CPS121/501 Programming Project 3

A Web Page Displaying a Collage

# Project Goal

To provide practice using various picture transformations and to reinforce important programming concepts such as conditionals and iterative statements.

***Collage*** *(from the French:* coller*, “to glue” or “to stick together”) is a technique of art creation, primarily used in the visual arts, but in music too, by which art results from an assemblage of different forms, thus creating a new whole.[[1]](#footnote-1)*

Your program is going to create a collage of different images using different effects.

# Project Description

Write a Python program that creates a webpage that displays a collage consisting of multiple copies of one or more images on an approximately 700x950 pixel blank JPEG. Each of the copies should be noticeably different from the others. Some examples from a prior year will be displayed in class.

* You can do any of of the following transformations: scaling, cropping, mirroring, rotating; creating a negative of the image, shifting or altering colors of the image; making the image darker or lighter, sepia-toned or posterized; introducing edge detection, highlighting extremes, or blurring. You must do at least four different transformations – more than this are needed for a higher grade.
* You can make any number of modifications to each copy.
* The copies do not have to all be the same size and orientation. (Note: they can be all the same size and orientation if you wish, but having some variety here is better).
* If you wish, one copy can be the same as the original image.

# Detailed Directions

Read *Guidelines for Computer Science Projects*. You will need to affirm you accept these and will abide by them on all projects completed this semester.

Read the rubric for this project (on Canvas) and note what you will be graded on. *Suggestion: Reread the rubric before submitting your project.*

**Important Note:** In order for your project to be evaluated, it is *very important* that you follow these instructions *exactly*.

1. Create a folder named project3 (all lower case) either in the cps121 folder on your server volume or on your own machine.
2. Download the project3-template.py file from Canvas and save it in this folder, **renaming it** to be project3.py.
3. Place all the input picture file(s) your program uses in this folder. You may use pictures from mediasources or some other location, but all pictures you use must be copied into this folder. *Note: You may need to resize pictures so they are small enough to fit on the collage image.*
4. **Read the comments in the project template carefully** and note that when your project is complete you will need to update the comment block near the top to indicate for each transformation listed whether or not it was implemented. You may change the other comments as needed and add any Python code you desire within the indicated region. *Do not change any of the existing Python code* except where comments indicate that you may do so.
5. Note that the createCollage() function is called with no parameters. The function must (1) read the image file(s), (2) create a collage, and (3) return the final image via a return statement at the end. It should not print or show anything. In particular, do not use the show(), repaint(), or explore() functions!
6. Test your program with the command (typed a shell or command prompt):  
    python project3.py  
   or  
    python3 project3.py  
   depending on how you run your Python interpreter.
7. You should create additional functions that carry out the different effects on your photos. These functions should be created in as generic a way as possible, allowing them to be used more than once if necessary. This means creating them with parameters and using a return statement.
8. Keep all lines in your program short enough that they print without wrapping or going off the edge.
9. Make sure that your project3.py file and all image files that it uses are stored in your CS server volume. For example, Jacinda Smith would have her program and image files stored in /Volumes/jacinda.smith/cps121/project3.   
   **Note: You must have your project.py file and all image files it uses stored on your CS server volume in the proper directory (folder). Failure to do this may result in receiving a zero for the project.**
10. Follow the instructions in Lab 10 to make your webpage available online and provide the link in your submission.
11. Submit your fully commented and working project3.py program source file on Canvas and do not make any changes to the version you've stored in your CS server volume after you submit your program.

1. <https://en.wikipedia.org/wiki/Collage> [↑](#footnote-ref-1)