Homework Assignment 03:

1. Give a formula for the number of bytes a raw RGB image of size nxm requires. If an image is of size 3000x4000, how many bytes does the raw RGB image occupy?

2. When we double an image of size nxm, how many bytes the new image will require? Is it really necessary for it to have that many bytes? Propose a representation method that will require fewer bytes.

3. Explain what the following function does to the nxn size image represented using “im”.

   ```python
   p = Pixel(0,0,0)
   for i in range(n):
       im.setPixel(i,i,p)
   ```

4. The function to turn a color pixel to gray scale was given as

   ```python
   p = im.getPixel(i,j)
   r = p.getRed()
   g = p.getGreen()
   b = p.getBlue()
   avg = (r+g+b)//3
   q = Pixel(avg, avg, avg)
   im.setPixel(i,j,q)
   ```

   Explain why the average value (avg) has to be computed using “avg = (r+g+b) // 3”