Project 2 : Weather App

Released: March 4th

Wireframes due: March 11th at 5pm on Gradescope

Final submission: Thursday, March 20th at 5pm on Blackboard

You may work individually or in pairs for this project

1 Introduction

This project will involve creating a weather app. It will use JavaFX for the front end and uses the National Weather Service and their public API to retrieve weather for the Chicago area. When creating your project, make sure to use the correct `pom.xml` file so that the `mvn clean compile exec:java` command will bring up your app. **The March 4th lecture will be a thorough discussion of the project and grading, so please refer to that lecture capture before beginning**

2 Starter Code

Code to retrieve information from the NWS has already been written and is inside the Weather package in your starter code. **Do not modify any element within the weather package!**. You can see an example of the JSON file returned and parsed by the object here

3 Requirements

Your app must have the following functionality implemented:

- A scene where the user can see the day's weather. It should include the temperature, and the short description. The information for this is already parsed in the starter code.
- A scene where the user can see the 3-day forecast. It should include both the day and night forcasts for temperature and precipitation probability.
- The ability to swap between scenes without crashing the app.
- Some color and graphical components must be on both scenes. A tutorial for using images in JavaFX is available here

3.1 Wireframes

The March 4th lecture discusses wireframes and good design principles. You should sketch out what each of the graphical components for your app are for each scene. Simple boxes are sufficient for GUI components in the app. You may draw your wireframes digitally or by hand. You should have one wireframe sketch for each scene and you should indicate how a user transitions from one scene to another. Each scene should also have a one sentence description. You should also have at least one image included of a reference weather app that you believe is well designed. **The wireframes are due to gradescope on March 11th at 5pm**. These wireframes will be graded on honest effort and will be worth 20% of the final project grade.

3.2 App GUI

GUI design for this project is entirely up to you, but it should conform to good design principles. There is an expectation to use some graphical elements for the app and color choice should be logical and visible. The GUI should be intuitive for use by the TAs when grading and any instructions for how to use the app should appear in the app itself.

3.3 Above and Beyond

Completing the minimum requirements for this project will earn an 80%. To earn above this, you or your team must extend the minimum requirements. Here is a non-exhaustive list of of how you might extend the requirements to earn more points, roughly sorted from simplest to most complex:

- Including wind speed and direction in either forecast.
- An advanced UI which utilizes multiple JavaFX elements not seen in class.
- Graphical components that change based on the weather, e.g. a sun for a sunny day and a cloud on a cloudy day.
- The ability to insert x,y coordinates e to change the weather location. **This will be very difficult and will require reading the documentation for the NWS API**

If you or your team completed any Above and Beyond components, you should write a brief report explaining your design decisions and how the user experience would be improved by your addition. This report is optional and should be submitted to gradescope by Thursday March 20th at 5pm.

3.4 Best in Show

Only the top three projects for this class will receive a 100 on the project. These will be awarded on my judgement alone and there are no regrades. Top three announcements will be made in the last week in class and will be asked to give a short 10 minute presentation on their project on the final day of class May 1st. Additionally, the top three projects will have their code made available to the class.

4 Submitting your work

For the wireframes, create a pdf of your wireframe and submit the file to gradescope by March 7th at 5pm. If you are working in a team, submit as a group on gradescope and submit the team form. Check the blackboard / piazza post on this project for the link. Once you have completed your app and your report (if applicable) you are ready to submit the zip of your project. Make sure that the submission runs with the maven command and be sure to perform a `mvn clean` before submitting. For late days, late days can be used for either the wireframes or the final submission, e.g. if you use two late days on the wireframes, you can use two days on the final submission and only use two days cumulatively. Remember that you and your partner should have late days remaining if you plan to submit late.

4.1 Working in Pairs

If you plan to work in a pair, please fill out the "Project Partners Form" when you submit. The link is also available on blackboard. **Only one team member needs to submit**. Be sure that the gradescope submissions include both partners as a groups submission.

4.2 Academic Dishonesty / ChatGPT

A reminder from the first week of class that **ChatGPT and other AI tools are are not allowed on this project**. If there is suspicion of ChatGPT use or other forms of academic dishonesty, you will be asked to come and explain your code to me personally. If you cannot explain any line of your code, either in its function or its purpose, you will receive a zero on the assignment and a letter grade drop.