Department of Computer Science and Engineering

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Report no 03

Problem no 03: Monadic Operations

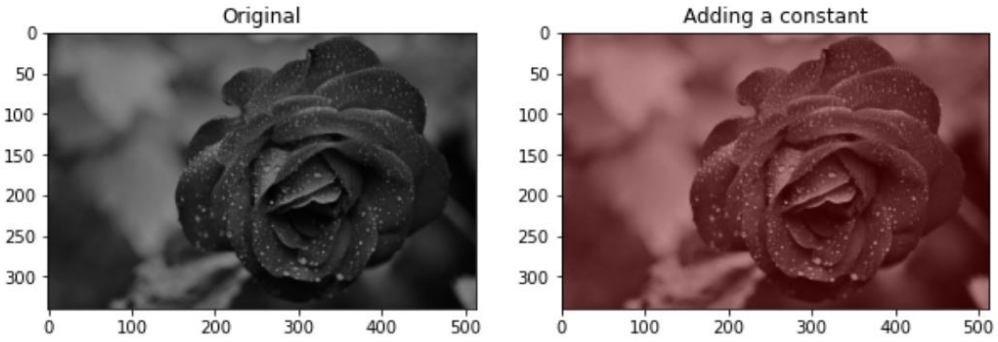
- Adding a constant
- Subtracting a constant
- Negative
- Multiplying by a constant
- Divide by a constant
- Divide into a constant
- AND
- OR
- XOR

Solve:

Task1: Adding a constant

In [3]:
```
plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(img1)
plt.title('Original')
plt.subplot(1,2,2)
img1 = cv2.add(img1,50)
plt.imshow(img1) #50 is the constant
plt.title('Adding a constant')
```

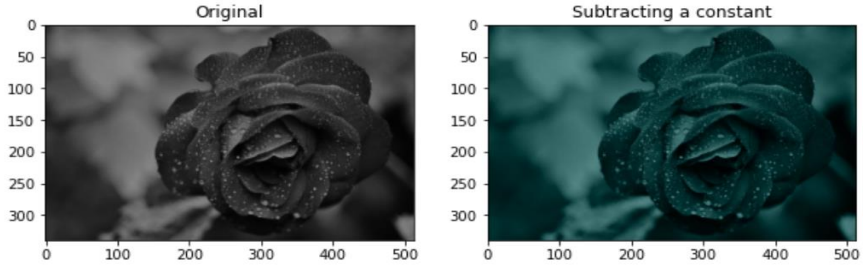
Out[3]:
```
Text(0.5, 1.0, 'Adding a constant')
```



Task2:Subtracting a constant

In [4]:
```
plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(image)
plt.title('Original')
plt.subplot(1,2,2)
img2 = cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
img2 = cv2.subtract(img2,50)
plt.imshow(img2)
plt.title('Subtracting a constant')
```

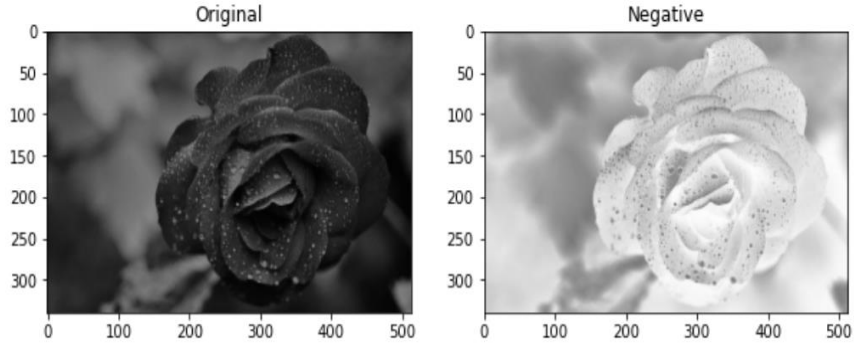
Out[4]: Text(0.5, 1.0, 'Subtracting a constant')



Task3: Negative

In [7]:
```
plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(image)
plt.title('Original')
plt.subplot(1,2,2)
img3 =cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
img3 = cv2.bitwise_not(img3)
plt.imshow(img3)
plt.title('Negative')
```

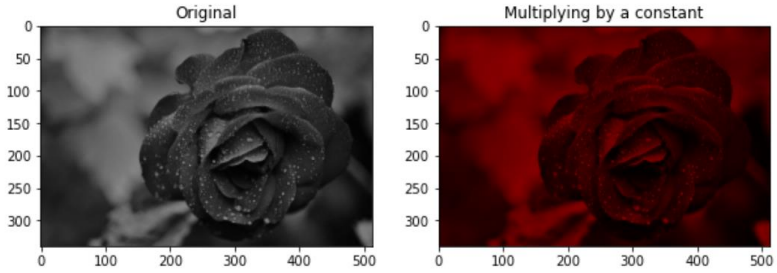
Out[7]: Text(0.5, 1.0, 'Negative')



Task 4: Multiplying by a constant

In [8]:
```
plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(image)
plt.title('Original')
plt.subplot(1,2,2)
img4 = cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
img4 = cv2.multiply(img4,1.01)
plt.imshow(img4)
plt.title('Multiplying by a constant')
```

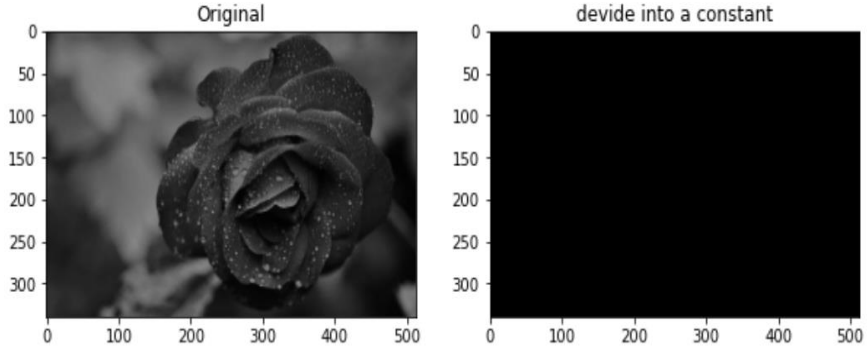
Out[8]: Text(0.5, 1.0, 'Multiplying by a constant')



Task 5: Devide into a constant

In [17]:
```
plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(image)
plt.title('Original')
plt.subplot(1,2,2)
img5 = cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
img5 = cv2.divide(2,img5)
plt.imshow(img5)
plt.title('devide into a constant')
```

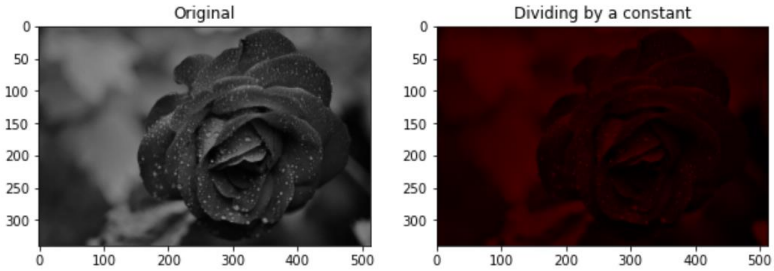
Out[17]: Text(0.5, 1.0, 'devide into a constant')



Task 6: Dividing by a constant

In [10]:
```
plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(image)
plt.title('Original')
plt.subplot(1,2,2)
img6 = cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
img6 = cv2.divide(img6,2)
plt.imshow(img6)
plt.title('Dividing by a constant')
```

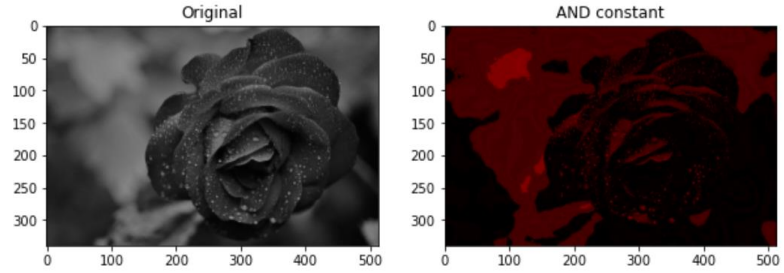
Out[10]:
```
Text(0.5, 1.0, 'Dividing by a constant')
```



Task 7: Bitwise AND

In [11]:
```
plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(image)
plt.title('Original')
plt.subplot(1,2,2)
img7 = cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
img7= cv2.bitwise_and(img7,200)
plt.imshow(img7)
plt.title('AND constant')
```

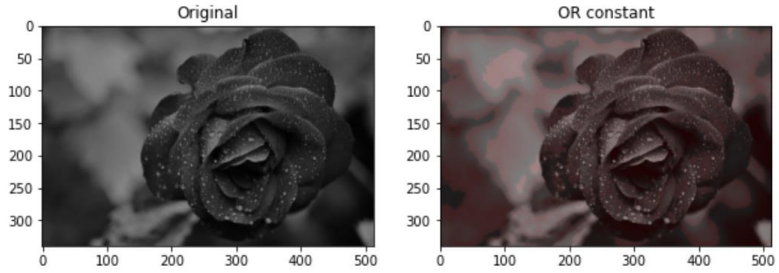
Out[11]:
```
Text(0.5, 1.0, 'AND constant')
```



Task 8: Bitwise OR

In [12]:
```
plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(image)
plt.title('Original')
plt.subplot(1,2,2)
img8 = cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
img8= cv2.bitwise_or(img8,30) #30 is the constant
plt.imshow(img8)
plt.title('OR constant')
```

Out[12]:
```
Text(0.5, 1.0, 'OR constant')
```



Task 9: Bitwise XOR

In [13]:
```
plt.figure(figsize=(10,10))
plt.subplot(1,2,1)
plt.imshow(image)
plt.title('Original')
plt.subplot(1,2,2)
img9= cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
img9= cv2.bitwise_xor(img9,30)
plt.imshow(img9)
plt.title('XOR constant')
```

Out[13]:
```
Text(0.5, 1.0, 'XOR constant')
```