CS106 W21 - Assignment 08

Due: Friday, March 26, 11:59 PM

Assignment 8 is graded out of 23 marks.

You are to create a "weather app". Your task is to write a sketch to mimic what you see in this video: https://vault.cs.uwaterloo.ca/s/xaNwYcTk4yQiMHa

There is starter code at: https://openprocessing.org/sketch/1141088

The starter code loads the forecast a weekly forecast from openweathermap.org. It is for 8 days, the current day and the next 7 days. You need to have your own API key from openweathermap.org.

Write a sketch to do the following to mimic what you see in the above video:

a) [1 mark] The canvas size and background are approximately the same as in the video.
b) [1 mark] The forecast loads from openweathermap. We gave you the starter code for this but ou need to have your own API key from openweathermap..
c) [8 marks] When your sketch starts it shows a histogram of the temperature for today and the next 7 days. It must contain:
    1) A heading above the histogram.
    2) A bar for each day. The height of the bar must represent the "day" temperature for each day.
    3) Below each bar the actual "day" temperature.
    4) Above each bar the numeric day of the month.
    5) Above each bar the name of the month.
    6) The bars should be evenly space and take up most of the canvas (as in the image and video).
    7) The code for doing this must be in a function called "histogram()".
    8) At any time, if the user presses "a" or "A" this histogram should appear.
d) [8 marks] At any time, f the user types a digit between 0 and 7 then they see statistics for that day. If they press "0", that means today. If they press "1" that means tomorrow (i.e. 1 day from today). If they press "2" that means two days from now, and so on up to "7". The statistics contain:
    1) A heading at the top.
    2) Day forecast temperature for the day.
    3) Min forecast temperature for the day.
    4) Max forecast temperature for the day.
    5) Forecast description for the day.
    6) The hottest Day forecast temperature for the week (using the "day" temperature). Hint: You need a loop to find the maximum.
    7) The coldest Day forecast temperature for the week (using the "day" temperature). Hint: You need a loop to find the minimum.
    8) The code for doing this must be in a function called "statistics()".

[5 marks] Coding Style and Efficiency

Follow the course coding style for whitespace and comments. Consult the **"Code Style Guide"** on LEARN. For example:

1) [0.5] Include your name on the first line of code and your student ID number on the second line of code.
2) [0.5] Leave the third line blank.
3) [0.5] Comment your code appropriately. Avoid superfluous comments.
4) [0.5] Correctly and consistently indent your code blocks.
5) [0.5] Use correct inline spacing for variable declaration and assignment.
6) [0.5] Use good line spacing to chunk sections of your code.
7) [0.5] There are no variables that are declared or assigned, but not used.
8) [0.5] There are no unnecessary variables that are duplicates of other variables.
9) [0.5] There is no unnecessarily repeating the same code in multiple places.
10) [0.5] Semicolons were used appropriately (i.e. at the end of most lines).

Restrictions

- You may not use any functions or statements not covered in lecture or labs.
  This includes, but is not limited to:
  - No translate(), rotate(), or scale() functions.

Submitting

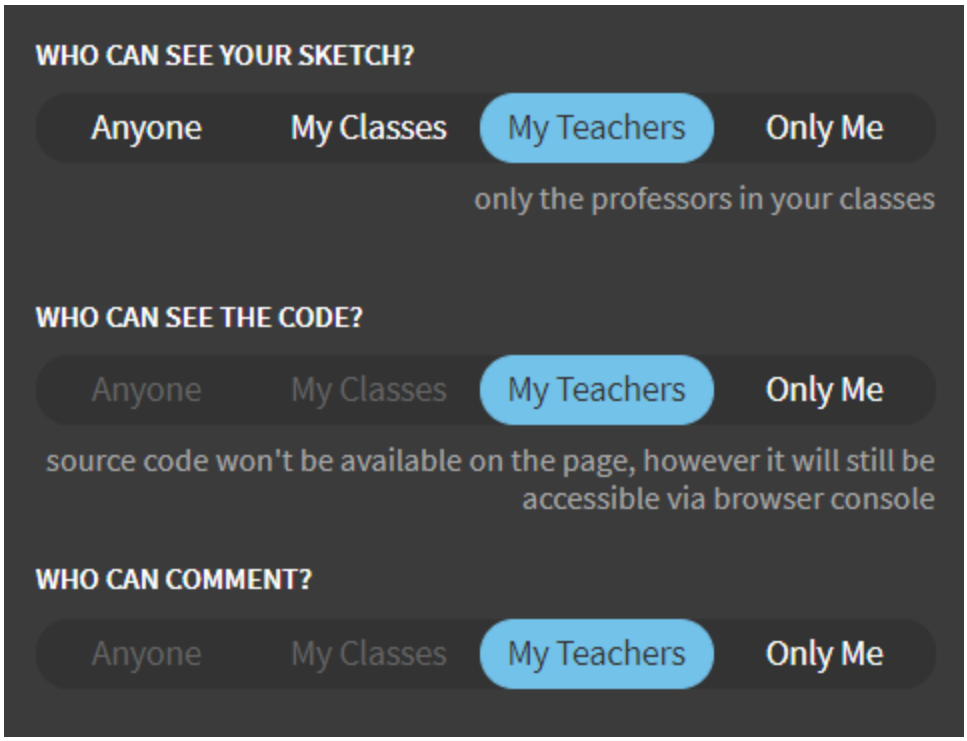
Use the template file in Word "CS106 Assignment Template" in LEARN to create your Assignment 08 submission.

Then convert your Word file to pdf. 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 Assignment 08 dropbox on LEARN.

An example of how to 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 file before the deadline. Otherwise you may receive a mark of 0.

Academic Integrity

All assignments in CS106 are done individually. Group work and sharing of code is not allowed.

Detecting Plagiarism:

- We monitor Reddit, File Trading Sites, past year CS106 assignments, etc.
- Measure Of Software Similarity (MOSS)
  - automatic system for determining the similarity of code

Discipline

- Discipline (Policy 71)
  - https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71