

# Computer Vision Assignment 10

```
import cv2
import numpy as np
import matplotlib.pyplot as plt
from google.colab.patches import cv2_imshow
img1 = cv2.imread('messi.jfif')
G = img1.copy()
gping = [G]
for i in range(6):
    G = cv2.pyrDown(G)
    gping.append(G)
    cv2_imshow(gping[i])
```





```
lpimg = [gpimg[5]]
cv2_imshow(lpimg[0])
for i in range(6,0,-1):
    GE = cv2.pyrUp(gpimg[i])
    GE = cv2.resize(GE, gpimg[i-1].shape[-2::-1])
    L = cv2.subtract(gpimg[i-1],GE)
    lpimg.append(L)
for i in range(6,0,-1):
    cv2_imshow(lpimg[i])
```





```
import cv2
import numpy as np
import matplotlib.pyplot as plt
from google.colab.patches import cv2_imshow
A = cv2.imread('apple.jfif')
B = cv2.imread('orange.jpg')
# generate Gaussian pyramid
G = A.copy()
gpA = [G]
for i in range(6):
    G = cv2.pyrDown(G)
    gpA.append(G)
# generate Gaussian Pyramid B
G = B.copy()
gpB = [G]
for i in range(6):
    G = cv2.pyrDown(G)
    gpB.append(G)
lpA = [gpA[5]]
for i in range(6, 0, -1):
    GE = cv2.pyrUp(gpA[i])
    GE = cv2.resize(GE, gpA[i-1].shape[-2::-1])
    L = cv2.subtract(gpA[i-1], GE)
    lpA.append(L)
lpB = [gpB[5]]
```

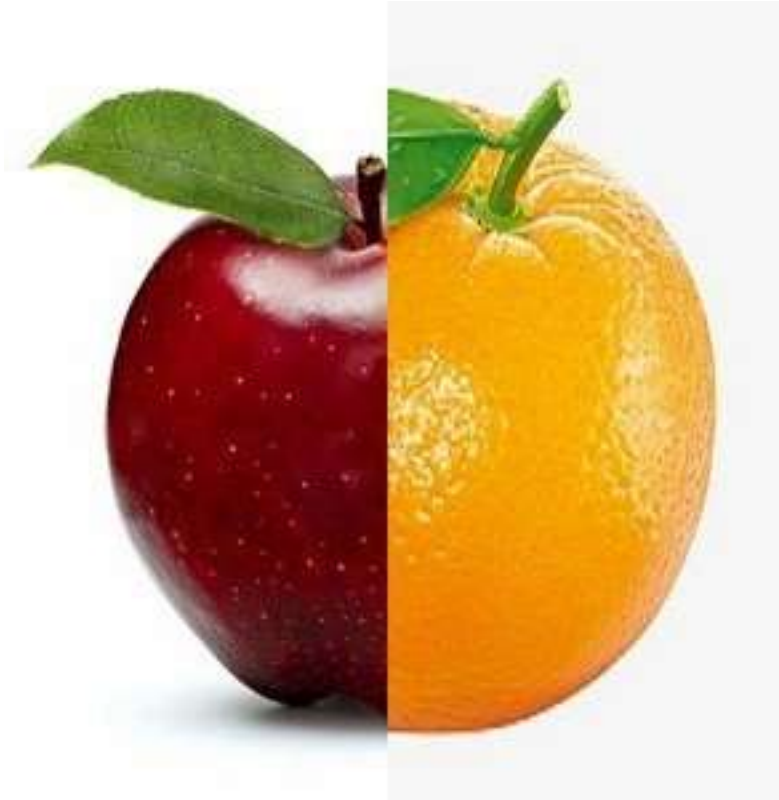
```

for i in range(6,0,-1):
    GE = cv2.pyrUp(gpB[i])
    GE = cv2.resize(GE, gpB[i-1].shape[-2::-1])
    L = cv2.subtract(gpB[i-1], GE)
    lpB.append(L)
# now add left and right halves of image in each level
LS = []
lpAc = []
for i in range(len(lpA)):
    b = cv2.resize(lpA[i], lpB[i].shape[-2::-1])
    lpAc.append(b)

j=0
for i in zip(lpAc, lpB):
    la, lb = i
    rows, cols, dpt = la.shape
    ls = np.hstack((la[:, 0:cols//2], lb[:, cols//2:]))
    j=j+1
    LS.append(ls)
ls_ = LS[0]
for i in range(1,6):
    ls_ = cv2.pyrUp(ls_)
    ls_ = cv2.resize(ls_, LS[i].shape[-2::-1])
    ls_ = cv2.add(ls_, LS[i])
# image direct connected each half
B = cv2.resize(B, A.shape[-2::-1])
real = np.hstack((A[:, :cols//2], B[:, cols//2:]))
cv2.imwrite('Pyramid_blending2.jpg', ls_)
cv2.imwrite('Blending.jpg', real)
cv2_imshow(ls_)
cv2_imshow(real)

```





```
import cv2
import numpy as np
import matplotlib.pyplot as plt
from google.colab.patches import cv2_imshow
im = cv2.imread('blob1.jpg')
gray = cv2.cvtColor(im, cv2.COLOR_BGR2GRAY)
cv2_imshow(im)
params = cv2.SimpleBlobDetector_Params()
detector = cv2.SimpleBlobDetector_create(params)
keypoints = detector.detect(gray)
im_with_keypoints = cv2.drawKeypoints(gray, keypoints, np.array([]),
(0,0,255), cv2.DRAW_MATCHES_FLAGS_DRAW_RICH_KEYPOINTS)
cv2_imshow(im_with_keypoints)
```



