Lab 16

Install matplotlib

- Windows: powershell
- Linux & mac: terminal
  - pip3 install matplotlib

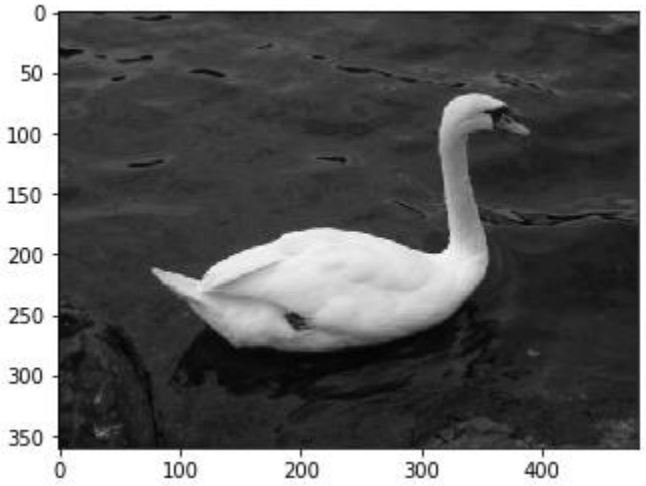
Draw a picture

```
%matplotlib inline
import matplotlib.pyplot as plt
import numpy as np
swan = “/your/directory/path/swan.jpg”
imarr=plt.imread(swan) # numpy.ndarray
plt.imshow(imarr)
```

Exercise

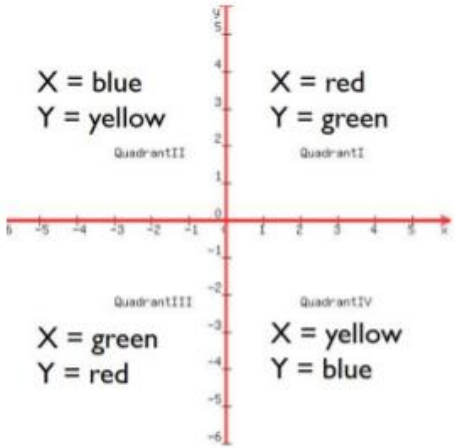
1. Change a picture to grayscale

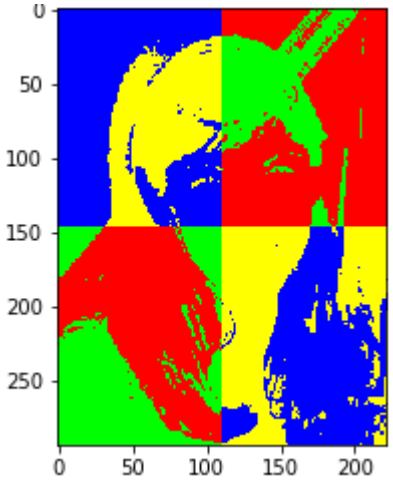
- canvas = np.zeros(imarr.shape, dtype = np.uint8)
- Use swan.jpg



Exercise

2. Draw a picture as warhole style using numpy
   - Remind the assigment1
   - Use barbara.jpg
   - If (r+g+b)/3 is greater than 100, set pixel's color to X.
   - Otherwise, set pixel's color to Y.





Exercise

3. Detect edge in a picture using numpy
   - Using butterfly1.jpg
   - Refer to lab07 or Advanced Picture Techniques chapter