Assignment 2 Overview

All functionality from Assignment 1 should remain.

Extend your Assignment 1 application to include the following in both packages:

The FrontEnd Package

**The User Interface (GUI)**

**Add**the following to the interface:

User input:

* The user should be able to search for a date of their choice
* If the date is in the database give the user all the places that the database has weather for associated with that date
* If there isn’t any data for that date, give the user a nice message saying so.

Animation:

You should include a graphic on your interface that:

* Directly relates to the application (e.g. a weather balloon, clouds, rain, sun etc.)
* Animates around an area of the interface
* The animation area should be a minimum of 500 x 500 pixels
* It must not animate off the area’s bounds
  + Set it to animate in another direction when it reaches the area boundary
* The user should be given controls to start and stop the animation
  + When the user chooses start, the animation should begin and continue until the user chooses stop
* Demonstrates competent use of Java’s graphics methods
  + Include more than just image files. Draw some images yourself.

**FrontEnd/BackEnd Connection**

The User Interface (GUI) should continue to connect to the BackEnd of your application ONLY through the Database interface.

Add another method definition to the interface so the user can check weather of a particular date.

public interface Database {

public void loadObservationsFromHTMLFile();

public String getObservations();

**public String checkWeatherByDate(String date);**

}

The BackEnd Package

All functionalities from assignment 1 (including the ArrayList and using JSoup) must remain as part of your application. Don’t delete any of them.

**Functionality to be added to the BackEnd**

The following functionality should be added to your WeatherHistory class:

* The observations should be added to a Binary Tree in the WeatherHistory class
  + The tree should hold WeatherObservation objects
* You should have methods to add to, print and search the Tree.
* The FrontEnd should retrieve data from the Binary Tree in the BackEnd
  + The data should no longer be sourced from the ArrayList
* The observation data should remain being read in from the HTML file using JSoup.

Bonus Marks

You are welcome to add additional method definitions to the interface that allow the user to **delete** an entry an **change** an entry’s data, but this is not a requirement.

* This will require your tree to have additional delete and amend functionality.
* You will also need to add controls to the GUI so that user can access these functionalities.

Another innovation that would be considered for bonus marks is if your drawing and its animation was connected to the weather results that a user asks for.

e.g. if they ask for the weather on January 17, and it was raining, the animation would show rain falling.