

# Oliver Moster

Completed



Original



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#It's our textbook cover, i was struck with inspiration when i was trying to figure out what i should make
#Oliver Moster   March 13th, 2024
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def collage():
    setMediaPath()
    ogimg = makePicture(getMediaPath("seahorse.jpg"))
    sig = makePicture(getMediaPath("signature.jpg"))
    canvas = makeEmptyPicture(2000,2000,black)

    #scaling original image (and creating copies)
    scaleFactor = 10
    widS = getWidth(ogimg)/scaleFactor
    heiS = getHeight(ogimg)/scaleFactor
    # I will need three versions of this picture that will be edited seperately, thus these steps are repeated
    scaled = makeEmptyPicture(widS,heiS)
    scaledbig1 = makeEmptyPicture(widS,heiS)
    scaledbig2 = makeEmptyPicture(widS,heiS)
    scaleDown(ogimg,widS,heiS,scaled,scaleFactor)
    scaleDown(ogimg,widS,heiS,scaledbig1,scaleFactor)
    scaleDown(ogimg,widS,heiS,scaledbig2,scaleFactor)
    ogimg = scaled

    #creating a flipped version of the original image (and creating a copy)
    #double the width to flip on the "halfway line", which will just be the far edge of the original picture
    flipimg = makeEmptyPicture(690,heiS,black)
    copy(ogimg,flipimg,0,0)
    mirror(flipimg)
    #crop the picture so that it is just the mirrored version, do it twice
    mirrorimg = makeEmptyPicture(getWidth(ogimg),getHeight(ogimg),black)
    colorCrop(flipimg,mirrorimg,getWidth(ogimg),getWidth(flipimg),0,getHeight(flipimg),0,0)
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mirrorimgbig = makeEmptyPicture(getWidth(ogimg),getHeight(ogimg),black)
colorCrop(flipimg,mirrorimgbig,getWidth(ogimg),getWidth(flipimg),0,getHeight(flipimg),0,0)

#creating a cleaner version of the flipped images and original images
chromaback = makeEmptyPicture((getWidth(mirrorimg)+1),(getHeight(mirrorimg)+1),black)
chromakeyblack(mirrorimg,chromaback)
chromakeyblack(ogimg,chromaback)
chromakeyblack(mirrorimgbig,chromaback)
chromakeyblack(scaledbig1,chromaback)
chromakeyblack(scaledbig2,chromaback)

#creating a slightly bigger versions of the original images
scaleFactor = .55
wid = getWidth(scaledbig1)/scaleFactor
hei = getHeight(scaledbig1)/scaleFactor
wid = int(wid)
hei = int(hei)
scaledup1 = makeEmptyPicture(wid,hei)
scale(scaled,wid,hei,scaledup1,scaleFactor)

#the scaleFactor is different in each because the seahorses need to be different sizes
scaleFactor = .6
wid = getWidth(scaledbig2)/scaleFactor
hei = getHeight(scaledbig2)/scaleFactor
wid = int(wid)
hei = int(hei)
scaledup2 = makeEmptyPicture(wid,hei)
scale(scaled,wid,hei,scaledup2,scaleFactor)

scaleFactor = .65
wid = getWidth(mirrorimgbig)/scaleFactor
hei = getHeight(mirrorimgbig)/scaleFactor
wid = int(wid)
hei = int(hei)
mirrorback = makeEmptyPicture(wid,hei)
scale(mirrorimgbig,wid,hei,mirrorback,scaleFactor)

#creating the collage
#big,poster,dark,flip version
scaledupposter = scaledup1
posterize(scaledupposter)
darken(scaledupposter)

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darken(scaledupposter)
darken(scaledupposter)
darken(scaledupposter)
crop(scaledupposter, canvas, 0, getWidth(scaledupposter), 0, getHeight(scaledupposter), 0, 375)

#big, cyan, dark, og version
cyanotype(mirrorback)
darken(mirrorback)
darken(mirrorback)
darken(mirrorback)
darken(mirrorback)
colorCrop(mirrorback, canvas, 0, getWidth(mirrorback), 0, getHeight(mirrorback), 200, 370)

#big, red, dark, flip version
scaledupred = scaledup2
redotype(scaledupred)
darken(scaledupred)
darken(scaledupred)
darken(scaledupred)
darken(scaledupred)
darken(scaledupred)
colorCrop(scaledupred, canvas, 0, getWidth(scaledupred), 0, getHeight(scaledupred), 380, 425)

#"normal" seahorse
colorCrop(mirroring, canvas, 0, getWidth(mirroring), 0, getHeight(mirroring), 200, 500)

#greyscaled tail
grayScale(mirroring)
colorCrop(mirroring, canvas, 0, (getWidth(mirroring)/3), 0, getHeight(mirroring), 200, 500)

#make the canvas the sized needed so i can get an A on the project
croppedcanvas = makeEmptyPicture(600, 700, black)
crop(canvas, croppedcanvas, 210, 810, 525, 1225, 0, 0)

#signature time
scaleFactor = 5
widS = getWidth(sig)/scaleFactor
heiS = getHeight(sig)/scaleFactor
sigscale = makeEmptyPicture(widS, heiS)
scaleDown(sig, widS, heiS, sigscale, scaleFactor)
sig = sigscale
sigCrop(sig, croppedcanvas, 0, getWidth(sig), 0, getHeight(sig), (getWidth(croppedcanvas)-getWidth(sig)), ←
    (getHeight(croppedcanvas)-getHeight(sig)))

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#the final product
explore(croppedcanvas)

def chromakeyblack(source,bg):
    for px in getPixels(source):
        x = getX(px)
        y = getY(px)
        if (getRed(px) <= 75 and getGreen(px) <= 75 and getBlue(px) <= 75):
            bgpx = getPixel(bg,x,y)
            bgcol = getColor(bgpx)
            setColor(px,bgcol)

def scaleDown(img,widS,heiS,canvas,scaleFactor):
    sourceX = 0
    for targetX in range(0,widS):
        sourceY = 0
        for targetY in range(0,heiS):
            color = getColor(getPixel(img,sourceX,sourceY))
            setColor(getPixel(canvas,targetX,targetY), color)
            sourceY = sourceY + int(scaleFactor)
        sourceX = sourceX + int(scaleFactor)

def scaleUp(img,widB,heiB,canvas,scaleFactor):
    sourceX = 0
    for targetX in range(0,widB):
        sourceY = 0
        for targetY in range(0,heiB):
            imgpx = getPixel(img,int(sourceX),int(sourceY))
            color = getColor(imgpx)
            setColor(getPixel(canvas,targetX,targetY), color)
            sourceY = sourceY + 1.0/float(scaleFactor)
        sourceX = sourceX + 1.0/float(scaleFactor)

def mirror(pic):
    for x in range(0,(getWidth(pic)/2)):
        for y in range(0,getHeight(pic)):
            pleft = getPixel(pic,x,y)
            pright = getPixel(pic,getWidth(pic)-x-1,y)
            setColor(pright,getColor(pleft))

def copy(img,canvas,target_x,target_y):

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targetX = target_x
for sourceX in range(0,getWidth(img)):
    targetY = target_y
    for sourceY in range(0,getHeight(img)):
        color = getColor(getPixel(img,sourceX,sourceY))
        setColor(getPixel(canvas,targetX,targetY), color)
        targetY = targetY+1
    targetX=targetX+1

def crop(img,canvas,range1x,range2x,range1y,range2y,target_x,target_y):
    targetX = target_x
    for sourceX in range(range1x,range2x):
        targetY = target_y
        for sourceY in range(range1y,range2y):
            color = getColor(getPixel(img,sourceX,sourceY))
            setColor(getPixel(canvas,targetX,targetY), color)
            targetY = targetY+1
        targetX=targetX+1

def colorCrop(img,canvas,range1x,range2x,range1y,range2y,target_x,target_y):
    targetX = target_x
    for sourceX in range(range1x,range2x):
        targetY = target_y
        for sourceY in range(range1y,range2y):
            color = getColor(getPixel(img,sourceX,sourceY))
            if color != black:
                setColor(getPixel(canvas,targetX,targetY), color)
            targetY = targetY+1
        targetX=targetX+1

def sigCrop(img,canvas,range1x,range2x,range1y,range2y,target_x,target_y):
    targetX = target_x
    for sourceX in range(range1x,range2x):
        targetY = target_y
        for sourceY in range(range1y,range2y):
            color = getColor(getPixel(img,sourceX,sourceY))
            if color != white:
                setColor(getPixel(canvas,targetX,targetY), color)
            targetY = targetY+1
        targetX=targetX+1

def grayScale(pic):
    for p in getPixels(pic):

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intensity = (getRed(p)+getGreen(p)+getBlue(p))/3
setColor(p,makeColor(intensity, intensity, intensity))

def cyanotype(pic):
    grayScale(pic)
    for p in getPixels(pic):
        blue = getBlue(p)
        green = getGreen(p)
        red = getRed(p)
        if (blue < 63):
            blue = blue*2
            green = green*.75
            red = red*.75
        if (blue > 62 and blue < 192):
            blue = blue*1.3
            green = green*.75
            red = red*.75
        if (blue > 192):
            blue = blue*1.2
            green = green*.75
            red = red*.75
        setBlue(p, blue)
        setRed(p, red)
        setGreen(p, green)

def lighten(pic):
    for x in range(0, getWidth(pic)):
        for y in range(0, getHeight(pic)):
            px = getPixel(pic, x, y)
            color = getColor(px)
            color = makeLighter(color)
            color = makeLighter(color)
            setColor(px, color)

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

def scale(img, wid, hei, scaled, scaleFactor):

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sourceX = 0
for targetX in range(0,wid):
    sourceY = 0
    for targetY in range(0,hei):
        color = getColor(getPixel(img,int(sourceX),int(sourceY)))
        setColor(getPixel(scaled,targetX,targetY), color)
        sourceY = sourceY + float(scaleFactor)
        sourceX = sourceX + float(scaleFactor)

def posterize(source):
    for p in getPixels(source):
        r = getRed(p)
        g = getGreen(p)
        b = getBlue(p)
        luminance = (r+g+b)/3
        if luminance < 50:
            setColor(p,black)
        if 50 <= luminance <= 165:
            setColor(p,gray)
        if luminance > 165:
            setColor(p,white)

def redotype(pic):
    grayScale(pic)
    for p in getPixels(pic):
        blue = getBlue(p)
        green = getGreen(p)
        red = getRed(p)
        if (red < 63):
            blue = blue*.75
            green = green*.75
            red = red*2
        if (red > 62 and red < 192):
            blue = blue*.75
            green = green*.75
            red = red*1.3
        if (red > 192):
            blue = blue*.75
            green = green*.75
            red = red*1.3
        setBlue(p, blue)
        setRed(p, red)
        setGreen(p, green)

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