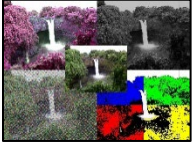


Ethan Huff

Completed



Original



```
from jes4py import*
import random
    #Written by Ethan Huff
    #Date March, 12th, 2025

def Random_color(blank_source):
    for pixel in getPixels(blank_source):
        r = random.randint(0, 255)
        g = random.randint(0, 255)
        b = random.randint(0, 255)
        color = makeColor(r, g, b)
        setColor(pixel, color)

def Scale(source, scale_factor):
    new_picture = makeEmptyPicture(getWidth(source) * scale_factor, getHeight(source) * scale_factor)
    source_x = 0
    for new_x in range(0, getWidth(new_picture)):
        source_y = 0
        for new_y in range(0, getHeight(new_picture)):
            color = getColor(getPixel(source, int(source_x), int(source_y)))
            setColor(getPixel(new_picture, new_x, new_y), color)
            source_y = source_y + (1 / scale_factor)
        source_x = source_x + (1 / scale_factor)
    return new_picture

def Gray(source):
    for pixel in getPixels(source):
        intensity = ((getRed(pixel) + getGreen(pixel)) + getBlue(pixel)) / 4
        setColor(pixel, makeColor(intensity, intensity, intensity))
```

```

def Light(source):
    for x in range(getWidth(source)):
        for y in range(getHeight(source)):
            pixel = getPixel(source, x, y)
            color = getColor(pixel)
            color = makeLighter(color)
            setColor(pixel, color)

def Swap(source):
    for pixel in getPixels(source):
        red = getRed(pixel)
        blue = getBlue(pixel)
        green = getGreen(pixel)
        setRed(pixel, green)
        setBlue(pixel, red)
        setGreen(pixel, blue)
    Light(source)

def Scramble(source, blank_source, source_x, source_y, target_x, target_y):
    height = getHeight(source) // 2
    width = getWidth(source) // 2
    new_x = target_x
    for x in range(source_x, source_x + width):
        new_y = target_y
        for y in range(source_y, source_y + height):
            pixel = getPixel(source, x, y)
            pixels = getPixel(blank_source, new_x, new_y)
            color = getColor(pixel)
            setColor(pixels, color)
            new_y = new_y + 1
        new_x = new_x + 1
    return(source)

def Posterizing(source, color1, color2, color3):
    for pixel in getPixels(source):
        red_value = getRed(pixel)
        green_value = getGreen(pixel)
        blue_value = getBlue(pixel)
        luminance = (red_value + green_value + blue_value) // 3
        if luminance < 50:
            setColor(pixel, color1)
        elif luminance >= 50 and luminance <= 150:
            setColor(pixel, color2)
        elif luminance >= 151 and luminance <= 200:
            setColor(pixel, color3)

```

```

def Checkerboard(source, blank_source, startx):
    for x in range(startx, getWidth(source), 2):
        for y in range(startx, getHeight(source), 2):
            pixel = getPixel(source, x, y)
            color = getColor(pixel)
            pixels = getPixel(blank_source, x, y)
            setColor(pixels, color)

def copy(source, canvas, new_x, new_y):
    target_x = new_x
    for source_x in range(0, getWidth(source)):
        target_y = new_y
        for source_y in range(0, getHeight(source)):
            pixel = getPixel(source, source_x, source_y)
            color = getColor(pixel)
            pixels = getPixel(canvas, target_x, target_y)
            setColor(pixels, color)
            target_y = target_y + 1
        target_x = target_x + 1
    return canvas

def Colored_scramble(source):
    width = getWidth(source)
    height = getHeight(source)
    blank_source = makeEmptyPicture(width, height, gray)
    Posterizing(source, red, black, gray)
    Scramble(source, blank_source, 0, height // 2, 0, height // 2)
    Posterizing(source, green, black, gray)
    Scramble(source, blank_source, width // 2, 0, width // 2, 0)
    Posterizing(source, yellow, black, gray)
    Scramble(source, blank_source, width // 2, height // 2, width // 2, height // 2)
    Posterizing(source, blue, gray, black)
    Scramble(source, blank_source, 0, 0, 0, 0)
    return(blank_source)

```

```

def Collage():
    #Main function
    setMediaPath()
    picture_name = getMediaPath("Waterfall.jpg")
    source = makePicture(picture_name)
    Scaling_factor = .75
    #The Scaling_factor can be changed to any number
    small_picture = Scale(source, Scaling_factor)
    canvas = makeEmptyPicture(getWidth(small_picture) * 2, getHeight(small_picture) * 2, gray)
    height = getHeight(canvas)
    width = getWidth(canvas)
    Swap(small_picture)
    copy(small_picture, canvas, 0, 0)

    source = makePicture(picture_name)
    small_picture = Scale(source, Scaling_factor)
    Gray(small_picture)
    copy(small_picture, canvas, width // 2, 0)

    source = makePicture(picture_name)
    small_picture = Scale(source, Scaling_factor)
    blank_source = makeEmptyPicture(getWidth(small_picture), getHeight(small_picture))
    Random_color(blank_source)
    Checkerboard(small_picture, blank_source, 1)
    Checkerboard(small_picture, blank_source, 0)
    copy(blank_source, canvas, 0, height // 2)

    source = makePicture(picture_name)
    small_picture = Scale(source, Scaling_factor)
    color = Colored_scramble(small_picture)
    copy(color, canvas, width // 2, height // 2)

    source = makePicture(picture_name)
    small_picture = Scale(source, .5)
    copy(small_picture, canvas, 315, 235)
    explore(canvas)

```