

# Corey Brown

Completed



Original



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#Project 2  
#Corey Brown  
#Date: 10/18/2021
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def collage():  
    setMediaPath()  
    abstract=makePicture("pexels-photo-3910065.jpeg")  
    signaturePic=makePicture("finalSIG.png")  
    signatureRight=rotateRight(signaturePic)  
    height=2*getHeight(abstract)  
    width=2*getWidth(abstract)+getHeight(abstract)  
    negativePic=negative(abstract)  
    rotateLeftPic=rotateLeft(abstract)  
    mirrorRightPic=mirrorRight(abstract)  
    small=scaleDown(abstract)  
    edgeColorPic=edgeColor(abstract)  
    bwPic=BW(abstract)  
    canvas=makeEmptyPicture(width,height,black)  
    copyInto(abstract,canvas,0,0)  
    startX=getWidth(abstract);startY=0  
    copyInto(negativePic,canvas,startX,0)  
    startX=2*getWidth(abstract);startY=0  
    copyInto(rotateLeftPic,canvas,startX,0)  
    copyInto(small,canvas,300,100)  
    startX=0;startY=getHeight(abstract)  
    copyInto(mirrorRightPic,canvas,startX,startY)  
    startX=getWidth(mirrorRightPic);startY=getHeight(abstract)
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copyInto(edgeColorPic, canvas, startX, startY)
startX=getWidth(edgeColorPic);startY=getHeight(mirrorRightPic)
copyInto(bwPic, canvas, 2*getWidth(abstract),getHeight(abstract))
copyInto(small, canvas, 870, 800)
copyInto(small, canvas, 870, 260)
startX=getWidth(mirrorRightPic)+getWidth(abstract)
startY=getHeight(abstract)
copyInto(small, canvas, 300, 700)
abstractSignature=chromakeySig(signaturePic, canvas, 1000, 450)
show(abstractSignature)
signatureRightAB=chromakeySig(signatureRight, canvas, 1490, 700)
show(signatureRightAB)
show(canvas)

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

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def rotateLeft(pic):
    w, h = getWidth(pic), getHeight(pic)
    newPic = makeEmptyPicture(h, w)
    for y in xrange(h):
        for x in xrange(w):
            color = getColor(getPixel(pic, x, y))
            targetPixel = getPixel(newPic, y, x)
            setColor(targetPixel, color)
    return newPic

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def mirrorRight(pic):
    newPic=duplicatePicture(pic)
    mirrorPoint=getWidth(newPic)/2
    width=getWidth(newPic)
    height=getHeight(newPic)
    for x in range(0,mirrorPoint):
        for y in range(0, height):
            rightPixel=getPixelAt(newPic,width-1-x,y)
            leftPixel=getPixelAt(newPic,x,y)
            rightColor=getColor(rightPixel)

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        setColor(leftPixel,rightColor)
return newPic

def scaleDown(pic):
width=getWidth(pic)/2
height=getHeight(pic)/2
targetPic=makeEmptyPicture(width,height,white)
sourceX=0
for targetX in range(0,int(getWidth(pic)/2)):
    sourceY=0
    for targetY in range(0,int(getHeight(pic))/2):
        sourcePx=getPixel(pic,int(sourceX),int(sourceY))
        sourceColor=getColor(sourcePx)
        targetPx=getPixelAt(targetPic,targetX,targetY)
        setColor(targetPx,sourceColor)
        sourceY=sourceY+1.0/0.5
    sourceX=sourceX+1.0/0.5
return targetPic

def edgeColor(pic):
newPic=duplicatePicture(pic)
for px in getPixels(newPic):
    x=getX(px)
    y=getY(px)
    if y < getHeight(newPic)-1 and x < getWidth(newPic)-1:
        colorSum=getRed(px)+getGreen(px)+getBlue(px)
        pixelOverOne=getPixel(newPic,x+1,y+1)
        colorSumOverOne=getRed(pixelOverOne)+getGreen(pixelOverOne)+getBlue(pixelOverOne)
        colorDifference=abs(colorSum-colorSumOverOne)
        if colorDifference < 10:
            setColor(px,black)
        elif colorDifference > 10 and colorDifference < 40:
            setColor(px,pink)
        else:
            setColor(px,gray)
return (newPic)

def BW(pic):
newPic=duplicatePicture(pic)
for px in getPixels(newPic):
    luminance=(getRed(px)/3 + getBlue(px) + getGreen(px))/3
    if luminance < 50:
        setColor(px,makeColor(50,50,50))
    elif luminance < 100:
        setColor(px,makeColor(100,100,100))

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elif luminance < 150:
    setColor(px, makeColor(150, 150, 150))
elif luminance < 200:
    setColor(px, makeColor(200, 200, 200))
else:
    setColor(px, white)
return newPic

def chromakeySig(sourcePic, abstract, targetX, targetY):
    targetPic=duplicatePicture(abstract)
    for sX in range(0,getWidth(sourcePic)):
        for sY in range(0,getHeight(sourcePic)):
            sPx=getPixelAt(sourcePic, sX, sY)
            sColor=getColor(sPx)
            targetPx=getPixelAt(targetPic, sX+targetX, sY+targetY)
            if distance(black, sColor) < 190:
                setColor(targetPx, white)
    return targetPic

def rotateRight(pic):
    newPic=makeEmptyPicture(getHeight(pic),getWidth(pic))
    newX=getWidth(newPic)-1
    for y in range(getHeight(pic)):
        newY=0
        for x in range(getWidth(pic)):
            px=getPixel(pic,x,y)
            newPx=getPixel(newPic,newX,newY)
            setColor(newPx,getColor(px))
            newY=newY+1
        newX=newX-1
    return newPic

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