Homework 6: More Image Manipulations

Comp 123

Susan Fox

1 Overview

This assignment should be done **individually**. You will work on a set of exercises that are new, but similar to image manipulations we've done in class.

This assignment will focus on the image manipulations from chapter 3 and 5 of Guzdial.

1.1 Preparing and handing in the assignment

Download the `hw6Code.py` and `hw6Tests.py` files to use with this assignment. Put all your programming answers into the `hw6Code.py` file. Non-programming answers may be put in that file as well, or in a separate file.

Be sure that each function you write is preceded by a hash-mark comment that indicates the problem number, and includes inside it a triple-quoted, one-two sentence description of the purpose of the program.

Unless we discuss otherwise in class, complete this assignment using the `imageTools` module and pycharm.

2 Homework questions

1. (20 pts) Define a function called `wallpaper` that takes in three inputs: a `Picture` object, and two numbers. Stick to the small pictures in the `MediaSources` folder, like `butterfly.jpg`, or one of the small flower pictures.

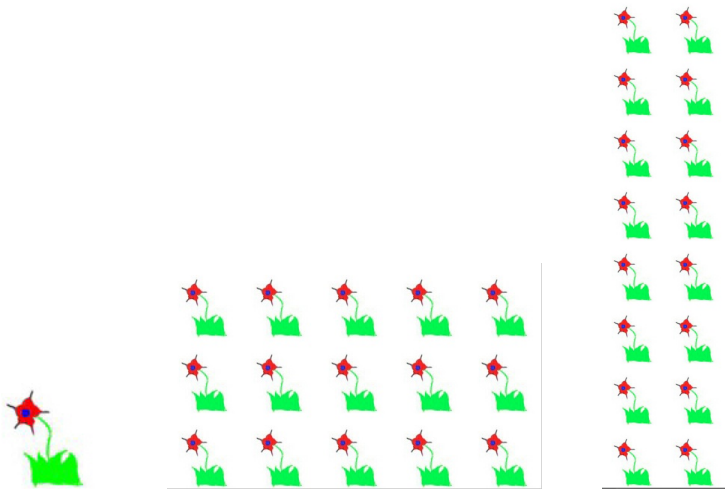
   This function will build a new picture and will use the input picture to wallpaper the new picture, copying the picture over and over to fill up the new picture. The number inputs tell how many rows and columns of copies to make. Use the size of the input picture, along with the number of rows and columns, to determine the size of the new picture.

   Below are some sample calls to show how the function should work.

   Hint: Consider making a helper function to copy an image from a small picture to a larger picture.

```
pic1 = makePicture('flower2.jpg')
pic2 = wallPaper(pic1, 5, 3)
pic3 = wallPaper(pic1, 2, 8)
```

pic1 pic2 pic3



2. (15 pts) In the `hw6Code.py` file, there is a function called `rotateLeft`. Try this function, read it carefully, until you understand how it works. Then, make a copy of the function and modify it so that instead of rotating 90 degrees to the left, it rotates 180 degrees. Call the new function `upsideDown`.

   Below are sample calls to show how it should work.

```
pic1 = makePicture('greekRuins.jpg')
pic2 = upsideDown(pic1)
```

pic1

pic2