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|  | Chapter 17 Practice Questions – Manipulating Images |
| **Q1** | **What is an RGB value?** |
| A | An RGBA value is a group of numbers that specify the amount of red, green, blue, and alpha (or transparency) in a colour with each component value being an integer between the values of 0 and 255 e.g. colour red is specified by the following tuple (255, 0, 0, 255) the last value being maximum opacity. |
| **Q2** | **How can you get the RGBA value of ‘CornflowerBlue’ from the Pillow module?** |
| A | Use the ImageColor.getcolor() function which takes two arguments: colour name as a string and RGBA as its second argument.  Example:  ImageColor.getcolor(‘Red’, ‘RGBA’) returns (255, 0, 0, 255) |
| **Q3** | **What is a box tuple?** |
| A | Many of Pillow’s functions and methods take a box tuple argument. This means Pillow is expecting a tuple of four integer coordinates that represent a rectangular region in an image. The four integers are, in order, as follows:   * Left: The x-coordinate of the leftmost edge of the box * Top: The y-coordinate of the top edge of the box * Right: The x-coordinate of one pixel to the right of the rightmost edge of the box. This integer must be greater than the left integer. * Bottom: The y-coordinate of one pixel lower than the bottom edge of the box. This integer must be greater than the top integer.   Box tuple example (3, 1, 9, 6) |
| **Q4** | **What function returns an Image object for, say, an image file named zophie.png?** |
| A | To load an image first import the Image module from Pillow and call the Image.open() method passing the full image name. Example:  From PIL import Image  catIm = Image.open(‘zophie.png’)  Don’t forget to import os and use chdir() function to change the current directory of the image |
| **Q5** | **How can you find out the width and height of an Image object’s image?** |
| A | From the image object use the image object size attribute. Example:  catIm.size will return the width and height as a tuple (width, height) |
| **Q6** | **What method would you call to get Image object for a 100\*100 image, excluding the lower left quarter of it?** |
| A | Use the crop() method on the image object. Example:  catIm.crop(x,y,x!,y!) i.e. catIm.crop((0 50, 50, 50)) |
| **Q7** | **After making changes to an Image object, how could you save it as an image file?** |
| A | After making changes to the image ad assigning it to a variable. Use the save() method.  Example:  changedImage.save(‘image.png’) |
| **Q8** | **What module contains Pillow’s shape-drawing code?** |
| A | The ImageDraw module can be used to draw lines, rectangles, circles and other simple shapes on an image |
| **Q9** | **Image objects do not have drawing methods. What kind of object does? How do you get this kind of object?** |
| A | Image objects are like the canvas on which to draw on. The image object or canvas is then passed to the ImageDraw.Draw() function to create an ImageDraw object. This object has several methods for drawing shapes and text. This ImageDraw object can be stored in a variable for use later on.  Example:  From PIL import Image, ImageDraw  Im = Image.new(‘RGBA’, (200, 200), ‘white’)  Draw = ImageDraw.Draw(im)  draw = rectangle((20, 30, 60, 60), fill=’blue’) |