

Nathan Phan

Completed



Original



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#Nathan Phan
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def collage():
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    picture = makePicture(getMediaPath("guy.jpg"))
    picture2 = scale(picture, 0.25)
    smol = scale(picture, 0.25)
    copySmol = picture2
    width = getWidth(smol)
    height = getHeight(smol)
    canvas = makeEmptyPicture(width * 2, height * 2)
    maxBlue(copySmol)
    copy(copySmol, canvas, 0, 0)
    negative(copySmol)
    copySmol = mirror(copySmol)
    copy(copySmol, canvas, width, height)
    copySmol = mirror(copySmol)
    maxGreen(copySmol)
    clearBlue(copySmol)
    blend(smol, copySmol)
    copySmol = mirror(copySmol)
    maxRed(copySmol)
    darken(copySmol)
    copy(copySmol, canvas, width, 0)
    grayScale(smol)
    copy(smol, canvas, 0, height)
    picture2 = scale(picture, 0.25)
    copy(picture2, canvas, width / 2, height / 2)
    explore(canvas)
```

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def negative(picture):
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    for p in getPixels(picture):
        orig_red = getRed(p)
        orig_blue = getBlue(p)
        orig_green = getGreen(p)
        negColour = makeColor(255 - orig_red, 255 - orig_green, 255 - orig_blue)
        setColor(p, negColour)
```

```
def blend(src, target):
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    for start in range(2):
        for x in range(start, getWidth(src), 2):
            for y in range(start, getHeight(src), 2):
                sourcePx = getPixel(src, x, y)
                targetPx = getPixel(target, x, y)
                setColor(targetPx, getColor(sourcePx))
```

```
def maxBlue(picture):
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    for p in getPixels(picture):
        setBlue(p, 255)
```

```

def clearBlue(picture):
    for p in getPixels(picture):
        setBlue(p, 0)

def maxGreen(picture):
    for p in getPixels(picture):
        setGreen(p, 255)

def clearGreen(picture):
    for p in getPixels(picture):
        setGreen(p, 0)

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

def clearRed(picture):
    for p in getPixels(picture):
        setRed(p, 0)

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

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 scale(picIn, factor):
    canvas = makeEmptyPicture(int(getWidth(picIn)*factor),int(getHeight(picIn)*factor))
    sourceX = 0
    for targetX in range(0,getWidth(canvas)):
        sourceY = 0
        for targetY in range(0,getHeight(canvas)):
            color = getColor(getPixel(picIn,int(sourceX),int(sourceY)))
            setColor(getPixel(canvas,targetX,targetY), color)
            sourceY += 1.0 / factor
            sourceX += 1.0 / factor
    return canvas

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

```

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def darken(picture):
    for x in range(0,getWidth(picture)):
        for y in range(0,getHeight(picture)):
            px = getPixel(picture,x,y)
            color = getColor(px)
            color = makeDarker(color)
            color = makeDarker(color)
            setColor(px,color)
```