3: Image Processing with Numpy

```
import numpy as np
from matplotlib import image ,  pyplot as plt

from google.colab import drive
drive.mount('/content/drive/')
```

```
Drive already mounted at /content/drive/; to attempt to forcibly
remount, call drive.mount("/content/drive/", force_remount=True).
```

Load Image

```
img = image.imread("/content/drive/MyDrive/data/img.jpg")
print("Image Shape:",img.shape)
```

```
Image Shape: (1200, 1200, 3)
```

Convert to Grayscale

```
gray=np.mean(img, axis=2)
print(gray)
```

```
[[255. 255. 255. ... 255. 255. 255.]
 [255. 255. 255. ... 255. 255. 255.]
 [255. 255. 255. ... 255. 255. 255.]
 ...
 [255. 255. 255. ... 255. 255. 255.]
 [255. 255. 255. ... 255. 255. 255.]
 [255. 255. 255. ... 255. 255. 255.]]
```

Flip the image horizontally

```
flip=np.fliplr(img) #left to right
print(flip)
```

```
[[[255 255 255]
  [255 255 255]
  [255 255 255]
  ...
  [255 255 255]
  [255 255 255]
  [255 255 255]]

 [[255 255 255]
  [255 255 255]
  [255 255 255]
  ...
```

```
  [255 255 255]
  [255 255 255]
  [255 255 255]]

 [[255 255 255]
  [255 255 255]
  [255 255 255]
  ...
  [255 255 255]
  [255 255 255]
  [255 255 255]]

 ...

 [[255 255 255]
  [255 255 255]
  [255 255 255]
  ...
  [255 255 255]
  [255 255 255]
  [255 255 255]]

 [[255 255 255]
  [255 255 255]
  [255 255 255]
  ...
  [255 255 255]
  [255 255 255]
  [255 255 255]]

 [[255 255 255]
  [255 255 255]
  [255 255 255]
  ...
  [255 255 255]
  [255 255 255]
  [255 255 255]]]
```

Shows the result

```
plt.subplot(1,3,1)
plt.title("Original")
plt.imshow(img)

plt.subplot(1,3,2)
plt.title("Grayscale")
plt.imshow(gray, cmap="gray")

plt.subplot(1,3,3)
```

```
plt.title("Flipped")
plt.imshow(flip)
```

```
<matplotlib.image.AxesImage at 0x7e9432f9a960>
```