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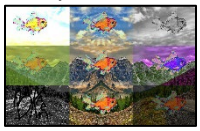
Completed



Originals

```
from jes4py import *
#Bo Keen, March 29 2025

def collage():
    picture=makePicture(getMediaPath("Fish1.png"))
    signature=makePicture(getMediaPath("signature.png"))
    background0=makePicture(getMediaPath("mountain.jpg"))
    background=deminsions(part1(background0))
    pose((part3(picture)),background, →
      ((getWidth(background)//3)*1)+((getWidth(background)//30)*2), →
      (getHeight(background)//3)*1)
    pose((part3(picture)),background, →
      ((getWidth(background)//3)*0)+((getWidth(background)//30)*1), →
      (getHeight(background)//3)*0)
    pose((part3(picture)),background, →
      ((getWidth(background)//3)*2)+((getWidth(background)//30)*3), →
      (getHeight(background)//3)*2)
    pose((part3(picture)),background, →
      ((getWidth(background)//3)*2)+((getWidth(background)//30)*3), →
      (getHeight(background)//3)*0)
    pose((part3(picture)),background, →
      ((getWidth(background)//3)*0)+((getWidth(background)//30)*1), →
      (getHeight(background)//3)*1)
    pose((part3(picture)),background, →
      ((getWidth(background)//3)*2)+((getWidth(background)//30)*3), →
      (getHeight(background)//3)*1)
    pose((part3(picture)),background, →
      ((getWidth(background)//3)*1)+((getWidth(background)//30)*2), →
      (getHeight(background)//3)*0)
    pose((part3(picture)),background, →
      ((getWidth(background)//3)*0)+((getWidth(background)//30)*1), →
      (getHeight(background)//3)*2)
    pose((part3(picture)),background, →
      ((getWidth(background)//3)*1)+((getWidth(background)//30)*2), →
      (getHeight(background)//3)*2)
    part4(background)
    part5(background)
    part6(background)
    part7(background)
    part8(background)
    part9(background)
    part10(background)
    part11(background)
    sign(part3(signature),background, →
      ((getWidth(background)//3)*0)+((getWidth(background)//30)*1), →
      (getHeight(background)//3)*2)
    explore(background)
```

→ *at the end of a line of code means that it is continued on the next line.*

```
#deminsion to meet requirements
def deminsions(background):
    new_width = getWidth(background) // 2
    new_height = getHeight(background) // 2
    new_picture = makeEmptyPicture(new_width, new_height)
    for new_x in range(new_width):
        for new_y in range(new_height):
            source_x = new_x * 2
            source_y = new_y * 2
            color = getColor(getPixel(background, source_x, source_y))
            setColor(getPixel(new_picture, new_x, new_y), color)
    return new_picture

#Mirroring the Background image
def part1(background):
    for x in range(0, getWidth(background)//1):
        for y in range(0, getHeight(background)//1):
            left_pixel=getPixel(background,x,y)
            right_pixel=getPixel(background,getWidth(background)-x-1,y)
            color=getColor(left_pixel)
            setColor(right_pixel,color)
    return background

#I removed part 2

#resize fish picture
def part3(background):
    new_width = getWidth(background) // 7
    new_height = getHeight(background) // 7
    new_picture = makeEmptyPicture(new_width, new_height)
    for new_x in range(new_width):
        for new_y in range(new_height):
            source_x = new_x * 7
            source_y = new_y * 7
            color = getColor(getPixel(background, source_x, source_y))
            setColor(getPixel(new_picture, new_x, new_y), color)
    return new_picture

#positioning the fish and getting rid of the background color
def pose(picture_in, picture_out, target_x, target_y):
    for source_pixel in getPixels(picture_in):
        x = getX(source_pixel)
        y = getY(source_pixel)
        if getRed(source_pixel) + getBlue(source_pixel) < getGreen(source_pixel):
            background_pixel = getPixel(picture_out, target_x+x, target_y+y)
            background_color = getColor(background_pixel)
            setColor(source_pixel, background_color)
    in_width = getWidth(picture_in)
    in_height = getHeight(picture_in)

    for x in range(in_width):
        for y in range(in_height):
            source_pixel = getPixel(picture_in, x, y)
            target_pixel = getPixel(picture_out, target_x + x, target_y + y)
            setColor(target_pixel, getColor(source_pixel))
    return picture_out
```

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```
#making the image lighter
def part4(resize):
    for pixel in getPixels(resize):
        x = getX(pixel)
        y = getY(pixel)
        if (getWidth(resize)//3*0<= x <= getWidth(resize)//3*1) and  →
            (getHeight(resize)//3*0 <= y <= getHeight(resize)//3*1):
            getWidth(resize)
            color = getColor(pixel)
            color = makeLighter(color)
            color = makeLighter(color)
            setColor(pixel, color)
    return resize

#making the image darker
def part5(resize1):
    for pixel in getPixels(resize1):
        x = getX(pixel)
        y = getY(pixel)
        if (getWidth(resize1)//3*2<= x <= getWidth(resize1)//3*3) and  →
            (getHeight(resize1)//3*2 <= y <= getHeight(resize1)//3*3):
            getWidth(resize1)
            color = getColor(pixel)
            color = makeDarker(color)
            color = makeDarker(color)
            setColor(pixel, color)
    return resize1

#making the image in grey scale
def part6(resize2):
    for pixel in getPixels(resize2):
        x = getX(pixel)
        y = getY(pixel)
        if (getWidth(resize2)//3*2<= x <= getWidth(resize2)//3*3) and  →
            (getHeight(resize2)//3*0 <= y <= getHeight(resize2)//3*1):
            new_red = getRed(pixel) * 0.299
            new_green = getGreen(pixel) * 0.587
            new_blue = getBlue(pixel) * 0.114
            intensity = new_red + new_green + new_blue
            setColor(pixel, makeColor(intensity, intensity, intensity))
    return resize2

#color averaging of the image
def part7(resize3):
    for pixel in getPixels(resize3):
        x = getX(pixel)
        y = getY(pixel)
        if (getWidth(resize3)//3*0<= x <= getWidth(resize3)//3*1) and  →
            (getHeight(resize3)//3*1 <= y <= getHeight(resize3)//3*2):
            new_red = (getRed(pixel)+127)//2
            new_green = (getGreen(pixel)+181)//2
            new_blue = (getBlue(pixel)+63)//2
            setColor(pixel, makeColor (new_red, new_green, new_blue))
    return resize3
```

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```
#color swap of the image
def part8(resize4):
    for pixel in getPixels(resize4):
        x = getX(pixel)
        y = getY(pixel)
        if (getWidth(resize4)//3*2<= x <= getWidth(resize4)//3*3) and  →
            (getHeight(resize4)//3*1 <= y <= getHeight(resize4)//3*2):
            red=getRed(pixel)
            green=getGreen(pixel)
            blue=getBlue(pixel)
            new_red=green
            new_green=blue
            new_blue=red
            setColor(pixel, makeColor (new_red, new_green, new_blue))
    return resize4

#makes the image's color more blue
def part9(resize5):
    for pixel in getPixels(resize5):
        x = getX(pixel)
        y = getY(pixel)
        if (getWidth(resize5)//3*1<= x <= getWidth(resize5)//3*2) and  →
            (getHeight(resize5)//3*0 <= y <= getHeight(resize5)//3*1):
            red_value = getRed(pixel)
            blue_value = getBlue(pixel)
            if red_value < 63:
                red_value = red_value * 0.9
                blue_value = blue_value * 1.1
            elif red_value < 192:
                red_value = red_value * 0.85
                blue_value = blue_value * 1.15
            else:
                red_value = red_value * 0.93
                if red_value > 255:
                    red_value = 255
                blue_value = blue_value * 1.08
            setRed(pixel, red_value)
            setBlue(pixel, blue_value)
    return resize5

#making the image posterize
def part10(resize6):
    for pixel in getPixels(resize6):
        x = getX(pixel)
        y = getY(pixel)
        if (getWidth(resize6)//3*0<= x <= getWidth(resize6)//3*1) and  →
            (getHeight(resize6)//3*2 <= y <= getHeight(resize6)//3*3):
            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, black)
            elif luminance >= 51 and luminance <= 150:
                setColor(pixel, darkGray)
            elif luminance >= 151 and luminance <= 200:
                setColor(pixel, lightGray)
            else:
                setColor(pixel, white)
```

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```
    return resize6

#making the image's color more red, modified from the Blue filter
def part11(resize7):
    for pixel in getPixels(resize7):
        x = getX(pixel)
        y = getY(pixel)
        if (getWidth(resize7)//3*1<= x <= getWidth(resize7)//3*2) and  →
            (getHeight(resize7)//3*2 <= y <= getHeight(resize7)//3*3):
            red_value = getRed(pixel)
            blue_value = getBlue(pixel)
            if blue_value < 63:
                blue_value = blue_value * 0.9
                bred_value = red_value * 1.1
            elif blue_value < 192:
                blue_value = blue_value * 0.85
                red_value = red_value * 1.15
            else:
                blue_value = blue_value * 0.93
                if blue_value > 255:
                    blue_value = 255
                red_value = red_value * 1.08
            setRed(pixel, red_value)
            setBlue(pixel, blue_value)
    return resize7

#signature
def sign(picture_in, picture_out, target_x, target_y):
    for source_pixel in getPixels(picture_in):
        x = getX(source_pixel)
        y = getY(source_pixel)
        if getRed(source_pixel) == 255 and getBlue(source_pixel) == 255 and
getGreen(source_pixel) == 255:
            background_pixel = getPixel(picture_out, target_x+x, target_y+y)
            background_color = getColor(background_pixel)
            setColor(source_pixel, background_color)
    in_width = getWidth(picture_in)
    in_height = getHeight(picture_in)

    for x in range(in_width):
        for y in range(in_height):
            source_pixel = getPixel(picture_in, x, y)
            target_pixel = getPixel(picture_out, target_x + x, target_y + y)
            setColor(target_pixel, getColor(source_pixel))
    return picture_out
```

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