# Image Processing

Date / /

① 
```
import matplotlib.pyplot as plt
import cv2

img = cv2.imread("Profile.png")
grey_img = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
fig, ax = plt.subplots(1,2, figsize=(10,4))
ax[0].imshow(img)
ax[1].imshow(grey_img)
```

② Splitting the images :-

```
b,g,r = cv2.split(img)
fig, ax = plt.subplots(1,3, figsize=(10,4))
```

③ 
```
g_blur = cv2.GaussianBlur(img, (19,19), 15)
```
(19,19) → larger size more blury.
15 → blur in width

```
m_blur = cv2.medianBlur(img, 9)
```
9 → Blur value.

④ 
```
angle = 180
scale = 1   // scale means zoom
h,w = img.shape[:2]
centre = (w//2, h//2)   // center of rotation.
rot_matrix = cv2.getRotationMatrix2D(center, angle, scale)
rot_img = cv2.WarpAffine(img, rot_matrix, (w,h))
```

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⑤
```
newwidth = 500
newheight = 500
h,w = img.shape [:2]
v_img = cv2.resize (img, (newwidth, newheight))
```

⑥
```
flip_img = cv2.flip (img, 1)
```

⑦ Edge Detection
- prewitt
- Sobal
- canny

libraries
```
from skimage import filters
from skimage import features
from skimage.filters import prewitt_h, prewitt_v
```

```
a = prewitt_h (img)
b = prewitt_v (img)
c = [redacted].filters.sobel (img)
d = feature.canny (img)
imshow (a)
```