

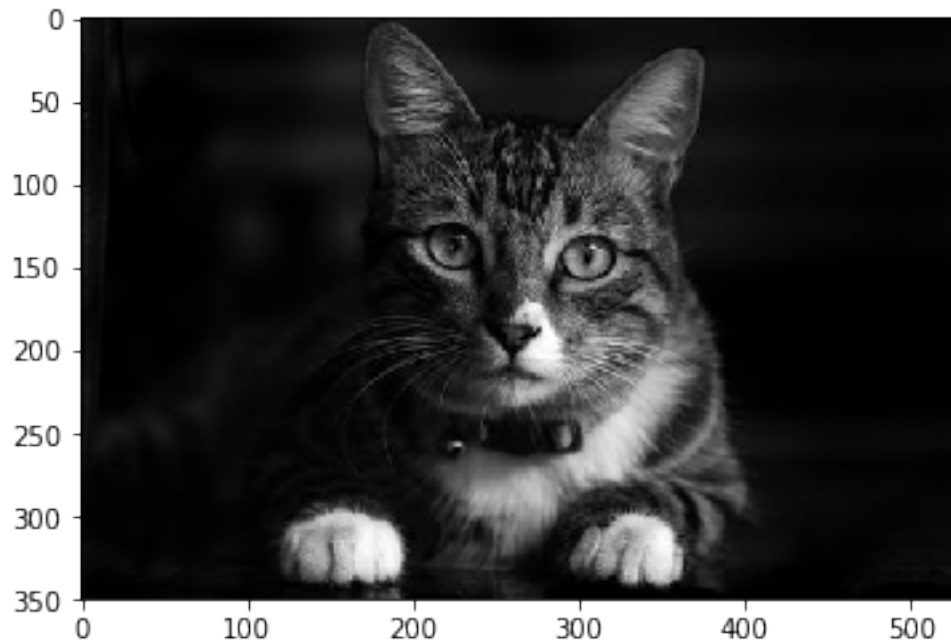
Low pass filter

April 28, 2019

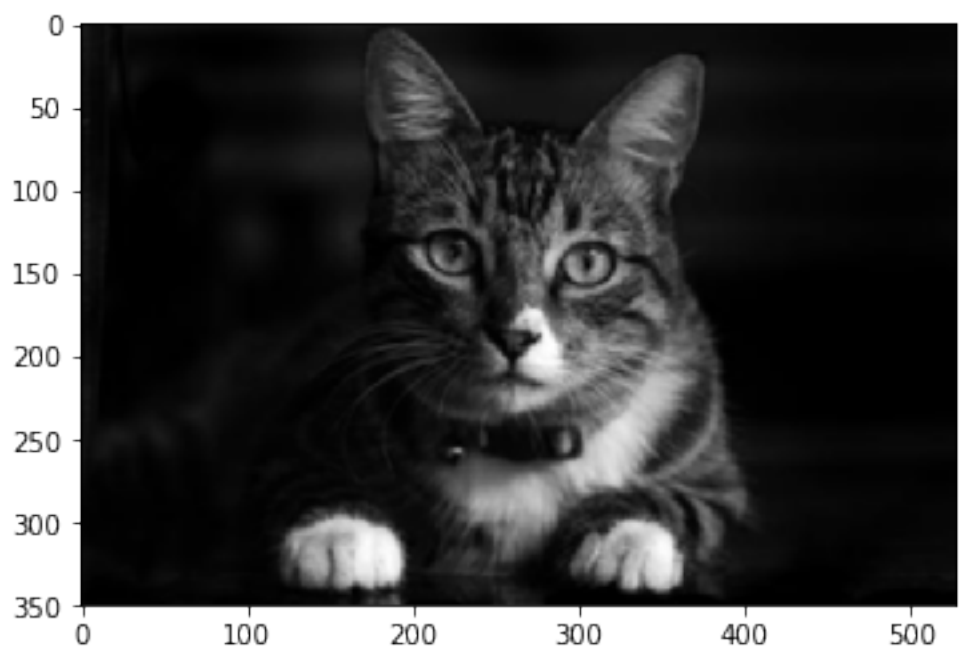
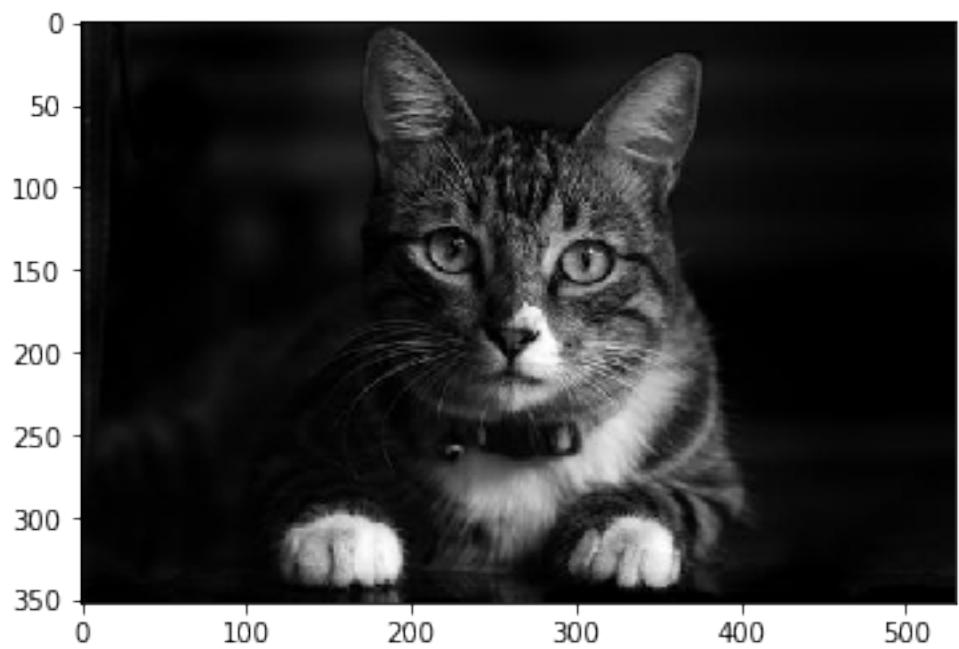
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In [1]: import cv2
import numpy as np
import matplotlib.pyplot as plt

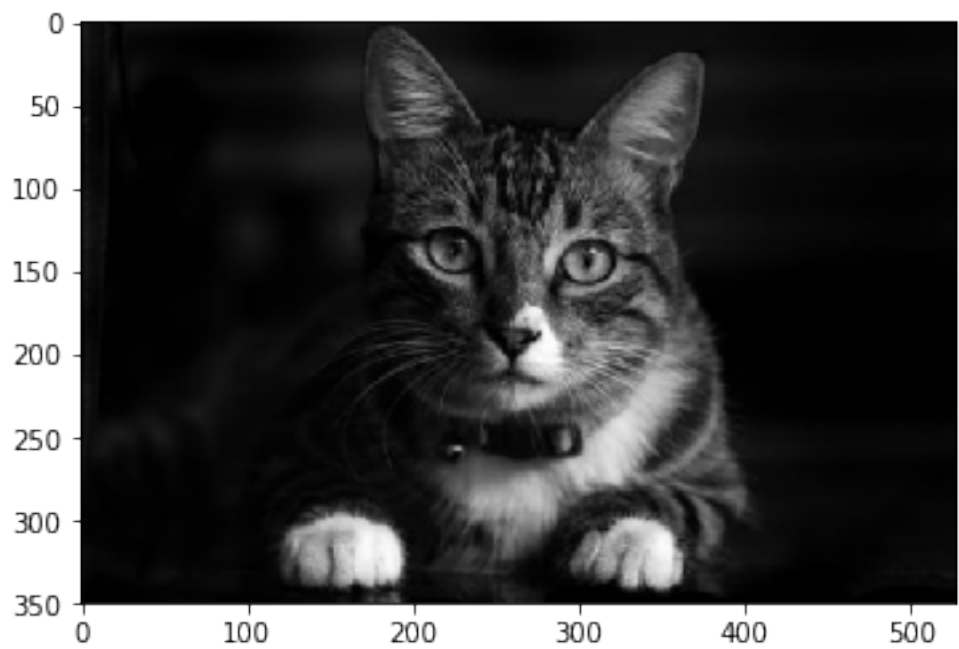
In [2]: def pad(img,shp):
    p=np.zeros((shp[0]+2,shp[1]+2))
    p[1:-1,1:-1]=np.copy(img)
    p[0,1:-1],p[-1,1:-1]=img[0],img[-1]
    p[1:-1,0],p[1:-1,-1]=img[:,0],img[:,-1]
    p[0,0],p[0,-1]=img[0,0],img[0,-1]
    p[-1,0],p[-1,-1]=img[-1,0],img[-1,-1]
    return p

In [22]: img=cv2.imread('cat.jpeg',0)
shp=img.shape
shpm=(3,3)
mask=np.full(shpm,1/9)
mask2=np.array([[0,1/8,0],[1/8,1/2,1/8],[0,1/8,0]])
p=pad(img,shp)
out=np.zeros((shp))
out2 = np.zeros((shp))
plt.imshow(img,cmap='gray')
plt.show()
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In [26]: for i in range(shp[0]):
          for j in range(shp[1]):
              out[i,j]=np.floor(np.multiply(p[i:i+shpm[0],j:j+shpm[1]],mask).sum())
              out2[i,j]=np.floor(np.multiply(p[i:i+shpm[0],j:j+shpm[1]],mask2).sum())
          out=out.astype(int)
          out=np.array(out, dtype = np.uint8)
          out2=out2.astype(int)
          out2=np.array(out2,dtype = np.uint8)
          plt.imshow(p,cmap='gray')
          plt.show()
          plt.imshow(out,'gray')
          plt.show()
          plt.imshow(out2,'gray')
          plt.show()
```





In []: