

Megan Stinefield

Completed



Original



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#Project 2: Custom edits of two palmtrees on a beach
#Name: Megan Stinefield
#Date: 10/18/2021
def collage():
    setMediaPath()
    palmtreePic=makePicture("palmtree.jpeg")
    #show (palmtreePic)
    sigPic = makePicture("signatureNew.jpg")
    collage = makeEmptyPicture(3* getWidth(palmtreePic), 2* getHeight(palmtreePic))
    copyInto(palmtreePic, collage,0,0)
    negativePalmtree=negative(palmtreePic)
    #show (negativePalmtree)
    copyInto(negativePalmtree, collage, getWidth(palmtreePic), 0)
    sunsetPalmtree = sunset(palmtreePic)
    #show (sunsetPalmtree)
    copyInto(sunsetPalmtree, collage, getWidth(palmtreePic)*2, 0)
    mirrorPalmtree = mirror(palmtreePic) #Verical Mirror
    #show(mirrorPalmtree)
    copyInto(mirrorPalmtree, collage, getWidth(palmtreePic), getHeight(palmtreePic))
    posterizePalmtree = posterize (palmtreePic)
    #show (posterizePalmtree)
    copyInto (posterizePalmtree, collage, 0, getHeight(palmtreePic))
    grayScalePic = grayScale(palmtreePic)
    #show (grayScalePic)
    sepiaPalmtree = sepiaTint(palmtreePic)
    #show (sepiaPalmtree)
    copyInto(sepiaPalmtree, collage, getWidth(palmtreePic) * 2, getHeight(palmtreePic))
    makeSmallerHalf(grayScalePic, collage, 331, 276)
    makeSmallerThird(palmtreePic, collage, 353, 307)
    makeSmallerFourth(grayScalePic, collage, 364, 322)
    makeSmallerFifth(palmtreePic, collage, 370, 331)
    chromakeySig(sigPic, collage, 555,690)
    show (collage)

def chromakeySig(sigPic, collage, targetX, targetY):
    targetPic=collage
    for sX in range (0, getWidth(sigPic)):
        for sY in range (0, getHeight(sigPic)):
            sPx=getPixelAt (sigPic, sX, sY)
            sColor=getColor(sPx)
            targetPx= getPixelAt(targetPic, sX + targetX, sY + targetY)
            if distance (black, sColor)< 180:
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        setColor(targetPx, white)
    return targetPic

def sepiaTint(pic):
    newPic=duplicatePicture(pic)
    for px in getAllPixels(newPic):
        redValue=getRed(px)
        blueValue=getBlue(px)
        if (redValue<63):
            redValue=redValue * 1.1
            blueValue=blueValue * 0.9
            setBlue(px, blueValue)
            setRed(px, redValue)
        if (redValue > 62 and redValue < 192):
            redValue=redValue * 1.2
            blueValue=blueValue * 0.80
            setBlue(px, blueValue)
            setRed(px, redValue)
        if (redValue > 191):
            redValue=redValue * 1.08
        if (redValue > 255):
            redValue=255
            blueValue=blueValue * 0.93
            setBlue(px, blueValue)
            setRed(px, redValue)
    return newPic

def grayScale(pic):
    newPic = duplicatePicture(pic)
    for px in getAllPixels(newPic):
        rValue = getRed(px)
        gValue = getGreen(px)
        bValue = getBlue(px)
        grayColor = (rValue + gValue + bValue)/3
        myGrayColor = makeColor(grayColor, grayColor, grayColor)
        setColor(px, myGrayColor)
    return newPic

def makeSmallerFifth(source, canvas, startX, startY):
    sourceX = 0
    for targetX in range(startX, startX + getWidth(source) /5):
        sourceY=0
        for targetY in range(startY, startY+getHeight(source) /5):
            sourcePx = getPixel(source, int(sourceX), int(sourceY))
            sourceColor= getColor(sourcePx)
            targetPx = getPixelAt(canvas, targetX, targetY)
            setColor (targetPx, sourceColor)
            sourceY = sourceY + 1.0/(1.0/5)
        sourceX = sourceX + 1.0/(1.0/5)

def makeSmallerFourth(source, canvas, startX, startY):
    sourceX = 0
    for targetX in range(startX, startX + getWidth(source) /4):
        sourceY=0
        for targetY in range(startY, startY+getHeight(source) /4):
            sourcePx = getPixel(source, int(sourceX), int(sourceY))
            sourceColor= getColor(sourcePx)
            targetPx = getPixelAt(canvas, targetX, targetY)
            setColor (targetPx, sourceColor)
            sourceY = sourceY + 1.0/(1.0/4)

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    sourceX = sourceX + 1.0/(1.0/4)

def makeSmallerThird(source, canvas, startX, startY):
    sourceX = 0
    for targetX in range(startX, startX + getWidth(source) /3):
        sourceY=0
        for targetY in range(startY, startY+getHeight(source) /3):
            sourcePx = getPixel(source, int(sourceX), int(sourceY))
            sourceColor= getColor(sourcePx)
            targetPx = getPixelAt(canvas, targetX, targetY)
            setColor (targetPx, sourceColor)
            sourceY = sourceY + 1.0/(1.0/3)
        sourceX = sourceX + 1.0/(1.0/3)

def makeSmallerHalf(source, canvas, startX, startY):
    sourceX = 0
    for targetX in range(startX, startX + getWidth(source) /2):
        sourceY=0
        for targetY in range(startY, startY+getHeight(source) /2):
            sourcePx = getPixel(source, int(sourceX), int(sourceY))
            sourceColor= getColor(sourcePx)
            targetPx = getPixelAt(canvas, targetX, targetY)
            setColor (targetPx, sourceColor)
            sourceY = sourceY + 1.0/0.5
        sourceX = sourceX + 1.0/0.5

def posterize(pic):
    newPic=duplicatePicture(pic)
    for p in getPixels(newPic):
        red=getRed(p)
        green=getGreen(p)
        blue=getBlue(p)
        if(red > 63 and red < 128):
            setRed(p, 95)
        if(red > 127 and red < 192):
            setRed(p, 159)
        if(red > 191 and red < 256):
            setRed(p, 223)
        if(green > 63 and green < 128):
            setGreen(p, 95)
        if(green > 127 and green < 192):
            setGreen(p, 159)
        if(green > 191 and green < 256):
            setGreen(p, 223)
        if(blue > 63 and blue < 128):
            setBlue(p, 95)
        if(blue > 127 and blue < 192):
            setBlue(p, 159)
        if(blue > 191 and blue < 256):
            setBlue(p, 223)
    return newPic

def mirror(pic):
    newPic = duplicatePicture(pic)
    mirrorPoint = getWidth(newPic) / 2
    width = getWidth(newPic)
    for y in range(0,getHeight(newPic)):
        for x in range(0,mirrorPoint):
            leftPixel = getPixel(newPic,x,y)
            rightPixel = getPixel(newPic,width - x - 1,y)

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        color = getColor(leftPixel)
        setColor(rightPixel,color)
return newPic

def sunset(pic):
    newPic = duplicatePicture(pic)
    for px in getAllPixels(newPic):
        redValue=getRed(px)
        greenValue = getGreen(px)
        blueValue = getBlue(px)
        sunsetColor = makeColor(redValue, greenValue * 0.6, blueValue * 0.6)
        setColor(px, sunsetColor)
    return newPic

def negative(pic):
    newPic = duplicatePicture(pic)
    for px in getAllPixels(newPic):
        redValue = getRed(px)
        greenValue = getGreen(px)
        blueValue = getBlue(px)
        negative = makeColor(255-redValue, 255-greenValue, 255-blueValue)
        setColor(px, negative)
    return newPic
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