

Assignment 7: 2D Arrays and Loops

Objective

The objective of this lab is to

- Have some fun playing with images using 2d arrays, methods, and loops

What to hand in:

Submit your source code (.java files) to the dropbox no later than 11:59pm the night before your lab section's Lab 8. (Tuesday labs are due the following Monday, Wednesday labs are due the following Tuesday, and Thursday's labs are due the following Wednesday).

- Picture.java
- Your image before modification
- Your image after modification

Note: Late submissions will be penalized at a rate of 20% per weekday.

Exercises

1. You will need to write code that flips an image horizontally. Modify your Picture class to create a flipHorizontal(Picture source) method that draws the source upside down in the current (target) Picture. Your call would look like this:

```
Picture source = new Picture("<<source file>>")
Picture target = new Picture(source.getWidth(), source.getHeight());
target.flipHorizontal (source);
target.repaint();
```

For reference, it is possible to solve this in 10 lines of code. If your code is 30 or more lines long, you will lose points. You may use any helper method necessary.

Hint: In the notes you will find a method called mirrorHorizontal() that might be of help for you.

2. Create your own image special effect. This needs to go beyond the type of just color-changing algorithm you wrote last week to include something like a distortion (multiple mirroring, splitting and copying, etc). The choice is yours!
 - Write a method in Picture.java, with an appropriate name, that implements your special effect.
 - Write a method for Picture.java called runEffect() that takes no parameters. runEffect() should run your special effect method.
 - Snap a picture of an image created when runEffect() is called.

Hint: You may use any of the methods that we have previously worked with.

3. Bonus: Add a modified version of either mirrorHorizontal or mirrorVertical that allows the user to choose the mirror point. Make sure that the mirror point is valid.