Clicker Questions for L13: Image Processing

Questions for 2017-03-21
Q1: maxval.py Getting / Setting Colors

Image we execute the following code in python:

```python
from PIL import image

def maxchan(color) :
    (r,g,b) = color
    m = max((r,g,b))
    return (m, m, m)

d = maxchan((23,55,103))
```

What would be the values of \( r, g, b \) and \( m \) just before `maxchan` returns?

<table>
<thead>
<tr>
<th></th>
<th>((r,g,b))</th>
<th>(m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>103</td>
<td>((103,103,103))</td>
</tr>
<tr>
<td>B</td>
<td>103</td>
<td>103</td>
</tr>
<tr>
<td>C</td>
<td>103</td>
<td>((103,103,103))</td>
</tr>
<tr>
<td>D</td>
<td>103</td>
<td>((103,103,103))</td>
</tr>
<tr>
<td>E</td>
<td>None of the above</td>
<td></td>
</tr>
</tbody>
</table>

2
Q2: Setting Pixels

Consider the following function:

```python
def gbor(image):
    (w, h) = image.size

    for i in range(w):
        image.putpixel((i,0),(0,255,0))
        image.putpixel((i,h-1),(0,255,0))

    for j in range(h):
        image.putpixel((0,j),(0,255,0))
        image.putpixel((w-1,j),(0,255,0))

    return
```

Which of the following is an accurate summarization of `gbor`?

A. Draws a green rectangle around the edge of the image.
B. Draws a green square around the edge of the image.
C. Draws a green rectangle in the center of the image. The size of the rectangle is one fourth of the image size.
D. Draws a green rectangle in the center of the image. The size of the rectangle is half of the image size.
E. none of the above
Q3: Setting Pixels

Consider the following function:

```python
def rgbor(image):
    (w, h) = image.size

    for i in range(w):
        image.putpixel((i,0),(255,0,0))
        image.putpixel((i,1),(0,255,0))
        image.putpixel((i,h-1),(255,0,0))
        image.putpixel((i,h-2),(0,255,0))

    for j in range(h):
        image.putpixel((0,j),(255,0,0))
        image.putpixel((1,j),(0,255,0))
        image.putpixel((w-1,j),(255,0,0))
        image.putpixel((w-2,j),(0,255,0))

    return
```

Which of the following is an accurate summarization of `rgbor`?

A. Draws a green-red (green outside, red inside) rectangle around the edge of the image.
B. Draws a red-green (red outside, green inside) rectangle around the edge of the image.
C. Draws a green-red rectangle in the center of the image. The size of the rectangle is half of the image size.
D. Draws a red-green rectangle in the center of the image. The size of the rectangle is half of the image size.
E. none of the above
Q4: Setting Pixels

Consider the following function in which k is a positive integer:

```python
def fgbor(image, k):
    (w, h) = image.size

    for i in range(w):
        for j in range(k):
            image.putpixel((i, j), (0, 255, 0))
            image.putpixel((i, h-1-j), (0, 255, 0))

    for j in range(h):
        for i in range(k):
            image.putpixel((i, j), (0, 255, 0))
            image.putpixel((w-1-i, j), (0, 255, 0))

    return
```

Which of the following is an accurate summarization of fgbor?

A. Draws a green rectangle around the edge of the image.
B. Draws a green rectangle k pixels away from the edge of the image.
C. Draws a green rectangle around the edge of the image. The rectangles thickness is k pixels.
D. Draws a green rectangle in the center of the image. The size of the rectangle is k by k-1.
E. none of the above
Q5: Setting Pixels

Consider the following function:

```python
def bb(image):
    (w, h) = image.size
    w1 = int(w/4)
    h1 = int(h/4)

    for i in range(w1,3*w1+1) :
        image.putpixel((i,h1),(0,0,255))
        image.putpixel((i,3*h1),(0,0,255))

    for j in range(h1,3*h1+1) :
        image.putpixel((w1,j),(0,0,255))
        image.putpixel((3*w1,j),(0,0,255))

    return
```

Which of the following is an accurate summarization of bb?

A. Draws a blue rectangle around the edge of the image.
B. Draws a blue square around the edge of the image.
C. Draws a blue rectangle in the center of the image. The width and height of the rectangle is one fourth of the image's width and height.
D. Draws a blue rectangle in the center of the image. The width and height of the rectangle is half of the image's width and height.
E. none of the above