def collage():
    setMediaPath()
    picture1 = makePicture(getMediaPath("butterfly2.jpg"))
    picture2 = makePicture(getMediaPath("butterfly2.jpg"))
    picture3 = makePicture(getMediaPath("butterfly2.jpg"))
    picture4 = makePicture(getMediaPath("butterfly2.jpg"))
    picture5 = makePicture(getMediaPath("butterfly2.jpg"))
    signature = makePicture(getMediaPath("Project 2 Signature.png"))
    canvas = makeEmptyPicture(1000, 736)

    Green(picture1)
    Blue(picture2)
    Red(picture3)
    negative(picture4)

    copy(picture1, canvas, 0, 250)
    copy(picture2, canvas, 0, 0)
    copy(picture3, canvas, 413, 0)
    copy(picture4, canvas, 413, 250)
    copy(picture5, canvas, 207, 125)
    chromakey(signature, canvas, 700, 650)
    show(canvas)

def copy(picture, target, target1, target2):
    targetX = target1
    for sourceX in range(getWidth(picture)):
        targetY = target2
        for sourceY in range(getHeight(picture)):
            color = getColor(getPixel(picture, sourceX, sourceY))
            setColor(getPixel(target, targetX, targetY), color)
            targetY = targetY + 1
        targetX = targetX + 1

def Green(picture):
    for p in getPixels(picture):
        setGreen(p, 255)
    return picture
def Blue(picture):
    for p in getPixels(picture):
        setBlue(p, 255)
    return picture

def Red(picture):
    for p in getPixels(picture):
        setRed(p, 255)
    return picture

def negative(picture):
    for px in getPixels(picture):
        red = getRed(px)
        green = getGreen(px)
        blue = getBlue(px)
        negColor = makeColor(255-red, 255-green, 255-blue)
        setColor(px, negColor)

def chromakey(signature, canvas, shiftx, shifty):
    targetx = shiftx
    for x in range(0, getWidth(signature)):
        targety = shifty
        for y in range(0, getHeight(signature)):
            refRed = getRed(getPixel(signature, x, y))
            refGreen = getGreen(getPixel(signature, x, y))
            refBlue = getBlue(getPixel(signature, x, y))
            color = getColor(getPixel(signature, x, y))
            if refGreen < 50 and refBlue < 50:
                setColor(getPixel(canvas, targetx, targety), color)
            targety = targety + 1
        targetx = targetx + 1