Question - 5

Sepia Mode

Kernel used = [[0.393, 0.769, 0.189]
[0.349, 0.686, 0.168]
[0.272, 0.534, 0.131]]

The above kernel is applied at each pixel which is a vector of length 3

Pixel = [R, B, G]

New_pixel = kernel_used* Pixel

Possible explanation for the kernel used

In the sepia mode, the final image looks mostly yellowish or reddish brown in color

Reddish brown color is a mixture of both purple and yellow color. So, in order to get the colors, there is an appropriate mixture of red, blue and green colors at each pixel, whose final sum is leading to a reddish brown color. I don’t exactly know how they arrived at that particular kernel, but I think it tries to achieve the thing that I gave an explanation above.

```
outputRed = (inputRed * .393) + (inputGreen *.769) + (inputBlue * .189)
outputGreen = (inputRed * .349) + (inputGreen *.686) + (inputBlue * .168)
outputBlue = (inputRed * .272) + (inputGreen *.534) + (inputBlue * .131)
```