from jes import *

# Ian Blackmer, 10/18/20

def collage():
    file1 = "suspicious.jpg"
    signature = "signature.png"
    picture = makePicture(file1)
    sig = makePicture(signature)
    picWidth = getWidth(picture)
    picHeight = getHeight(picture)
    canvas = makeEmptyPicture(picWidth * 4, picHeight * 3)
    copy(picture, canvas, picWidth, 0)
    increaseRed(picture)
    copy(picture, canvas, 0, picHeight)
    reduceRed(picture)
    increaseBlue(picture)
    increaseBlue(picture)
    copy(picture, canvas, picWidth * 2, picHeight)
    reduceGreen(picture)
    copy(picture, canvas, picWidth, picHeight * 2)
    reduceBlue(picture)
    increaseGreen(picture)
    copy(picture, canvas, picWidth * 2, picHeight * 2)
    darken(picture)
    darken(picture)
    copy(picture, canvas, 0, picHeight * 2)
    increaseRed(picture)
    reduceGreen(picture)
    lighten(picture)
    lighten(picture)
    lighten(picture)
    copy(picture, canvas, picWidth * 2, 0)
    reduceRed(picture)
    reduceRed(picture)
    increaseBlue(picture)
    copy(picture, canvas, 0, 0)
greyScaleNew(picture)
darken(picture)
copy(picture, canvas, picWidth, picHeight)
increaseRed(picture)
increaseGreen(picture)
copyReverse(picture, canvas, picWidth * 4, picHeight)
chromaSig(sig, canvas, picWidth * 3, picHeight * 2)
show(canvas)
writePictureTo(canvas, "ian_blackmer_collage.jpg")

def copy(source, target, targX, targY):
    targetX = targX
    for sourceX in range(0, getWidth(source)):
        targetY = targY
        for sourceY in range(0, getHeight(source)):
            px = getPixel(source, sourceX, sourceY)
            tx = getPixel(target, targetX, targetY)
            setColor(tx, getColor(px))
            targetY = targetY + 1
        targetX = targetX + 1

def copyReverse(pic, target, targX, targY):
    targetX = targX
    for x in range(getWidth(pic)):
        targetY = targY
        for y in range(getHeight(pic)):
            pixel = getPixel(pic, x, y)
            tx = getPixel(target, targetX, targetY)
            setColor(tx, getColor(pixel))
            targetY = targetY + 1
        targetX = targetX - 1

def increaseRed(picture):
    for p in getPixels(picture):
        value = getRed(p)
        setRed(p, value*5)

def increaseBlue(picture):
    for p in getPixels(picture):
        value = getBlue(p)
        setBlue(p, value*3)

def increaseGreen(picture):
    for p in getPixels(picture):
        value = getGreen(p)
        setGreen(p, value*2)

def reduceRed(picture):
    for p in getPixels(picture):
        value = getRed(p)
        setRed(p, value*0.5)

def reduceBlue(picture):
    for p in getPixels(picture):
        value = getBlue(p)
        setBlue(p, value*0.5)

def reduceGreen(picture):
    for p in getPixels(picture):
        value = getGreen(p)
        setGreen(p, value*0.5)
def lighten(picture):
    for px in getPixels(picture):
        color = getColor(px)
        color = makeLighter(color)
        setColor(px, color)

def darken(picture):
    for px in getPixels(picture):
        color = getColor(px)
        color = makeDarker(color)
        setColor(px, color)

def greyScaleNew(picture):
    for p in getPixels(picture):
        intensity = (getRed(p)+getGreen(p)+getBlue(p))/3
        setColor(p, makeColor(intensity, intensity, intensity))

def chromaSig(source, target, targetX, targetY):
    for x in range(0, getWidth(source)):
        for y in range(0, getHeight(source)):
            px = getPixel(source, x, y)
            color = getColor(px)
            targ = getPixel(target, x + targetX, y + targetY)
            if distance(red, color) < 200:
                setColor(targ, white)

def mirror(source):
    mirrorPoint = int(getWidth(source))
    width = getWidth(source)
    for y in range(0, getHeight(source)):
        for x in range(0, mirrorPoint):
            leftPixel = getPixel(source, x, y)
            rightPixel = getPixel(source, width - x - 1, y)
            color = getColor(leftPixel)
            setColor(rightPixel, color)