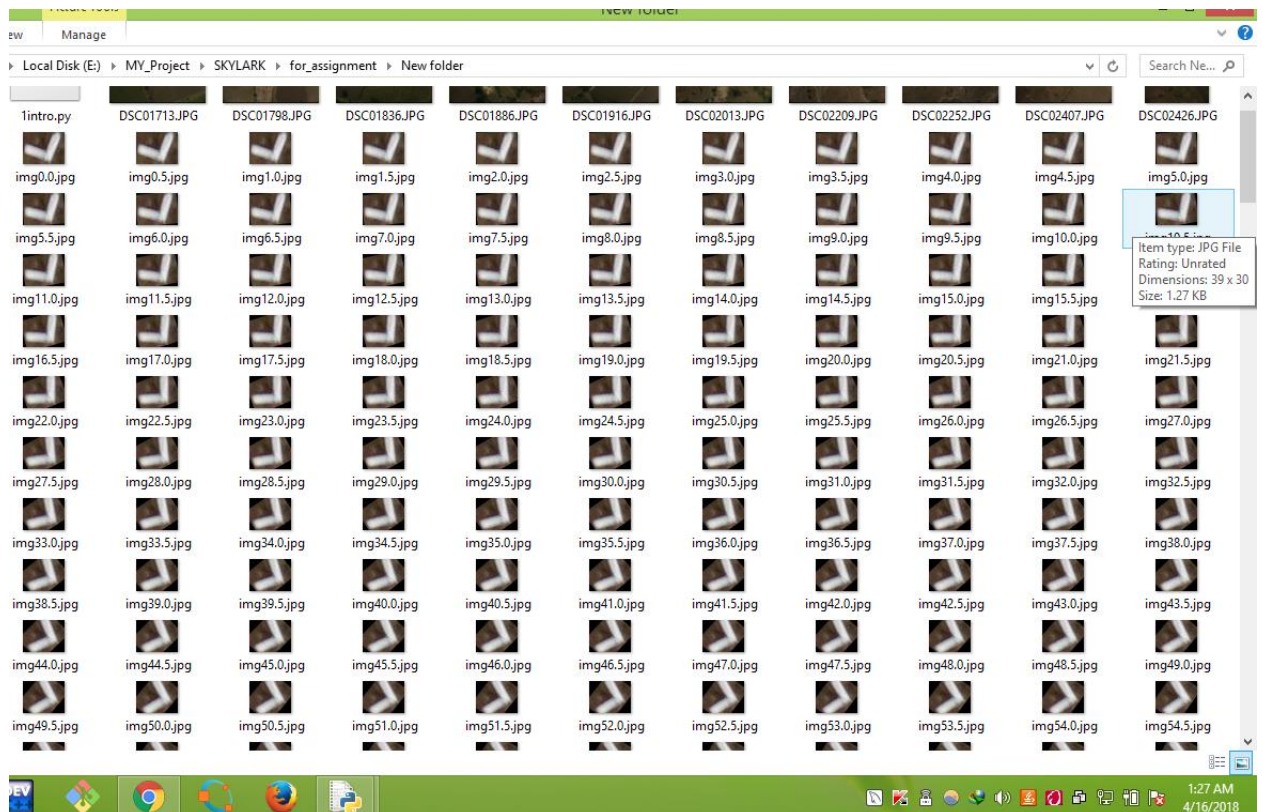


## HOW IT WORKS AND THOUGHT PROCEDURES:

### 1) pythonscript.py



This image is obtained by cropping the image DSC02407.JPG. Now this image is to be used as dataset, but it is not sufficient so this script just save the image by rotating this image from 0 to 360 degree in the interval of 0.5. So this script just creates a dataset of 720 images.



## 2) 1intro.py

This is the main code

```
import cv2
import numpy as np
import matplotlib.pyplot as plt
import csv
```

Here are some important modules that are to be used. OpenCV 3.4 and Python 3.x versions are used in the code.

```
file = open('saved_data.csv', 'w')
writer = csv.writer(file)

writer.writerow(["File_Name", "Location"])
```

It is to just initiate and open the csv file to save data.

```
ls = ['DSC01713.JPG', 'DSC01798.JPG', 'DSC01836.JPG', 'DSC01886.JPG', 'DSC01916.JPG']
for i in range(len(ls)):
    img = cv2.imread(ls[i])

    File = ls[i]
    img_gry = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
    for angle in np.arange(0, 360, 18.0):

        print('img'+str(angle)+'.jpg')
        temp = cv2.imread('img'+str(angle)+'.jpg', 0)

        w, h = temp.shape[::-1]

        res = cv2.matchTemplate(img_gry, temp, cv2.TM_CCOEFF_NORMED)

        thresh = 0.85
        arr = []
        loc = np.where(res >= thresh)
        for pt in zip(*loc[::-1]):
            arr.append([pt[0]+w/2, pt[1]+h/2])
        writer.writerow([File, arr])
```

This is the code:

The 'ls' used is the list and we are taking names from it one by one.

The first for loop is to just take the names of the dataset which was created by pythonscript.py.

And the gap between images is taken to be 18 degree. There will not be any problem related to names as the names suggest the degree by which they are rotated. Then each image is matched in the large image. If the image is matched its coordinates are noted down.

