+ Code + Markdown

reading both images using cv2.

+ Code + Markdown

[]:

```
import cv2
import matplotlib.pyplot as plt
```

[41]:

```
path_joker="../input/joker-pic/joker.jpeg"
path_twin="../input/joker-pic/twin.jpeg"
```

[42]:

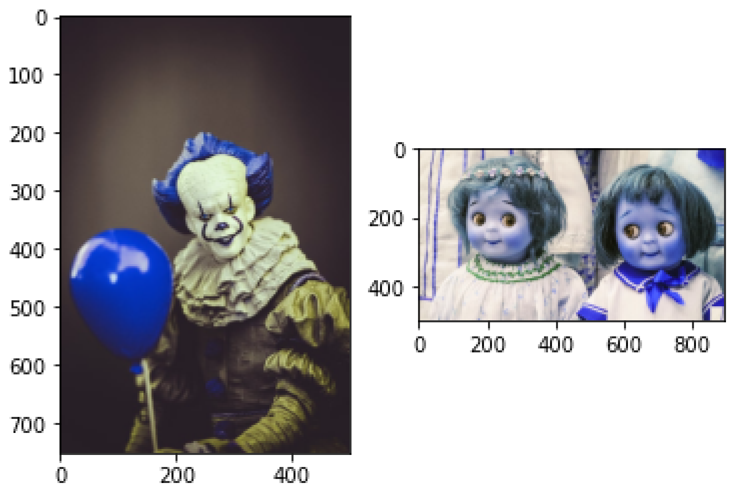
```
image_joker=cv2.imread(path_joker)
image_twin=cv2.imread(path_twin)
```

[43]:

```
plt.subplot(121),plt.imshow(image_joker)
plt.subplot(122),plt.imshow(image_twin)
```

Out[43]:

```
(<matplotlib.axes._subplots.AxesSubplot at 0x7f961298ee90>,
 <matplotlib.image.AxesImage at 0x7f961aa5cd10>)
```



2.Resizing the images.

[44]:

```
image_joker_norm=cv2.resize(image_joker,(256,256))
image_twin_norm=cv2.resize(image_twin,(256,256))
```

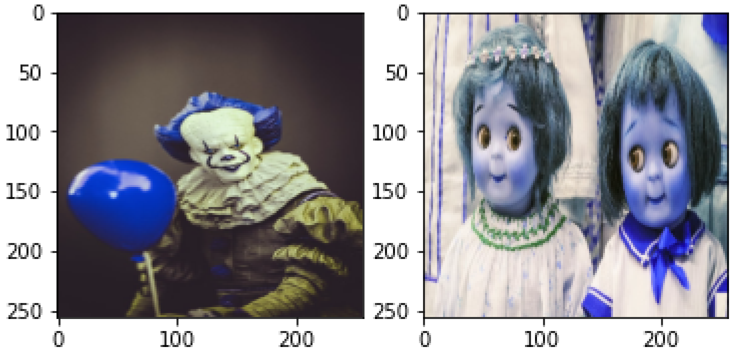
3. Show Both Images

[45]:

```
plt.subplot(121),plt.imshow(image_joker_norm)
plt.subplot(122),plt.imshow(image_twin_norm)
```

Out[45]:

```
(<matplotlib.axes._subplots.AxesSubplot at 0x7f961af28590>,
 <matplotlib.image.AxesImage at 0x7f9612a41590>)
```



4. Changing to Grayscale

[46]:

```
image_joker_gray=cv2.cvtColor(image_car,cv2.COLOR_BGR2GRAY)
image_twin_gray=cv2.cvtColor(image_cup,cv2.COLOR_BGR2GRAY)
```

5. Normalizing Both Images

[47]:

```
norm_image_joker=image_joker_gray/256
norm_image_twin=image_twin_gray/256
```

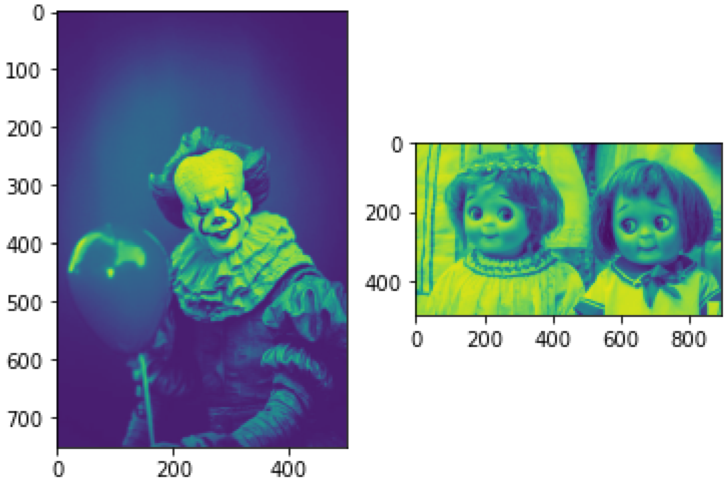
6. Show Grayscae Images

[48]:

```
plt.subplot(121),plt.imshow(norm_image_joker)
plt.subplot(122),plt.imshow(norm_image_twin)
```

Out[48]:

```
(<matplotlib.axes._subplots.AxesSubplot at 0x7f96127140d0>,
 <matplotlib.image.AxesImage at 0x7f9612698150>)
```



7. Finding Contrast, Energy and mean of both images

[49]:

```
contrast_joker = image_joker_gray.std()
contrast_twin = image_twin_gray.std()
```

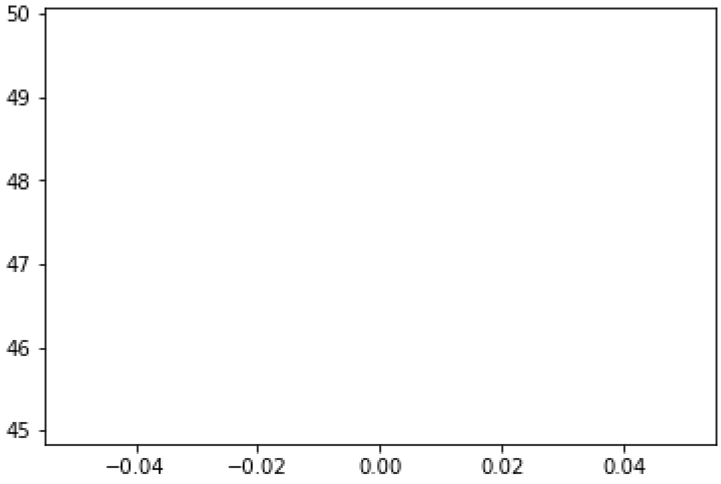
[50]:

```
mean_joker = image_joker_gray.mean(axis=0).mean(axis=0)
mean_twin = image_twin_gray.mean(axis=0).mean(axis=0)
```

8. Plot the Energy, Contrast and Mean of both Images

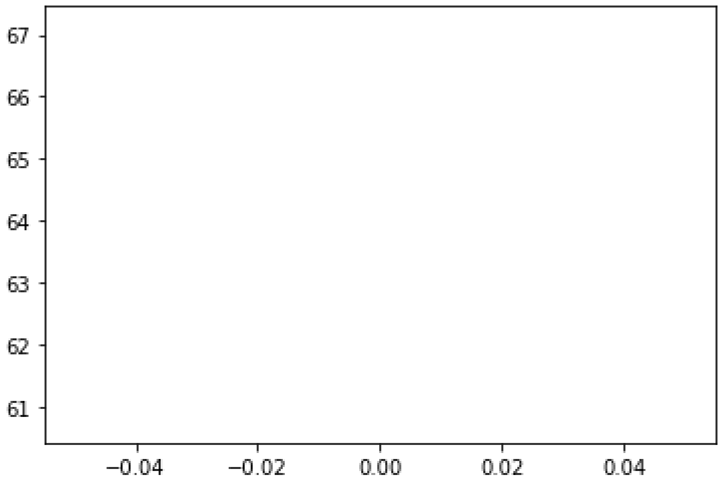
[51]:
```
plt.plot(contrast_joker)
```

Out[51]:
```
[<matplotlib.lines.Line2D at 0x7f9612616b90>]
```



[54]:
```
plt.plot(contrast_twin)
```

Out[54]:
```
[<matplotlib.lines.Line2D at 0x7f961247cb50>]
```

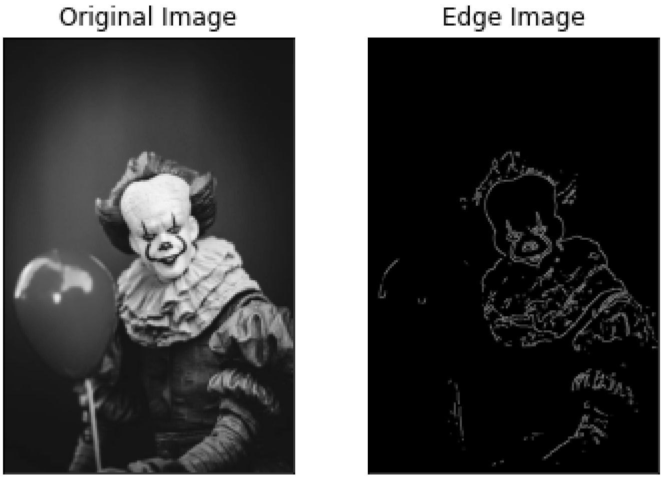


11. Edge detection

[52]:

```
edges_joker = cv2.Canny(image_joker_gray,256,256)

plt.subplot(121),plt.imshow(image_joker_gray,cmap = 'gray')
plt.title('Original Image'), plt.xticks([]), plt.yticks([])
plt.subplot(122),plt.imshow(edges_joker,cmap = 'gray')
plt.title('Edge Image'), plt.xticks([]), plt.yticks([])
plt.show()
```



[53]:

```
edges_twin = cv2.Canny(image_twin_gray,256,256)

plt.subplot(121),plt.imshow(image_twin_gray,cmap = 'gray')
plt.title('Original Image'), plt.xticks([]), plt.yticks([])
plt.subplot(122),plt.imshow(edges_twin,cmap = 'gray')
plt.title('Edge Image'), plt.xticks([]), plt.yticks([])

plt.show()
```