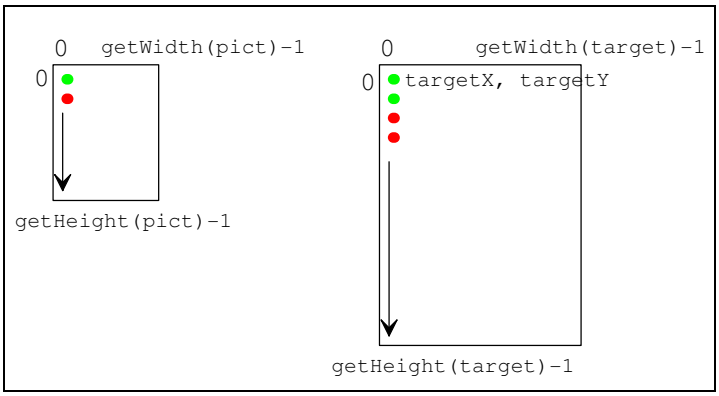
Media Computation Lecture 10 / Lab 4 Loop over Partial Picture Name:_____

Today we'll have a hands-on lab to familiarizing you with using nested for-loops to loop over a partial picture, so **pairs of students** should get a laptop from the cart.

Download to the Desktop and extract the files needed for the lab from:

http://www.cs.uni.edu/~fienup/cs1120s15/sessions/s10/lec10.zip

Part A. Let's think about how we might scale up a picture to twice its height and twice its width.

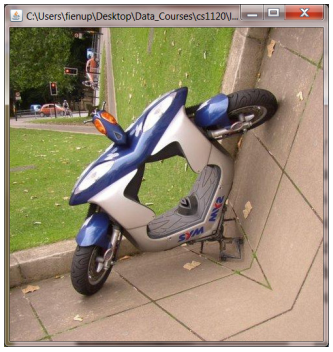


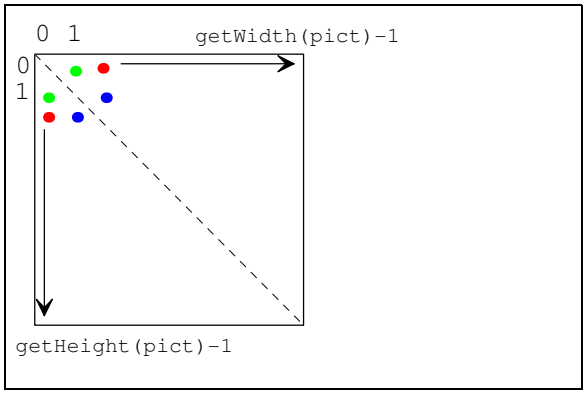
Your task is to complete the partial program below that you downloaded as `lec10/scaleUp.py`

```
def scaleUp(pict):
  """ Scale picture to half size """
  target = makeEmptyPicture(                                    )

  for targetX in range(                                       ):

    for targetY in range(                                       ):
      sourcePixel = getPixel(pict,                              )
      sourceColor = getColor(sourcePixel)
      targetPixel = getPixel(target,targetX, targetY)
      setColor(targetPixel, sourceColor)

  return target
```

After you complete Part A, raise your hand and demonstrate your program on the picture `lec10/barbara.jpg`

Part B. Let's think about how we might mirror a square picture diagonally from the upper-left to the lower-right corners The picture on left is the lec10/squareBlueMotercycle.jpg and the diagonally mirrored picture is on the right.





Your task is to complete the partial program below you downloaded as `lec10/mirrorDiagonally.py`

It might help to trace the sequence of x, y values produced by the nested loops:
y = 1: x = 0
y = 2: x = 0, x = 1
y = 3: x = 0, x = 1, x = 2

```
def mirrorDiagonally(pict):
  """ Mirrors the picture diagonally from upper-left to
      lower-right corners """

  for y in range(1,getHeight(pict)):


    for x in range(0, y):
      sourcePixel = getPixel(                                )
      targetPixel = getPixel(                                )
      sourceColor = getColor(sourcePixel)
      setColor(targetPixel, sourceColor)
```

After you complete Part B, raise your hand and demonstrate your program on the picture `lec10/squareBlueMotorcycle.jpg`