

Peter Owolabi

Completed



Original



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def collage():  
    setMediaPath()  
    pic = makePicture(getMediaPath("rose.jpg"))  
    width = getWidth(pic)  
    height = getHeight(pic)  
    canvas = makeEmptyPicture(width * 3, 590, black)  
    greenpic = makegreener(pic)  
    negativepic = negative(pic)  
    edgepic = edgedetect(pic, 15)  
    mirrorpic = mirror(pic)  
    shredpic = shred(pic)  
    signature = createsignature()  
    canvas = paste(pic, canvas, 0, 0)  
    canvas = paste(mirrorpic, canvas, width, 0)  
    canvas = paste(edgepic, canvas, width * 2, 0)  
    canvas = paste(greenpic, canvas, 0, height)  
    canvas = paste(negativepic, canvas, width, height)  
    canvas = paste(shredpic, canvas, width * 2, height)  
    canvas = paste(signature, canvas, 600, height * 2)  
    show(canvas)  
  
def luminance(pixel):  
    r = getRed(pixel)  
    g = getGreen(pixel)  
    b = getBlue(pixel)  
    return (r+g+b)/3  
  
def paste(pic, canvas, xoffset, yoffset):  
    width = getWidth(pic)  
    height = getHeight(pic)  
    canvwidth = getWidth(canvas)  
    canvheight = getHeight(canvas)  
    for y in range(height):  
        for x in range(width):  
            if (x + xoffset >= canvwidth or x + xoffset < 0) or   
                (y + yoffset >= canvheight or y + yoffset < 0):  
                continue  
            else:
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        color = getColor(getPixel(pic, x, y))
        setColor(getPixel(canvas, x + xoffset, y + yoffset), color)
return canvas
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def duplicate(pic):
    width = getWidth(pic)
    height = getHeight(pic)
    canvas = makeEmptyPicture(width, height)
    for y in range(height):
        for x in range(width):
            color = getColor(getPixel(pic, x, y))
            setColor(getPixel(canvas, x, y), color)
    return canvas
```

```
def makegreener(pic):
    width = getWidth(pic)
    height = getHeight(pic)
    canvas = duplicate(pic)
    for x in range(0, getWidth(pic)):
        for y in range(0, getHeight(pic)):
            p = getPixel(canvas, x, y)
            color = getColor(p)
            greenval = getGreen(p)
            setGreen(p, greenval * 3)
    return canvas
```

```
def negative(pic):
    width = getWidth(pic)
    height = getHeight(pic)
    canvas = duplicate(pic)
    for p in getPixels(canvas):
        color = makeColor(255 - getRed(p), 255 - getGreen(p), 255 - getBlue(p))
        setColor(p, color)
    return canvas
```

```
def edgedetect(source, threshold):
    width = getWidth(source)
    height = getHeight(source)
    canvas = duplicate(source)
    for px in getPixels(canvas):
        x = getX(px)
        y = getY(px)
        if y < getHeight(source) - 1 and x < getWidth(source) - 1:
            botrt = getPixel(source, x+1, y+1)
            thislum = luminance(px)
            brlum = luminance(botrt)
            if abs(brlum-thislum) > (threshold):
                setColor(px, yellow)
            if abs(brlum-thislum) <=(threshold):
                setColor(px, black)
    return canvas
```

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def mirror(pic):
    width = getWidth(pic)
    height = getHeight(pic)
    canvas = duplicate(pic)
    mirrorpoint = height / 2
    for y in range(0, mirrorpoint):
        for x in range(0, width):
            topPixel = getPixel(canvas, x, y)
            bottomPixel = getPixel(canvas, x, height - y - 1)
            color = getColor(topPixel)
            setColor(bottomPixel, color)
    return canvas

def shred(pic):
    width = getWidth(pic)
    height = getHeight(pic)
    canvas = makeEmptyPicture(width, height)
    offset = 0
    for y in range(height):
        offset = math.sin(y / math.pi * 2)
        if offset >= 0:
            offset = 10
        else:
            offset = - 10
        for x in range(width):
            if(x + offset >= width):
                color = getColor(getPixel(pic, width - 1, y))
            elif(x + offset < 0):
                color = getColor(getPixel(pic, 0, y))
            else:
                color = getColor(getPixel(pic, int(x + (floor(offset))), y))
            setColor(getPixel(canvas, x, y), color)
    return canvas

def createsignature():
    pic = makePicture(getMediaPath("signature.jpg"))
    width = getWidth(pic)
    height = getHeight(pic)
    canvas = makeEmptyPicture(width, height, black)
    for y in range(height):
        for x in range(width):
            lum = luminance(getPixel(pic, x, y))
            if(lum < 110):
                setColor(getPixel(canvas, x, y), white)
    return canvas

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↵ means the line is continued on the next line.