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# Work Name: In the End Lies the Beginning

# I started by defining pictures with specific variables so I could get the exact width and height of them

```python
def collage():
    pic1 = makePicture(getMediaPath("blackhole.jpg"))
    pic2 = makePicture(getMediaPath("cryforhelp.jpg"))
    width1 = getWidth(pic1)
    height1 = getHeight(pic1)
    width2 = getWidth(pic2)
    height2 = getHeight(pic2)
    # Empty backgrounds for each picture to be modified on
    canvas1 = makeEmptyPicture(width1,height1)
    canvas2 = makeEmptyPicture(width1/3,height1/3,black)
    canvas3 = makeEmptyPicture(width2/9,height2/9,black)
    canvas4 = makeEmptyPicture(width2/3,height2/3,black)
    # The Split function I have set utilizes the corner function to set a background for the collage by splitting up the original picture and setting them in a different order
    split(pic1,canvas1)
    # I set a scale down function for each middle pictures seperately so I could specifically set their sizes
    scaleDown(pic1,canvas2)
    scaleDownMore(pic2,canvas3)
    width3 = getWidth(canvas3)
    height3 = getHeight(canvas3)
    # This added modified canvas 3 and 4 together so they can be blended correctly with canvasblend
    canvassfinal(canvas3, canvas4, 0 , width3 , 0, height3 , width3 , height3)
    canvassblend = blend(canvas2, canvas4)
    width = getWidth(canvasblend)
    height = getHeight(canvasblend)
    # This last program tossed together this cacophony of a collage into one while keeping correct placement of each picture
    canvassfinal(canvasasblend, canvass1, 0 , width , 0, height , width , height)
```

show(pic1)
show(pic2)
show(canvas1)


def split(pic, canvas):
    width = getWidth(pic)
    height = getHeight(pic)
    corner(pic, canvas, 0, width/2, 0, height/2, width/2, height/2)
    corner(pic, canvas, width/2, width, 0, height/2, 0, height/2)
    corner(pic, canvas, 0, width/2, height/2, height, width/2, 0)
    corner(pic, canvas, width/2, width, height/2, height, 0, 0)
    return canvas

def corner(pic, canvas, start, end, start1, end1, new, old):
    width = getWidth(pic)
    height = getHeight(pic)
    targetX = new
    for sourceX in range(start, end):
        targetY = old
        for sourceY in range(start1, end1):
            color = getColor(getPixel(pic, sourceX, sourceY))
            setColor(getPixel(canvas, targetX, targetY), color)
            targetY = targetY + 1
            targetX = targetX + 1


def scaleDown(pic, canvas):
    width = getWidth(pic)
    height = getHeight(pic)
    sourceX = 0
    for targetX in range(0, int(width/3)):
        sourceY = 0
        for targetY in range(0, int(height/3)):
            color = getColor(getPixel(pic, sourceX, sourceY))
            setColor(getPixel(canvas, targetX, targetY), color)
            sourceY = sourceY + 3
            sourceX = sourceX + 3
    return canvas

def scaleDownMore(pic, canvas):
    width = getWidth(pic)
    height = getHeight(pic)
    width1 = getWidth(canvas)
    height1 = getHeight(canvas)
    sourceX = 0
    for targetX in range(0, int(width/9)):
        sourceY = 0
        for targetY in range(0, int(height/9)):
            color = getColor(getPixel(pic, sourceX, sourceY))
            setColor(getPixel(canvas, targetX, targetY), color)
            sourceY = sourceY + 9
            sourceX = sourceX + 9
    return canvas

def canvasfinal(pic, canvas, start, end, start1, end1, new, old):
    width = getWidth(pic)
    height = getHeight(pic)
    targetX = new
    for sourceX in range(start, end):
        targetY = old
        for sourceY in range(start1, end1):
color = getColor(getPixel(pic,sourceX,sourceY))
setColor(getPixel(canvas,targetX,targetY),color)
targetY = targetY + 1
targetX = targetX + 1

def blend(be, bl):
    canvas = makeEmptyPicture(1000/3,736/3,black)
sourcex = 0
for targetx in range(0,1000/3):
    sourcey = 0
    for targety in range(0,getHeight(be)):
        color = getColor(getPixel(be,sourcex,sourcey))
        setColor(getPixel(canvas,targetx,targety),color)
        sourcey = sourcey + 1
    sourcex = sourcex + 1
overlap = getWidth(be)
sourcex=0
for targetx in range(0,getWidth(bl)):
    sourcey = 0
    for targety in range(0,getHeight(bl)):
        bPixel = getPixel(be,sourcex,sourcey)
        lPixel = getPixel(bl,sourcex,sourcey)
        #This modifies the opacity of each picture when blending
        newRed = 0.85*getRed(bPixel)+0.15*getRed(lPixel)
        newGreen = 0.85*getGreen(bPixel)+0.15*getGreen(lPixel)
        newBlue = 0.85*getBlue(bPixel)+0.15*getBlue(lPixel)
        color = makeColor(newRed,newGreen,newBlue)
        setColor(getPixel(canvas,targetx,targety),color)
        sourcey = sourcey + 1
    sourcex = sourcex + 1
sourcex = overlap
for targetx in range(overlap,getWidth(bl)):
    sourcey = 0
    for targety in range(0,getHeight(bl)):
        color = getColor(getPixel(bl,sourcex,sourcey))
        setColor(getPixel(canvas,targetx,targety),color)
        sourcey = sourcey + 1
    sourcex = sourcex + 1
return canvas