

CS 410 Software Engineering – Spring 2019

Assignment 2

You are given the classes of three sensors “TemperatureSensor”, “RadiationSensor” and “PressureSensor”. You are not given the source codes but instead byte-codes. The sensors do not have a common supertype. The API’s for each sensor is provided below:

Package	sensor
Class	TemperatureSensor
Field Summary	
private double	temperature
Method Summary	
public double	senseTemperature() returns the value of temperature
public String	getTempReport() returns the status indicating whether it is “OK”, “Danger” or “Critical”.
public String	getSensorType() returns the name of the sensor such as “Temperature Sensor”

Package	sensor
Class	PressureSensor
Field Summary	
private double	pressure
Method Summary	
public double	readValue() returns the pressure value
public String	getReport() returns the status indicating whether it is “OK”, “Danger” or “Critical”.
public String	getSensorName() returns the name of the sensor such as “Pressure Sensor”

Package	sensor
Class	RadiationSensor

Field Summary	
private double	radiationLevel
Method Summary	
public double	getRadiationLevel() () returns the radiation level
public String	getStatusInfo() returns the status indicating whether it is "OK", "Danger" or "Critical".
public String	getName() returns the name of the sensor such as "Radiation Sensor"

Each sensor decided the status according to following table.

	Temperature	Pressure	Radiation
OK	< 235°C	< 5 bar	< 3 rad
Critical	235° - 300°C	5 - 6.58 bar	3 - 4 rad
Danger	> 300°C	> 6.58 bar	> 4 rad

You are asked to implement a sensor tracker GUI application using **Adapter** design pattern.

Hints:

There will be three separate views for each sensor. In GUI, you need to create three separate JPanel objects to draw the sensor display. You are given SensorApplication class as an example. You can see how to create and add JPanel objects.

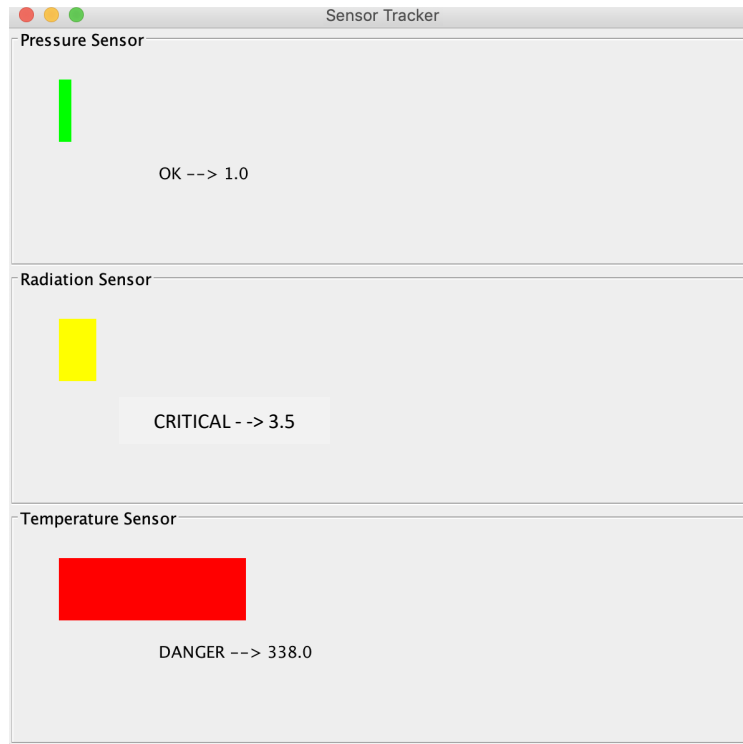
Note that none of sensor classes has set method. So you cannot set the value of pressure sensor object. So you can assume that each sensor will create a random value as sensor value. Just as an example, a sample implementation for readValue() method of PressureSensor is given below.

```

public double readValue() {
    Random r = new Random();
    int value = r.nextInt(10);
    pressure = value;
    return pressure;
}

```

Sample runs are provided below:



Sample Run-2:

