1. What does RGBA stand for?

RGBA stands for Red Green Blue Alpha, where "Alpha" represents the level of transparency of a color.

2. From the Pillow module, how do you get the RGBA value of any images?

To get the RGBA value of any image using the Pillow module in Python, we first need to open the image using the Image module, and then use the getpixel() method to obtain the RGBA values of each pixel.

from PIL import Image # Open image image = Image.open('example.png') # Get pixel values pixel_values = list(image.getdata()) # Print RGBA values of first pixel print(pixel_values[0]) 3. What is a box tuple, and how does it work?

A box tuple is a tuple of four integers representing a rectangular region in an image. The four integers in the tuple are, in order, the x-coordinate of the left edge of the rectangle, the y-coordinate of the top edge of the rectangle, the x-coordinate of the right edge of the rectangle, and the y-coordinate of the bottom edge of the rectangle.

For example, if we have an image with dimensions (800, 600) and we want to crop a rectangular region with a top-left corner at (100, 100), a width of 200 pixels, and a height of 300 pixels,

4. Use your image and load in notebook then, How can you find out the width and height of an Image object?

To find out the width and height of an image object in Pillow, we can use the size attribute of the Image object

from PIL import Image # Load the image image = Image.open('example.jpg') # Get the width and height of the image width, height = image.size # Print the width and height print('Width: ', width) print('Height:', height) 5. What method would you call to get Image object for a 100×100 image, excluding the lower-left quarter of it?

To get an Image object for a 100x100 image excluding the lower-left quarter, you can use the crop() method. The parameters for this method are the coordinates of the left, upper, right, and lower pixel. To exclude the lower-left quarter, you can specify the coordinates as follows: (0, 0, 50, 50), which means to start at the upper-left corner of the image and crop to a 50x50 square.

from PIL import Image # Open the image image = Image.open('your_image.jpg') # Crop the image to exclude the lower-left quarter cropped_image = image.crop((0, 0, 50, 50)) # Display the image cropped_image.show() 6. After making changes to an Image object, how could you save it as an image file?

After making changes to an Image object, you can save it as an image file using the save() method. This method saves the image to a file with a specified filename and format.

from PIL import Image # Open the image file image = Image.open('example.jpg') # Resize the image image = image.resize((200, 200)) # Save the image as a PNG file image.save('example.png', 'PNG') 7. What module contains Pillow's shape-drawing code?

The ImageDraw module contains Pillow's shape-drawing code.

8. Image objects do not have drawing methods. What kind of object does? How do you get this kind of object?

The ImageDraw module of Pillow contains the drawing methods. You can get an ImageDraw object by calling the ImageDraw.Draw() function and passing in an Image object as an argument

from PIL import Image, ImageDraw # Open image file image = Image.open('example.jpg') # Get an ImageDraw object draw = ImageDraw.Draw(image) # Use drawing methods on ImageDraw object draw.rectangle((100, 100, 200, 200), fill='red') # Save the modified image image.save('modified.jpg')

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