problem** package. You will not modify any existing code but implement the functionality equivalent to the previous framework implementation. You are allowed to create new classes. [**30 points**]

Testing

Q3: Implement necessary test cases in the appropriate subpackages of the **Lab7-1/test/problem** package. [**10 points**]

Deliverable

Bundle your project in the **zip** format [**not rar**] and turn it in on Moodle.