def collage():
    setMediaPath()
    pic1 = makePicture("tesla.jpg")
    pic2 = makePicture("tesla.jpg")
    pic3 = makePicture("tesla.jpg")
    pic4 = makePicture("tesla.jpg")
    pic5 = makePicture("tesla.jpg")
    sigPic = makePicture("sig.jpg")
    # set my canvas up for the exact dimensions I need
    canvas = makeEmptyPicture(2 * getWidth(pic1), 3 * getHeight(pic1), white)
    copy(pic1, canvas, 0, 0)
    # I based the flip function off of the invert function previously learned.
    xFlip(pic1)
    copy(pic1, canvas, getWidth(pic1), 0)
    reduceBlue(pic2)
    yFlip(pic2)
    copy(pic2, canvas, 0, getHeight(pic1))
    onlyRed(pic3)
    copy(pic3, canvas, 0, 2 * getHeight(pic1))
    xFlip(pic4)
    yFlip(pic4)
    edge(pic4)
    copy(pic4, canvas, getWidth(pic1), getHeight(pic1))
    onlyGreen(pic5) # Modification of the onlyRed function.
    xFlip(pic5)
    copy(pic5, canvas, getWidth(pic1), 2 * getHeight(pic1))
    # preparing the location of my signature
    startCanvasAtX = getWidth(canvas) - getWidth(sigPic)
    startCanvasAtY = getHeight(canvas) - getHeight(sigPic)
    copySig(sigPic, canvas, startCanvasAtX, startCanvasAtY) # this was a pain.
    show(canvas)
    writePictureTo(canvas, r"Gibson.jpg")
def copy(sourcePic, targetPic, startX, startY):
    targetX=startX
    for sourceX in range (0, getWidth(sourcePic)):
        targetY=startY
        for sourceY in range (0, getHeight(sourcePic)):
            sourcePx=getPixelAt(sourcePic, sourceX, sourceY)
            sourceColor=getColor(sourcePx)
            targetPx=getPixelAt(targetPic, targetX, targetY)
            setColor(targetPx, sourceColor)
            targetY+=1
            targetX+=1

def xFlip(pic):
    width=getWidth(pic)
    height=getHeight(pic)
    for y in range(0,height):
        for x in range(0,width/2):
            sourcePixel=getPixel(pic,x,y)
            targetPixel=getPixel(pic,width-x-1,y)
            color=getColor(sourcePixel)
            setColor(sourcePixel,getColor(targetPixel))
            setColor(targetPixel,color)
    return(pic)

def onlyRed(pic):
    for px in getPixels(pic):
        color=getGreen(px)
        setGreen(px, 0)
        setBlue(px, 0)
    return(pic)

def yFlip(pic):
    width = getWidth(pic)
    height = getHeight(pic)
    for y in range(0,height/2):
        for x in range(0,width):
            sourcePixel=getPixel(pic,x,y)
            targetPixel=getPixel(pic,x,height-y-1)
            color=getColor(sourcePixel)
            setColor(sourcePixel,getColor(targetPixel))
            setColor(targetPixel,color)
    return(pic)

def reduceBlue(pic):
    for px in getPixels(pic):
        color=getBlue(px)
        setBlue(px,color/20)
    return(pic)

def edge(pic):#the edge function was new to me, but I love the affect it created.
    for px in getPixels(pic):
        x=getX(px)
        y=getY(px)
        if y<getHeight(pic)-1 and x<getWidth(pic)-1:
            sum=getRed(px)+getGreen(px)+getBlue(px)
            botrt=getPixel(pic,x+1,y+1)
sum2=getRed(botrt)+getGreen(botrt)+getBlue(botrt)
diff=abs(sum2-sum)
newColor=makeColor(diff,diff,diff)
setColor(px,newColor)
return(pic)

def onlyGreen(pic):
    for px in getPixels(pic):
        color=getRed(px)
        setRed(px, 0)
        setBlue(px, 0)
    return(pic)

def copySig(sPic,targetPic,targetX,targetY):
    sigColor=makeColor(0,0,0)
    for sX in range(0,getWidth(sPic)):
        for sY in range(0,getHeight(sPic)):
            sPx=getPixelAt(sPic,sX,sY)
            sColor=getColor(sPx)
            targetPx=getPixelAt(targetPic,sX+targetX,sY+targetY)
            if distance(sigColor,sColor)<180:
                setColor(targetPx,white)

Image citation.

Author: Airarcs.
Link to author's wikimedia description page: https://commons.wikimedia.org/wiki/User:Airarcs
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This image was slightly altered in the sense that it was cropped for use in JES. In JES, it was modified in color and orientation only.

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