ENGR 13300

Python Project Resource – New Key Generator

Plot Histogram using Python:

You can plot the histogram of the red channel pixel intensities using the following

```
import matplotlib.pyplot as plt
import numpy as np

image = plt.imread('sample.jpg')

#plot the intensity histogram of the red channel
plt.hist(image[:,:,0].reshape(image.shape[0]*image.shape[1]),bins=np.ar
ange(2**8+1))
```

You can find more information here https://matplotlib.org/stable/gallery/statistics/hist.html

Pseudo random number generators

Pseudo random number generators generate sequences that are computed from an initial seed value. Usually, they are computed recursively in the following way:

s_0 = seed

$s_{i+1} = f(s_i)$, i = 0,1, . . .

The pseudo random numbers are not real random numbers since they are computed and completely deterministic. A widely used example of random number generator is

$s_0 = 12345$

$s_{i+1} = (1103515245 s_i + 12345) \bmod 2^{31}$, i = 0,1, . . .