Problem Description

Consider, you are working in a global news company "Truth Matters, but Money Matters More" as a software engineer. The company wants you to create a new weather app "Weather Alert" for different kinds of clients. In this app they can set a temperature and all the clients will get update of this temperature and show it in different ways.
In practice, there are three kinds of clients. ClientA and ClientB shows the temperature in Celsius and Fahrenheit, respectively. ClientC shows text statuses according to the following logic:

if(temp in Kelvin>=300) print "Hot"
else if (temp in Kelvin<300 AND temp in Kelvin>=290) print "Mild"
else print "Cool"

Anytime the temperature is changed all the clients will be updated instantly. There can be as many clients as needed. There should be provision of adding new type of clients. In runtime new clients can be added or removed.

Description of the given skeleton:

You are given three classes.

1) WeatherCentral.java:
This class has a simple gui with a text field and a button "submit". You can provide the temperature in Kelvin (for simplicty only integer input is given) in the text field. When the submit button is pressed "updateCentralTemperature()" method is called and the temperature is saved in a integer named "temperature".

2) WeatherAlert.java:
This class contains the main function where the code begins.

3) Window.java
All the clients (Client A, B, and C will also GUIs. We have provided a very simple implementation of a GUI in this Window class, which you will use for your clients. This class creates a simple window with a JLabel (Simple text). Later in the document you will find code snippets to use it.

Tasks:

Write relevant codes so that whenever the submit button in WeatherCentral is pressed, all the clients are updated with the temperature inserted in the text field. Note that the given code has no implementation of clients, you have to write required codes for that. In ideal case, the clients will be situated in different computers. However for simplicity in this online, each client will be a separate object in the same project.

While writing new codes or modifying old codes you have the following restrictions:

1. You can modify only the updateCentralTemperature function of WeatherCentral.java. You can not modify any other methods of this class. However, you can add member variables and new methods as you need.
2. You can add codes in the main class in WeatherAlert.java
3. You can not edit the Window.Java class
4. You can create as many classes, abstract classes, and interfaces as you need.

Code snippets for using Window class:

To create a window:
Window window;
window = new Window("Title of the window");

To show a message in the window:
window.updateText("The message to be shown");
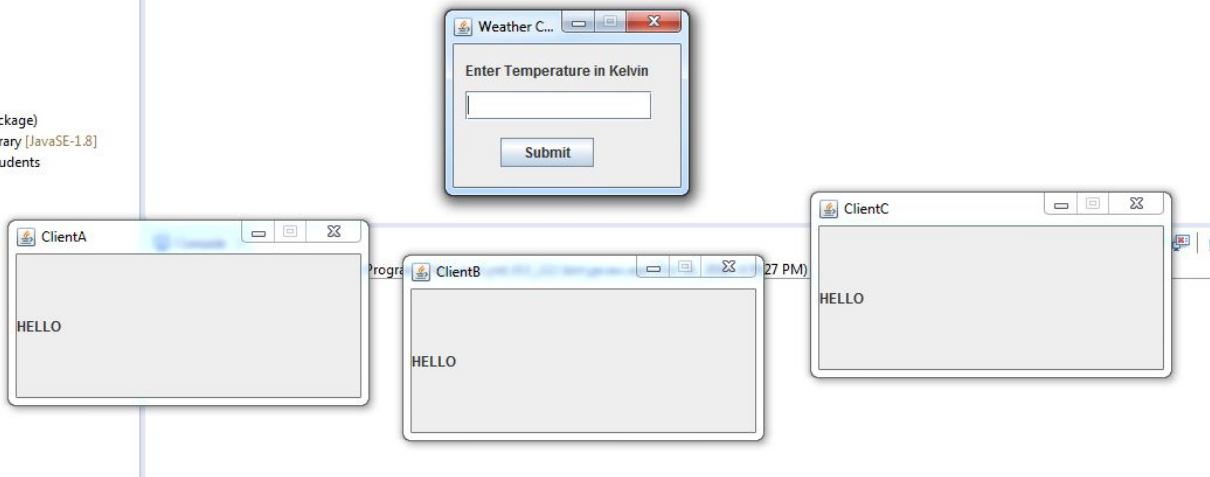
Kelvin to Celsius Formula: C = K - 273.15
Kelvin to Fahrenheit Formula: F = (K - 273.15) * 9/5 + 32

Screenshots:

Initial State:

Weather C...

Enter Temperature in Kelvin

Submit

ClientA

HELLO

ClientB

HELLO

ClientC

HELLO

After updates:

Weather C...

Enter Temperature in Kelvin

350

Submit

ClientA

Temp(Celsius): 76.85000000000002

...ava\jre1.8.0_111\bin\javaw.exe (Oct 24, 2016, 7:02:43 PM)

ClientB

Temp(Farenhite): 170

ClientC

Temperature: Hot