

CS106 W21 - Lab 09

JSON

Due: Tuesday, March 22 at 11:59 PM

Remember to include your name and student ID in each sketch you submit for all labs and assignments. Marks are deducted if these are not included.

- Put your name in line1 (using //)
- Put your student ID in line 2 (using //)
- Leave line 3 blank.

Question 1:

There is starter code: <https://openprocessing.org/sketch/1140008>

The starter code contains a JSON file named "forecast.json". Have a look at "forecast.json" to see and understand its structure. We will be using this data for both Lab 9 and Assignment 8, and thus it is especially important to understand the layout of "forecast.json".

Your sketch should mimic what you see in the image below. The exact color and layout doesn't matter much as long as it is similar to the image below.

```
Latitude:43.465
Longitude:-80.5239
Time Zone:America/Toronto
Current Temperature:4.5
Current Wind Gust:11.83
Current Weather Description:overcast clouds
```

Note: The file "forecast.json" was created by an API request to openweathermap.org. You don't need to look at openweathermap.org for Lab 9 but if you are interested it is called "Current and forecast weather data" and is described at:

<https://openweathermap.org/api/one-call-api#data>

Question 2:

We are using the same starter code as in question 1. Fork it again.

The output of your sketch should mimic what you see in the image below.

You must use a loop to show the morning temperature for each day in the daily forecast.

```
2.15  
-5.41  
-1.02  
0.87  
1.38  
2.22  
7.2  
3.5
```

Question 3:

We are using the same starter code as in Question 1. Fork it again.

The output of your sketch should mimic what you see in the image below.

You must use a loop and determine the maximum “day” temperature in the daily forecast.

```
The maximum day temerature in the forecast is: 13.31
```

Question 4:

We are using the same starter code as in Question 1. Fork it again.

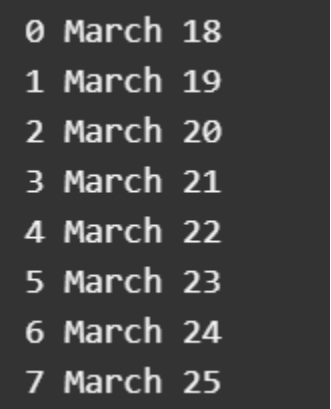
The output of your sketch should mimic what you see in the image below.

It is showing the index into the array, the month, and the day for each day in the daily forecast. The date in "forecast.json" can be a bit confusing. The date is stored in "dt". You must:

1. Load "dt" into a date object.
2. Get the month.
3. Get the day.

Your three lines of code to accomplish this will look something like the following:

```
let date = new Date(obj.daily[i].dt * 1000);  
let month = date.toLocaleDateString("en-US", {month: "long"});  
let day = date.toLocaleDateString("en-US", {day: "numeric"});
```



```
0 March 18  
1 March 19  
2 March 20  
3 March 21  
4 March 22  
5 March 23  
6 March 24  
7 March 25
```

You must use a loop to go through the array to display the dates.

Question 5:

There is starter code for this question:

<https://openprocessing.org/sketch/1140878>

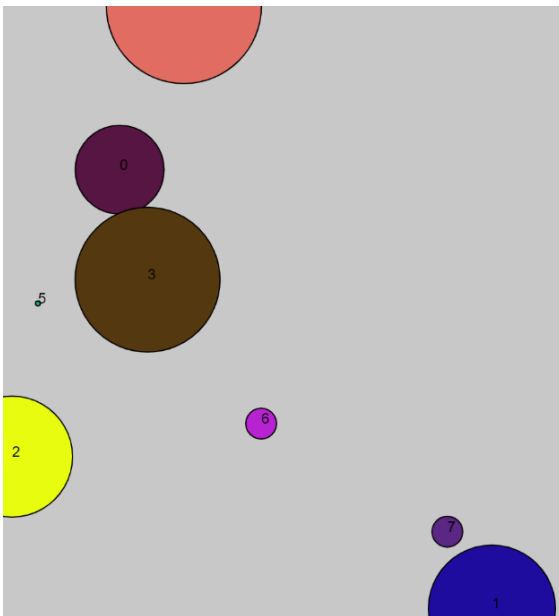
The output of your sketch should mimic what you see in the image below and in this video:

<https://vault.cs.uwaterloo.ca/s/ZbLKBEXDZypM8XS>

Your answer to this question will be useful for Assignment 8.

“uvi” is a value in “forecast.json”. “uvi” is a small number between 0.16 and 5.03. When your sketch begins, draw one circle for each “uvi” value at a random location on the canvas, in a random color. The circles are numbered starting at zero, and the number appears on top of the circle. The diameter of each circle on your canvas should be 25 times the “uvi”. For example, for the “uvi” of 5.03 the diameter of the circle should be 125.75. When the user presses any key, new circles are drawn.

You must use a loop to go through the “uvi” values.



Submitting

Use the template file in Word “CS106 Lab Template” in LEARN to create your Lab 09 submission.

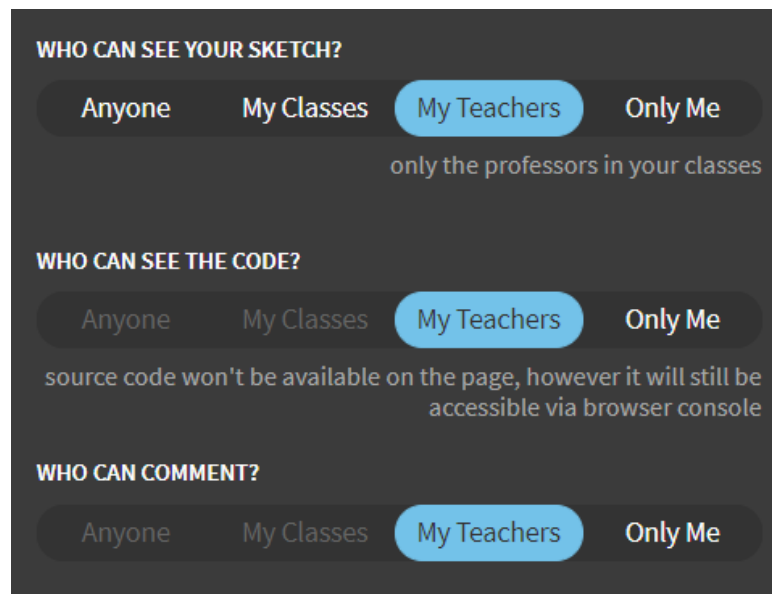
Please ensure that your URLs are hot links. The TAs need to be able to click on each link in your pdf and go directly to your sketch.

So for example, don't have a link like this: <https://openprocessing.org/sketch/1050954>

but rather have that link as a hot link as follows:

<https://openprocessing.org/sketch/1050954>

Ensure that each URL you submit has its settings so that the access is as follows:



Submit that pdf file to the Lab 09 dropbox on LEARN.

An example of how to do submit a Lab is shown in the following video:

<https://vault.cs.uwaterloo.ca/s/9Xx7AGsewaea773>

It is your responsibility to submit to the correct dropbox with the correct files before the deadline. Otherwise you may receive a mark of 0.