Exam 4

Comp 123

- You may use the computer, and any resources on Moodle, Piazza, the Interactive Python textbook, your online journal, or the Python.org documentation pages. You may also use any paper resources you like, including the Guzdial and Ericson textbook.
- You **may and should** ask me for clarifications, or hints.
- You have 30 minutes to complete this test.

1. (10 pts) In the `exam3Code.py` file, you will find a function called `streakRight`. This takes in a picture and builds a new version of the picture. In the new version, the right half of the picture is streaked (the colors for the middle column of the picture are repeated in every column in the right half).

   Your task is to implement `streakDown`, basing your solution on `streakRight`, which I've provided to you. Your new function should also take in a picture and build (and return) a new picture that is a modified copy of the input one. The function should change the lower half of the picture so that it streaks downward, repeating the colors from the middle row in all rows in the lower half.

   Below are sample calls to `streakRight` and `streakDown`, and the new pictures that they would return:

```
pic1 = makePicture('gorge.jpg')
pic2 = makePicture('arch.jpg')
pic3 = streakRight(pic1)
pic4 = streakRight(pic2)
pic5 = streakDown(pic1)
pic6 = streakDown(pic2)
pic7 = streakDown(pic3)
```

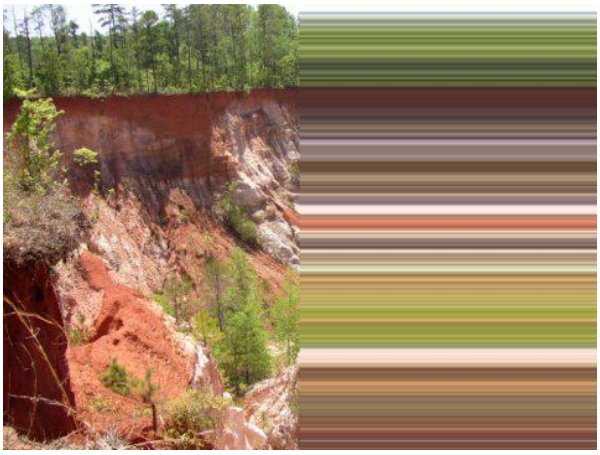
pic2

pic4

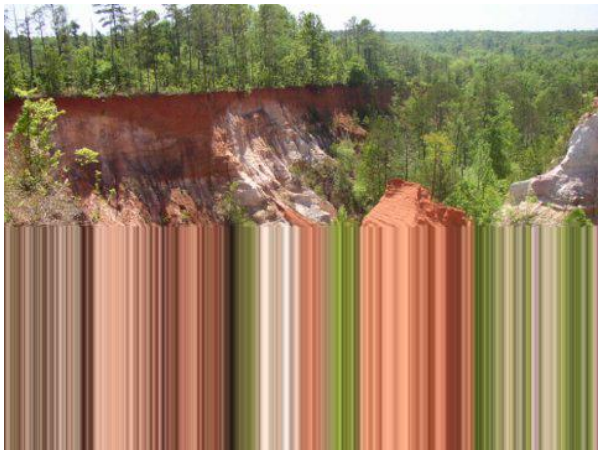
pic6

pic1

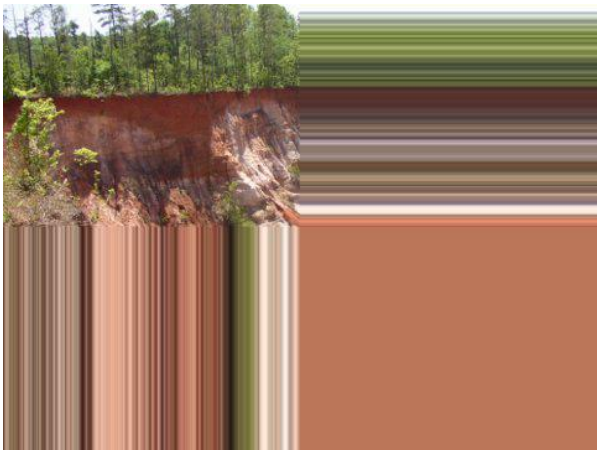
pic3



pic5



pic7



2. (10 pts) We looked at mirroring one half of a picture over the other half of the picture in the book and in class. For this question, I want you to do mirroring a little differently. Here, I want you to take an input picture, and build a new picture that show the whole original picture, along with a complete mirroring of the picture on the right.

   Define a function `completeMirror` that takes a picture as its input. It should build and return a new picture that is the same height as the input picture, but twice the width. THe left half of the new picture should be an exact copy of the input picture. The right half of the new picture should be a mirrored version of the input picture.

   Below are sample calls to `completeMirror`, and the new pictures that they would return:

```
pic1 = makePicture('gorge.jpg')
pic2 = makePicture('arch.jpg')
pic8 = completeMirror(pic1)
pic9 = completeMirror(pic2)
```

pic1

pic8

pic2

pic9