CS 1301 Homework – Robot Web Writer

Due: Friday March 1st, before 11:55pm

This is a pair programming assignment!

You are expected to work with the person you have been pared with in class, and you are **both** responsible for submitting the exact same code to T-Square. Follow good pair-programming practices by working together at a single computer and switching the driver/navigator role frequently.

Your pair may collaborate with other students in this class. Collaboration means talking through problems, assisting with debugging, explaining a concept, etc. You should not exchange code or write code for other pairs. Collaboration at a reasonable level will not result in substantially similar code.

For pair programming assignments, you and your partner should turn in identical assignments.

Files to submit: **light.py**

For help:

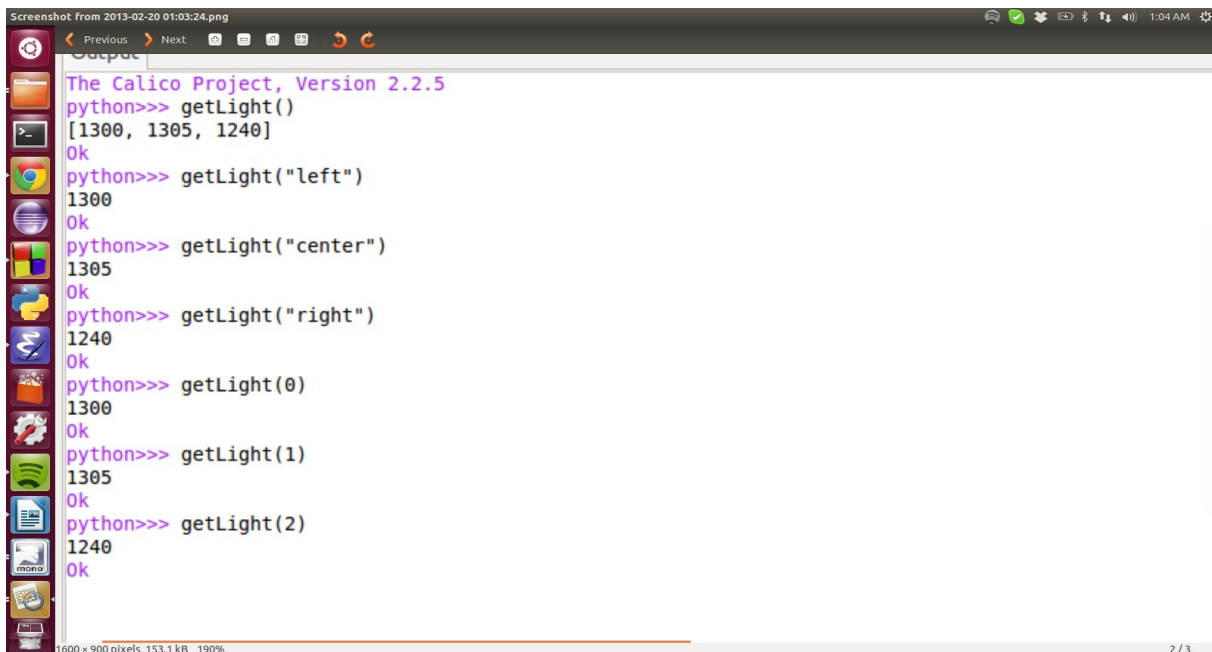   -TA Helpdesk – Schedule posted on class website

     -Email TAs

Notes:

- **Don't forget to include the required comments and collaboration statement (as outlined on the course syllabus)**

- **Do not wait until the last minute** to do this assignment in case you run into problems.

- If you find a significant error in the homework assignment, please let a TA know immediately.

For this assignment, you will be learning two things: how the light sensors on the Scribbler work, and how to *dynamically* create html webpages.

The light sensors are the three holes built into the back of the Scribbler. To get the values from these sensors, we call the function **getLight()**. Depending on the parameter, this function will return a single value or a list of three values, ranging from zero to a very large number. The more light that hit the sensors, the lower the values will be. If given no parameters, getLight() will return a **list** containing the values from the left, center, and right light sensor. If given a single parameter (such as 0, 1, or 2 or the strings "left", "center", or "right"), it will return a **single** value from the specified sensor.

Your job will be to make a **function** called **makeWebPage** that **takes one parameter, numberOfPictures.** This parameter represents the number of pictures to take.

The function should take pictures using your Scribbler. Each picture should be taken in a different position. A way to do accomplish this is to have the Scribbler rotate or move after each picture. Each picture should then be saved in the format:

pic**x**.jpg

where x represents the current count of the picture. **The count starts at zero**! For example, if 4 pictures were taken, they would be saved as: pic0.jpg, pic1.jpg, pic2.jpg, and pic3.jpg.

In addition, after each picture is taken, you should store the average of the 3 light values from the Scribbler's sensor's in a list. *Hint: if you add them to the list in order, then the average light value at aList[2] corresponds with pic2.*

Once you have taken all your pictures and calculated all your averages, the function should now create an HTML file named **myPage.html**. On the page, have a descriptive title, a header welcoming the user to the page, your name(s) in the body of the document, a table showing the pictures you took with their corresponding light averages (each table row should have a **maximum** of 4 elements), and the name of the robot that took the picture. *Your code should correctly generate the name of whatever robot is connected to the computer, and not just print your own robot's name!*
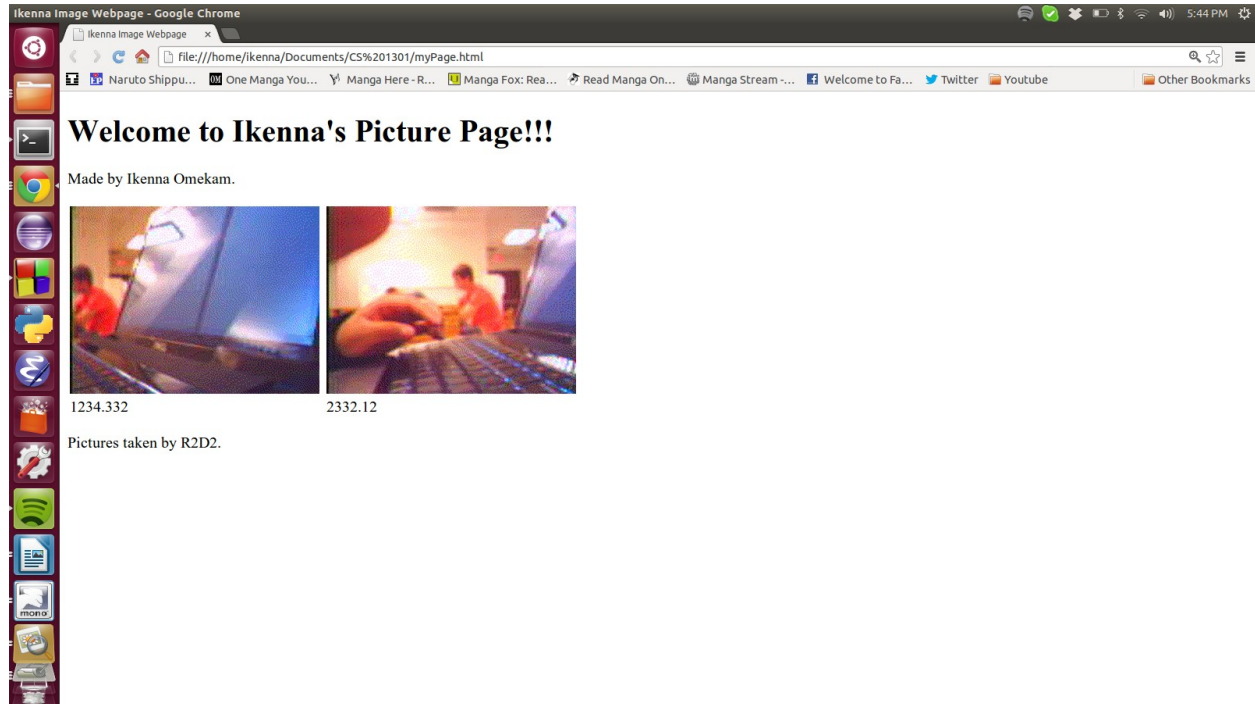
Your html file **MUST VALIDATE WITH NO ERRORS,** so be sure to use proper html tags and syntax in your file. To check if your html file validates, visit

http://validator.w3.org/#validate_by_upload

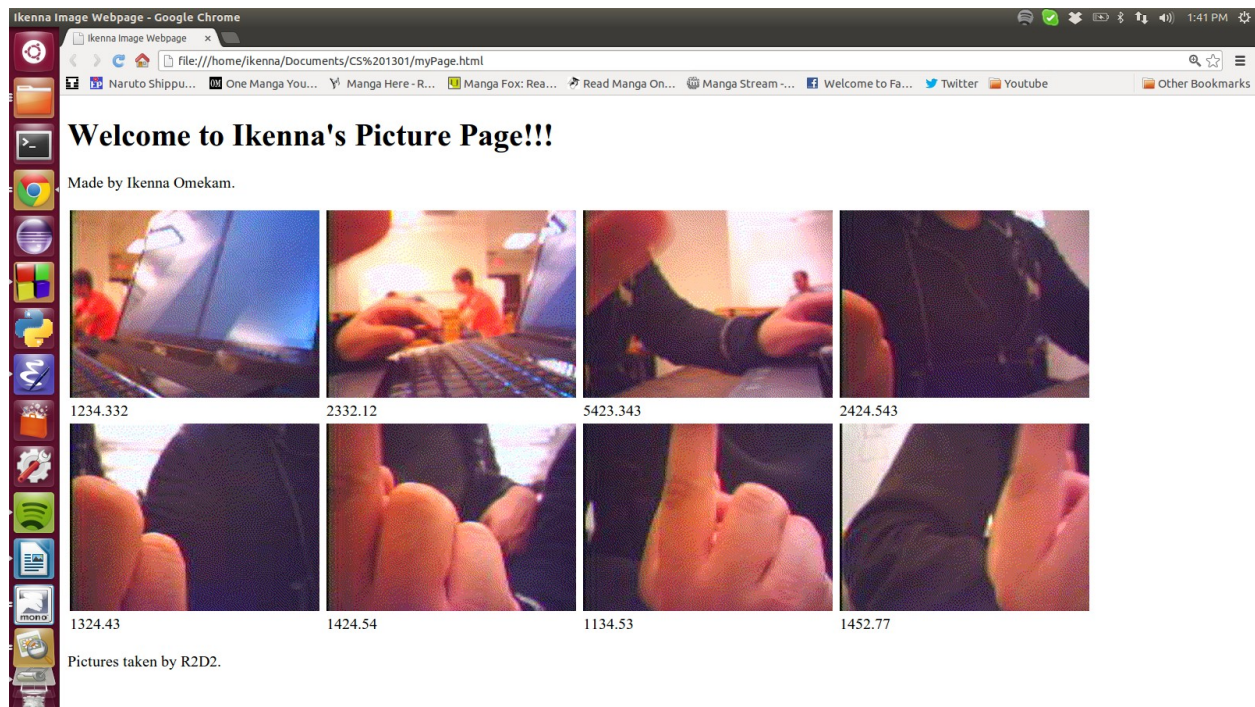calling makeWebPage(5) should produce:
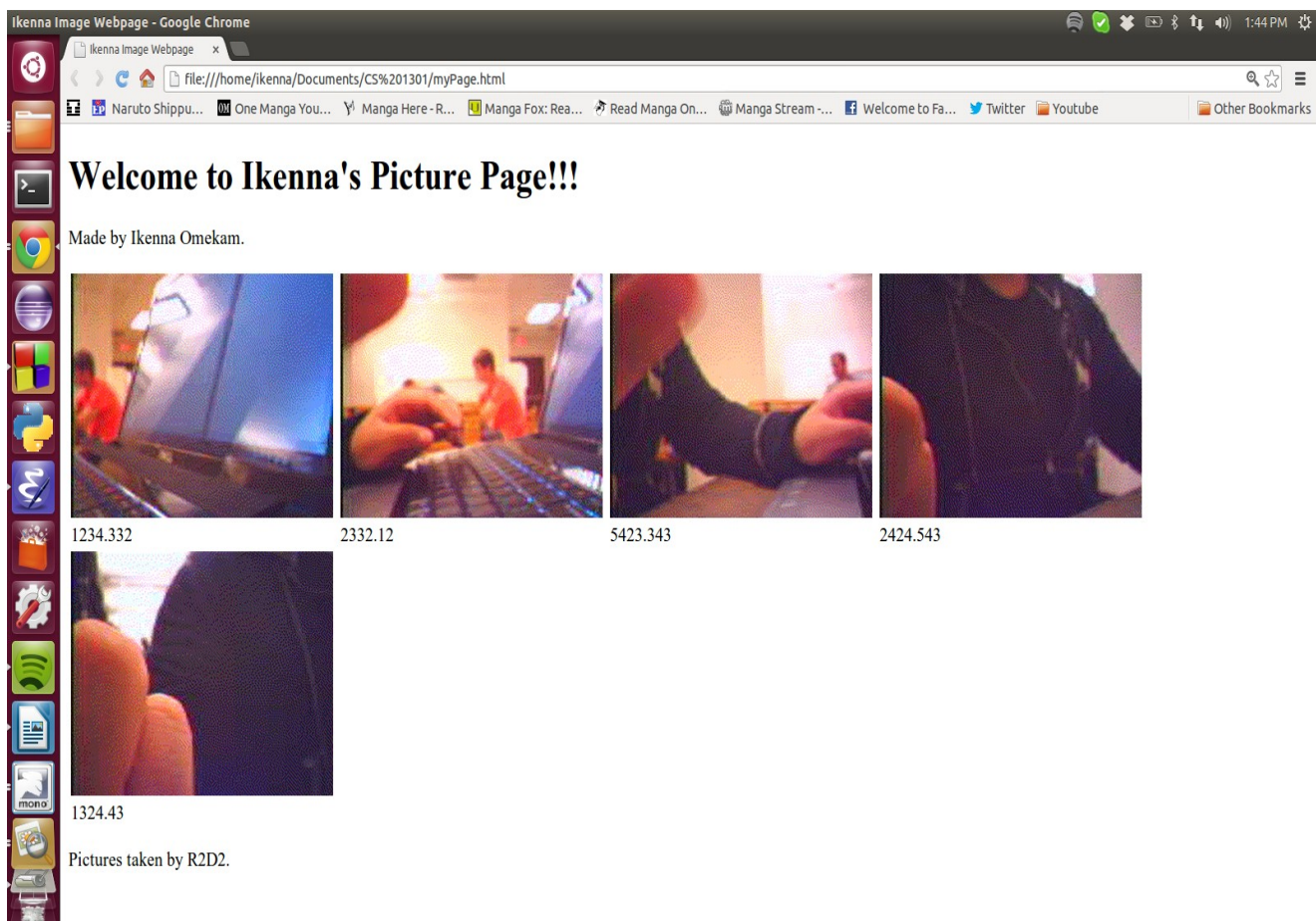
calling makeWebPage(2) should produce:

calling makeWebPage(8) should produce:

Grading:

Robot moves between taking each picture	5
Robot collects light values with each picture	5
Program saves x pictures correctly	10
Program averages 3 light values correctly	10
Program opens correct file for writing	5
Program correctly closes the file.	5

Program writes required elements of the HTML page: (60 total)

– Descriptive Title	5
– Welcome header text	5
– Name of student(s) in body	5
– Table showing the x photos and average light values	20
– Photo credit giving name of the robot. (using getName())	5
– HTML Validates with no errors	20