1. What does RGBA stand for?

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

3. What is a box tuple, and how does it work?

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

5. What method would you call to get Image object for a 100×100 image, excluding the lower-left quarter of it?

6. After making changes to an Image object, how could you save it as an image file?

7. What 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?

ANSWER

1. \*\*RGBA stands for Red, Green, Blue, and Alpha\*\*. It is a color model that adds an alpha channel to the standard RGB model. The alpha channel represents the transparency or opacity of an image, allowing for more complex image compositions.

2. To get the RGBA value of any image using the Pillow module (PIL), you can use the `getpixel()` method. Here's an example:

```python

from PIL import Image

image = Image.open("your\_image.png")

pixel\_color = image.getpixel((x, y)) # Replace (x, y) with the coordinates of the pixel you want to get.

```

3. \*\*Box Tuple in Pillow:\*\*

In Pillow, a box tuple is a tuple that defines a rectangular region using four coordinates (left, upper, right, and lower). The box tuple is typically expressed as `(left, upper, right, lower)`. It specifies the boundaries of a rectangular area within an image. For example, `(x1, y1, x2, y2)` represents a box where `(x1, y1)` is the top-left corner, and `(x2, y2)` is the bottom-right corner.

4. To find out the width and height of an Image object, you can use the `size` attribute. Here's how to do it in a Jupyter Notebook:

```python

from PIL import Image

image = Image.open("your\_image.png")

width, height = image.size

```

5. To get an Image object for a 100×100 image excluding the lower-left quarter, you can use the `crop()` method. Here's an example:

```python

cropped\_image = image.crop((0, 0, 50, 50)) # Crop the lower-left quarter (0-50 in both width and height).

```

6. To save changes made to an Image object as an image file, you can use the `save()` method. Here's an example:

```python

image.save("output\_image.png")

```

7. \*\*Pillow's shape-drawing code\*\* is contained in the `PIL.ImageDraw` module. You can use this module to draw various shapes on an Image object.

8. Image objects in Pillow do not have direct drawing methods. To draw on an image, you need an \*\*ImageDraw\*\* object, which is an object provided by the `PIL.ImageDraw` module. You can create an ImageDraw object and use its methods to draw shapes and text on an image. Here's an example of how to get an ImageDraw object:

```python

from PIL import Image, ImageDraw

image = Image.open("your\_image.png")

draw = ImageDraw.Draw(image)

# Now, you can use methods like draw.line(), draw.rectangle(), and draw.text() to add graphics to the image.

```