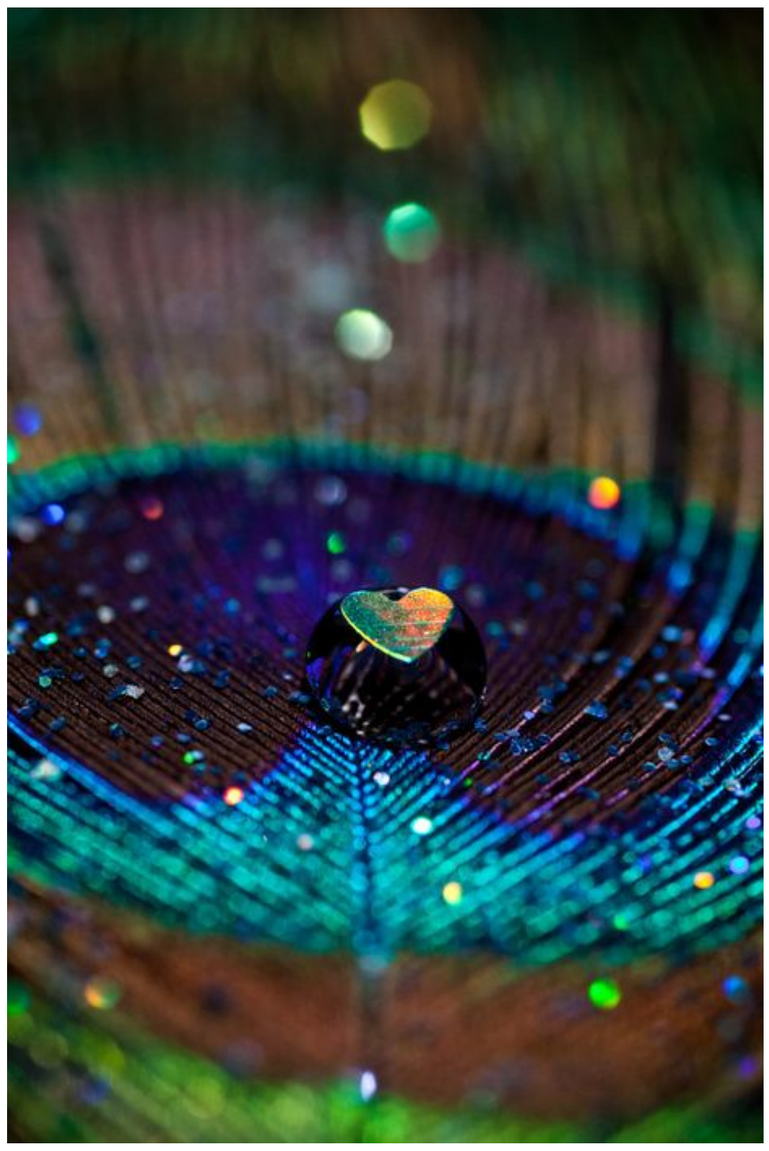
```
# importing files
import numpy as np
import cv2
import matplotlib.pyplot as plt
from google.colab.patches import cv2_imshow

img = cv2.imread("/content/image.png")
cv2_imshow(img)
```

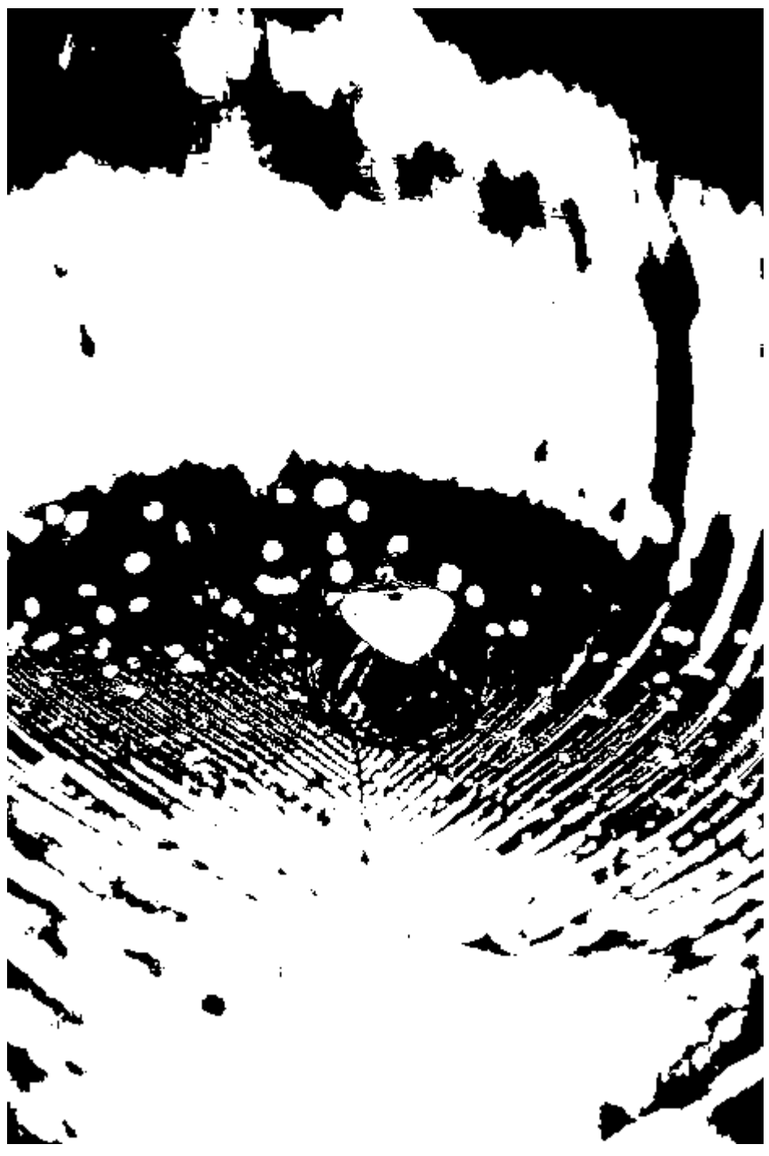


```
img_neg = abs(255 - img)
cv2_imshow(img_neg)
```

```
import numpy as np
import cv2
import matplotlib.pyplot as plt
from google.colab.patches import cv2_imshow

img = cv2.imread("/content/image.png",0)
cv2_imshow(img)
```

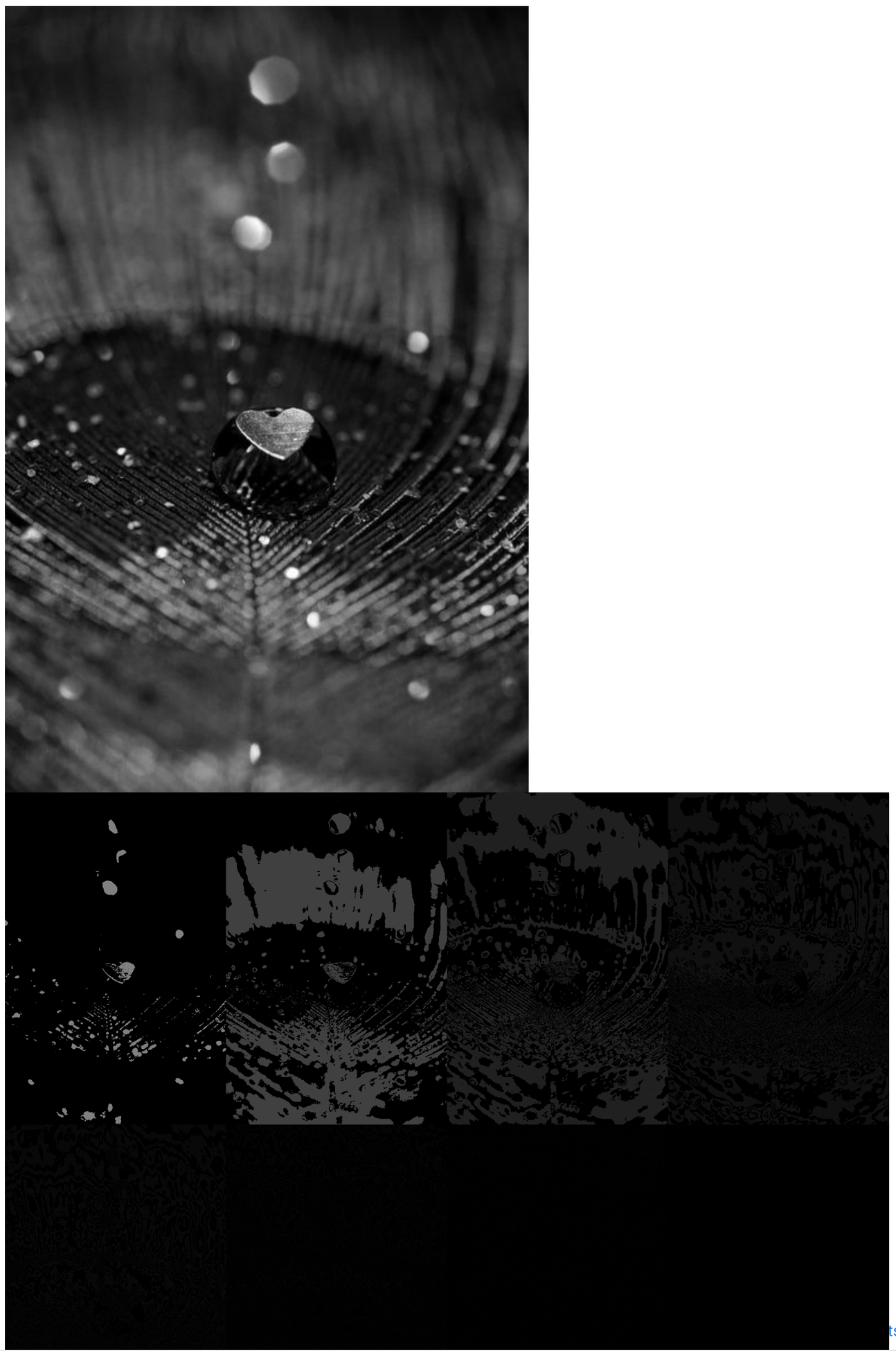
```
img_negt = cv2.bitwise_not(img)
cv2_imshow(img_negt)
```

```
thresh = 40
ret,binary_image = cv2.threshold(img, thresh, 255, cv2.THRESH_BINARY)
cv2_imshow(binary_image)
```



```
thresh = 40
ret,binary_image = cv2.threshold(img, thresh, 255, cv2.THRESH_BINARY_INV)
cv2_imshow(binary_image)
```

```
import numpy as np
import cv2
from google.colab.patches import cv2_imshow

# Read the image in greyscale
img = cv2.imread('/content/image.png',0)
cv2_imshow(img)

#Iterate over each pixel and change pixel value to binary using np.binary_repr() and store it in a list.
lst = []
for i in range(img.shape[0]):
    for j in range(img.shape[1]):
         lst.append(np.binary_repr(img[i][j] ,width=8)) # width = no. of bits

# We have a list of strings where each string represents binary pixel value. To extract bit planes we need to iterate over the strings and store the characters corresponding to bit planes into
# Multiply with 2^(n-1) and reshape to reconstruct the bit image.
eight_bit_img = (np.array([int(i[0]) for i in lst],dtype = np.uint8) * 128).reshape(img.shape[0],img.shape[1])
seven_bit_img = (np.array([int(i[1]) for i in lst],dtype = np.uint8) * 64).reshape(img.shape[0],img.shape[1])
six_bit_img = (np.array([int(i[2]) for i in lst],dtype = np.uint8) * 32).reshape(img.shape[0],img.shape[1])
five_bit_img = (np.array([int(i[3]) for i in lst],dtype = np.uint8) * 16).reshape(img.shape[0],img.shape[1])
four_bit_img = (np.array([int(i[4]) for i in lst],dtype = np.uint8) * 8).reshape(img.shape[0],img.shape[1])
three_bit_img = (np.array([int(i[5]) for i in lst],dtype = np.uint8) * 4).reshape(img.shape[0],img.shape[1])
two_bit_img = (np.array([int(i[6]) for i in lst],dtype = np.uint8) * 2).reshape(img.shape[0],img.shape[1])
one_bit_img = (np.array([int(i[7]) for i in lst],dtype = np.uint8) * 1).reshape(img.shape[0],img.shape[1])

#Concatenate these images for ease of display using cv2.hconcat()
finalr = cv2.hconcat([eight_bit_img,seven_bit_img,six_bit_img,five_bit_img])
finalv =cv2.hconcat([four_bit_img,three_bit_img,two_bit_img,one_bit_img])

# Vertically concatenate
final = cv2.vconcat([finalr,finalv])

# Display the images
cv2_imshow(final)
cv2.waitKey(0)
```



ts here

✓ 0s completed at 19:46