Week4Task1

May 5, 2021

Nicholas Paisley - Week 4 Task 1

[1]:
```
from PIL import Image, ImageFilter
from os import listdir #import funtion for listing all files
import numpy as np
```

[2]:
```
def SSR(x,y): #Creating an SSR defintion
    ssr = np.sum((x-y)**2) #SSR equation
    return ssr
```

[3]:
```
#reading the image
spy = Image.open( 'DC.png' )
spy.show()
```

[4]:
```
pix1 = np.array(spy) #creating an array for the "spy" image
```

[5]:
```
listing = listdir('Photos') #creating a dictinary for the Photos (the path)
#listdir: returns a list containing the names of the entries in the directory␣
 ↪given by path
```

[6]:
```
files = [] #stores all the file names
scores = [] #stores the ssr vales for each file
path = "Photos//" #where the picture is stored

for x in listing:
    if x.endswith('.png') and x != 'DC.png': #if statement to go through all␣
 ↪the photos that end in .png and excluding the DC.png photo
        sus = Image.open(path + x) #open image
        sus_pix = np.array(sus) #convert to np.array

        score = SSR(pix1,sus_pix)  #determines ssr for the opened file

        files.append(x) #puts the photos into an array after they are read so␣
 ↪they would not be repeated
        scores.append(score) #putting the SSR scores from each photo into an␣
 ↪array
```

[7]:
```
y = np.argmin(np.array(scores)) #gets the index for the lowest ssr
print("The file that matches the best is '{0}' and has an SSR of '{1}'".
 ↪format(files[y],scores[y]))
```

```
The file that matches the best is 'photo21.png' and has an SSR of '0'
```