

Dylan Behne

Completed



Original



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def collage():
    #Project2 - Dylan Behne - ??/2024
    #User must set media path
    #retriving picture
    pic = makePicture(getMediaPath("Paint_Wall.JPG"))
    show(pic)
    #Creating a canvas to put my work onto
    canvas = makeEmptyPicture(getWidth(pic),getHeight(pic))
    Slice(pic,canvas)
    #signing the picture
    Signing(canvas)
    show(canvas)

def Slice(pic,canvas):
    pic2 = GrayScale(pic)
    pic3 = EdgeDet(pic)
    pic4 = Block(pic)
    pic5 = blur(pic)
    barWidth = int(getWidth(pic)/5)
    SpaceOut(pic, 0, barWidth, 0, 1, canvas)
    SpaceOut(pic2, barWidth, barWidth, 1, 2, canvas)
    SpaceOut(pic3, barWidth*2, barWidth, 2, 3, canvas)
    SpaceOut(pic4, barWidth*3, barWidth, 3, 4, canvas)
    SpaceOut(pic5, barWidth*4, barWidth, 4, 5, canvas)

def SpaceOut(pic, sourceX, barWidth, m, n, canvas):
    for targetX in range((barWidth*m), (barWidth*n)):
        sourceY = 0
        for targetY in range(0,getHeight(pic)):
            color = getColor(getPixel(pic,sourceX,sourceY))
            setColor(getPixel(canvas,targetX,targetY),color)
            sourceY = sourceY + 1
        sourceX = sourceX + 1
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def GrayScale(pic):
    newPic = duplicatePicture(pic)
    #Converting picture into gray scale
    for p in getPixels(newPic):
        gs = (getRed(p)+getGreen(p)+getBlue(p))/3
        setColor(p,makeColor(gs,gs,gs))
    return newPic

def EdgeDet(pic):
    newPic = duplicatePicture(pic)
    #converting pic into edge detect
    for p in getPixels(newPic):
        x = getX(p)
        y = getY(p)
        if y < getHeight(newPic)-1 and x < getWidth(newPic)-1:
            sum = getRed(p) + getGreen(p) + getBlue(p)
            br = getPixel(newPic,x + 1,y + 1)
            sum2 = getRed(br) + getGreen(br) + getBlue(br)
            dif = abs(sum2 - sum)
            color = makeColor(dif,dif,dif)
            setColor(p,color)
    return newPic

def Block(pic):
    #creating a blocky look to the image
    w = getWidth(pic)
    h = getHeight(pic)
    small_pic = makeEmptyPicture(int(w/4),int(h/4),black)
    big_pic = makeEmptyPicture(int(getWidth(small_pic)*4),int(getHeight(small_pic)*4),black)
    #using the scaling function
    scale(pic,small_pic,0.25,4)
    scale(small_pic,big_pic,4,0.25)
    return big_pic

def scale(pic_in,pic_out,X,Y):
    #scaling the picture down then back up
    w = getWidth(pic_in)
    h = getHeight(pic_in)
    sourceX = 0
    for targetX in range(0,int(w*X)):
        sourceY = 0
        for targetY in range(0,int(h*X)):
            pix = getPixel(pic_in,int(sourceX),int(sourceY))
            color = getColor(pix)
            pix2 = getPixel(pic_out,targetX,targetY)

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        setColor(pix2,color)
        sourceY = sourceY + Y
sourceX = sourceX + Y

def blur(pic):
    #blurring the original image
    newPic = duplicatePicture(pic)
    for x in range(1,getWidth(pic)-1):
        for y in range(1,getHeight(pic)-1):
            #get colors around the changing pixels
            t = getPixel(pic,x,y - 1)
            l = getPixel(pic,x - 1,y)
            b = getPixel(pic,x,y + 1)
            r = getPixel(pic,x + 1,y)
            c = getPixel(newPic,x,y)
            #creating new colors
            newRed = (getRed(t)+getRed(l)+getRed(b)+getRed(r)+getRed(c))/5
            newGreen = (getGreen(t)+getGreen(l)+getGreen(b)+getGreen(r)+getGreen(c))/5
            newBlue = (getBlue(t)+getBlue(l)+getBlue(b)+getBlue(r)+getBlue(c))/5
            setColor(c, makeColor(newRed,newGreen,newBlue))
    return newPic

def Signing(canvas):
    pic = makePicture(getMediaPath("Signature2.JPG"))
    sourceX = 0
    for targetX in range(0,getWidth(pic)):
        sourceY = 0
        for targetY in range(0,getHeight(pic)):
            color = getColor(getPixel(pic,sourceX,sourceY))
            R = int(getRed(getPixel(pic,sourceX,sourceY)))
            if (R == 0):
                setColor(getPixel(canvas,targetX,targetY), orange)
            sourceY = sourceY + 1
        sourceX = sourceX + 1

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