Q1) Read image, Display it using imshow and matplotlib. Perform functions: -Implement multiplication and division by constant function. -Resize image -Slice part of image -Mask a part of image -Add two images -Weighted add two SWimages -Subtract two image -Perform logical AND, OR , NOT on image.

In [1]:

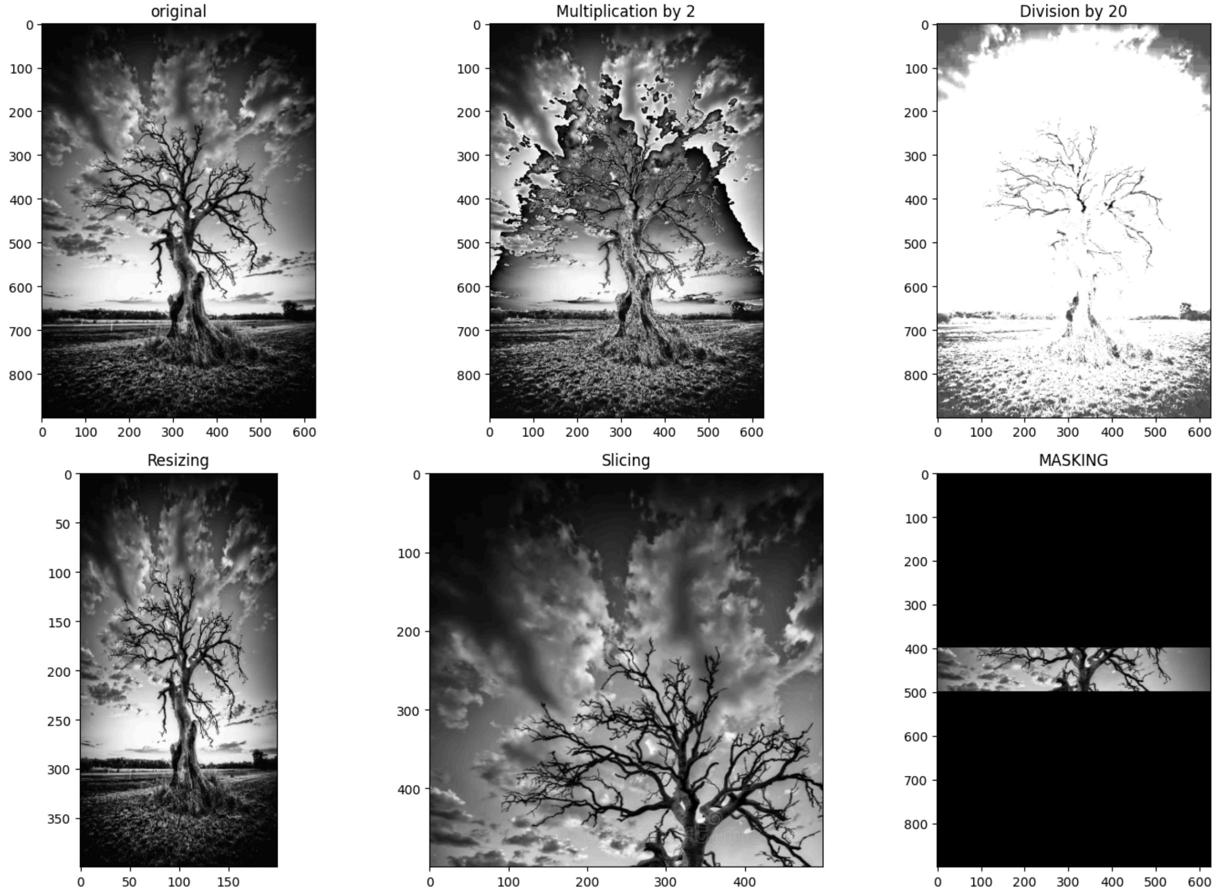
```
import cv2
import numpy as np
import matplotlib.pyplot as plt
img=cv2.imread("black.png")
img=cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
cv2.imshow("vk",img)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

In [2]:

```
plt.figure(figsize=(15,10))

img=cv2.imread("black.png")
img=cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
plt.subplot(231)
plt.title("original")
plt.imshow(img)

#multiplication
c=2
img1=img.copy()
img1=img1*c
plt.subplot(232)
plt.title("Multiplication by 2")
plt.imshow(img1)

#Division
c=20
img2=img.copy()
img2=img2/c
plt.subplot(233)
plt.title("Division by 20")
plt.imshow(img2)

#resizing
img3=img.copy()
img4=cv2.resize(img3,(200,400))
plt.subplot(234)
plt.title("Resizing")
plt.imshow(img4)

#slicing
a=img[:500,:500]
plt.subplot(235)
plt.title("Slicing")
plt.imshow(a)

#masking
mask = np.zeros_like(img)
```

```
mask[400:500, :] = 255
masked_image = cv2.bitwise_and(img, mask)
plt.subplot(236)
plt.title("MASKING")
plt.imshow(masked_image)


plt.tight_layout()
plt.show()
```

```
Clipping input data to the valid range for imshow with RGB data ([0..1] for floats o
r [0..255] for integers).
```

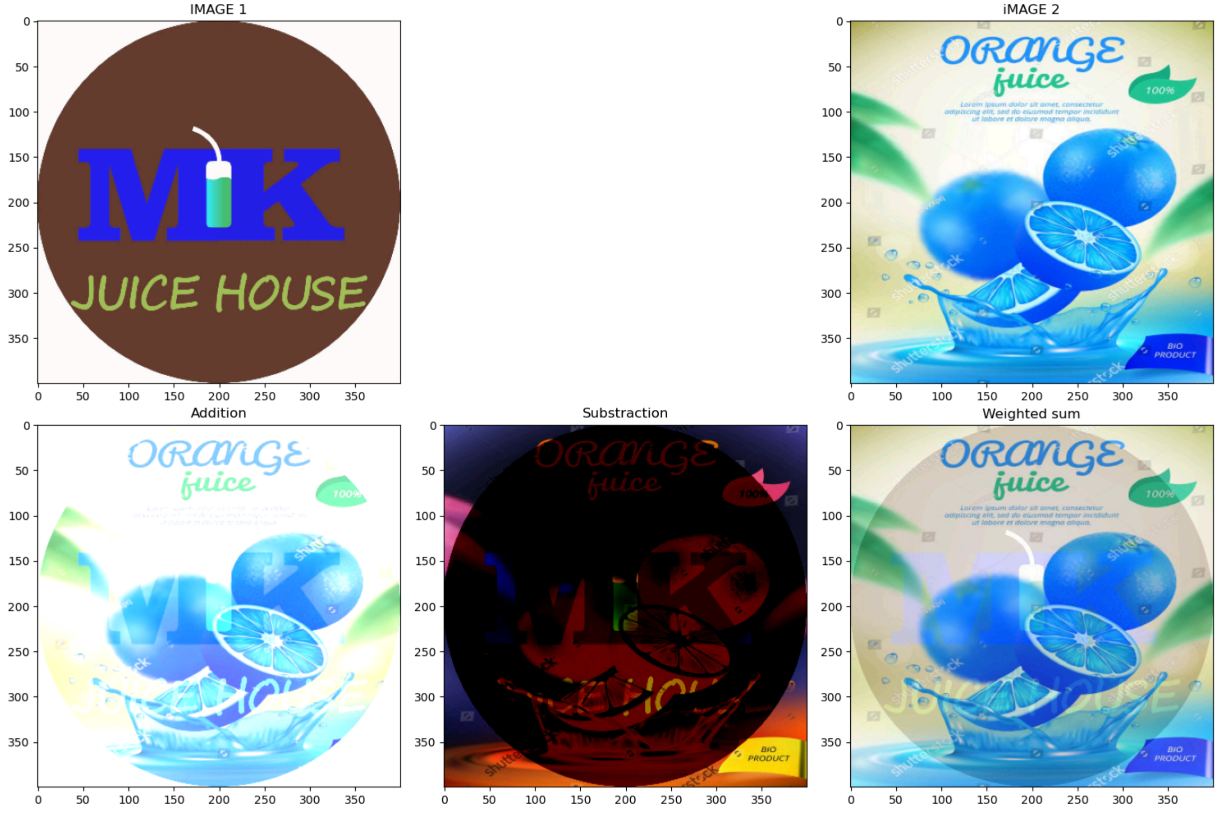


In [ ]:

In [ ]:

In [3]:

```
img = cv2.imread("aa.jpeg")
img1 = cv2.imread("ab.jpeg")
img=cv2.resize(img,(400,400))
img1=cv2.resize(img1,(400,400))

plt.figure(figsize=(15,10))
plt.subplot(231)
plt.title("IMAGE 1")
plt.imshow(img)

plt.subplot(233)
plt.title("iMAGE 2")
plt.imshow(img1)


#addition
plt.subplot(234)
plt.title("Addition")
img2 = cv2.add(img,img1)
plt.imshow(img2)

#substraction
plt.subplot(235)
plt.title("Substraction")
img3 = cv2.subtract(img,img1)
plt.imshow(img3)

#weighted sum
plt.subplot(236)
plt.title("Weighted sum")
img4 = cv2.addWeighted(img,0.2,img1,0.8,0)
plt.imshow(img4)

plt.tight_layout()
plt.show()
```



In [ ]:

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In [ ]:

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In [7]:

```
img = cv2.imread("aa.jpeg")
img1 = cv2.imread("ab.jpeg")
```

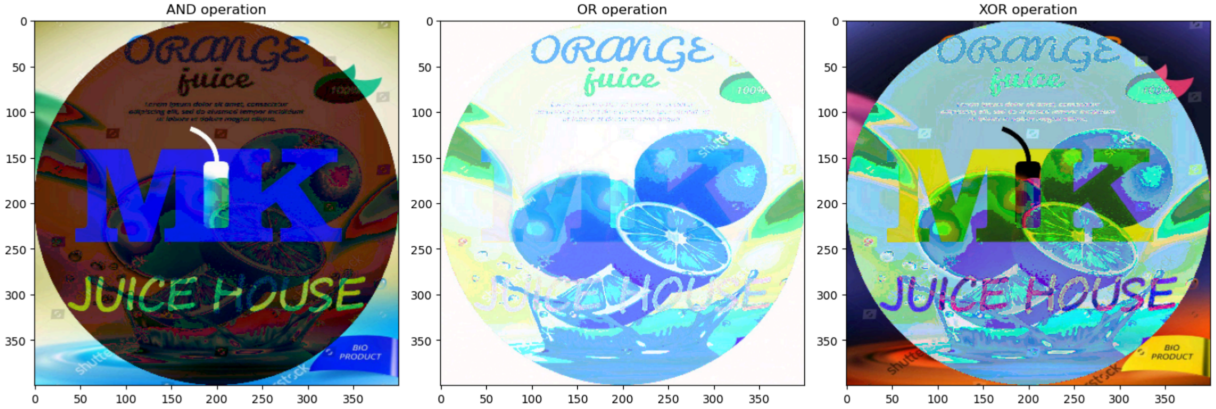
```
img=cv2.resize(img,(400,400))
img1=cv2.resize(img1,(400,400))

plt.figure(figsize=(15,10))
#AND
dest1 = cv2.bitwise_and(img,img1,mask = None)
plt.subplot(131)
plt.title("AND operation")
plt.imshow(dest1)

#OR
dest2 = cv2.bitwise_or(img,img1,mask = None)
plt.subplot(132)
plt.title("OR operation")
plt.imshow(dest2)

#XOR
dest3 = cv2.bitwise_xor(img,img1,mask = None)
plt.subplot(133)
plt.title("XOR operation")
plt.imshow(dest3)

plt.tight_layout()
plt.show()
```



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