

CSE 331 Structural Patterns worksheet

You have been designated chief software architect at WeatherCorp International, a globally renowned weather forecasting agency. Right now, the agency's codebase has this class which allows certain software to access the temperature at a given location, in Celsius.

```
public class CelsiusReporter {
    double temperatureInC;
    public CelsiusReporter() {}
    public double getTemperature() {
        return temperatureInC;
    }
    public void setTemperature(double temperatureInC) {
        this.temperatureInC = temperatureInC;
    }
}
```

However, since your agency has international reach, and not every country uses Celsius, the agency would like you to write an **adapter** class that will convert between Celsius and Fahrenheit. They have already provided you the skeleton. All you need to do is write the corresponding getter/setter, but for Fahrenheit.

In case you do not recall: °C to °F conversion is given by the formula .

```
public class FahrenheitReporter {
    private CelsiusReporter cr; // assume this has already been initialized
    public FahrenheitReporter() {...} // you don't need to write this
    // your code goes below

}
```

WeatherCorp Int'l is very pleased with your code and requests another feature. They want to be able to access historical data from their logs, in order to make more accurate forecasts. You look around in the WeatherCorp codebase and find their static `WeatherLogger` class, which has the following operation:

```
append(String event); // adds an event to the internal weather log
```

Every time you get the current temperature, you want to add a string of the following format, to the log:

```
<TIME>: GET Temperature = <DEGREES> Celsius
```

Every time you set the current temperature, you want to add a string of the following format, to the log:

```
<TIME>: SET Temperature to <DEGREES> Celsius
```

<TIME> is a Unix timestamp representing when the method was called, and <DEGREES> represents the retrieved or set temperature at the method call. You can assume the following function exists:

```
getCurrentTime(); // returns the current UNIX timestamp
```

In the space below, complete the **decorator** class for the existing `CelsiusReporter` class.

```
import com.weathercorp.util.WeatherLogger
```

```
public class _____ extends CelsiusReporter {
```

```
}
```