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import os
from google.colab import drive
drive.mount('/content/drive')
image_path = "/content/drive/My Drive/Colab Notebooks/ImageProcessing/images"
print(os.listdir(image_path))
# ----

import cv2
from google.colab.patches import cv2_imshow

img = cv2.imread(image_path + '/hoalan.jpg')

# Lấy height, width của ảnh
(h, w, d) = img.shape

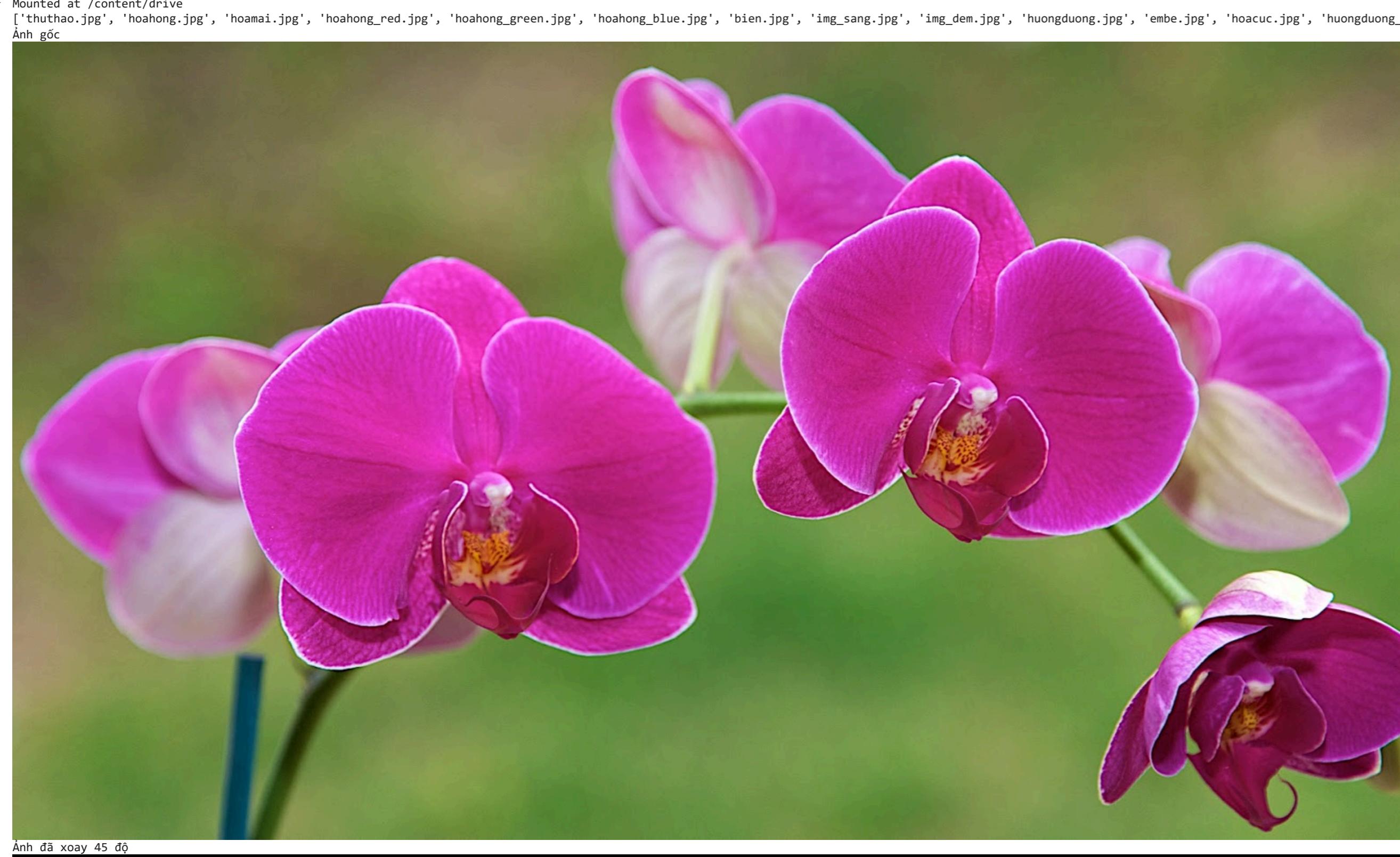
# Tính tâm ảnh là điểm giữa của ảnh
center = (w // 2, h // 2)

# Quay ảnh 45 độ tỉ lệ thu nhỏ / phóng to ảnh là 0.5
m = cv2.getRotationMatrix2D(center, 45, 0.5)

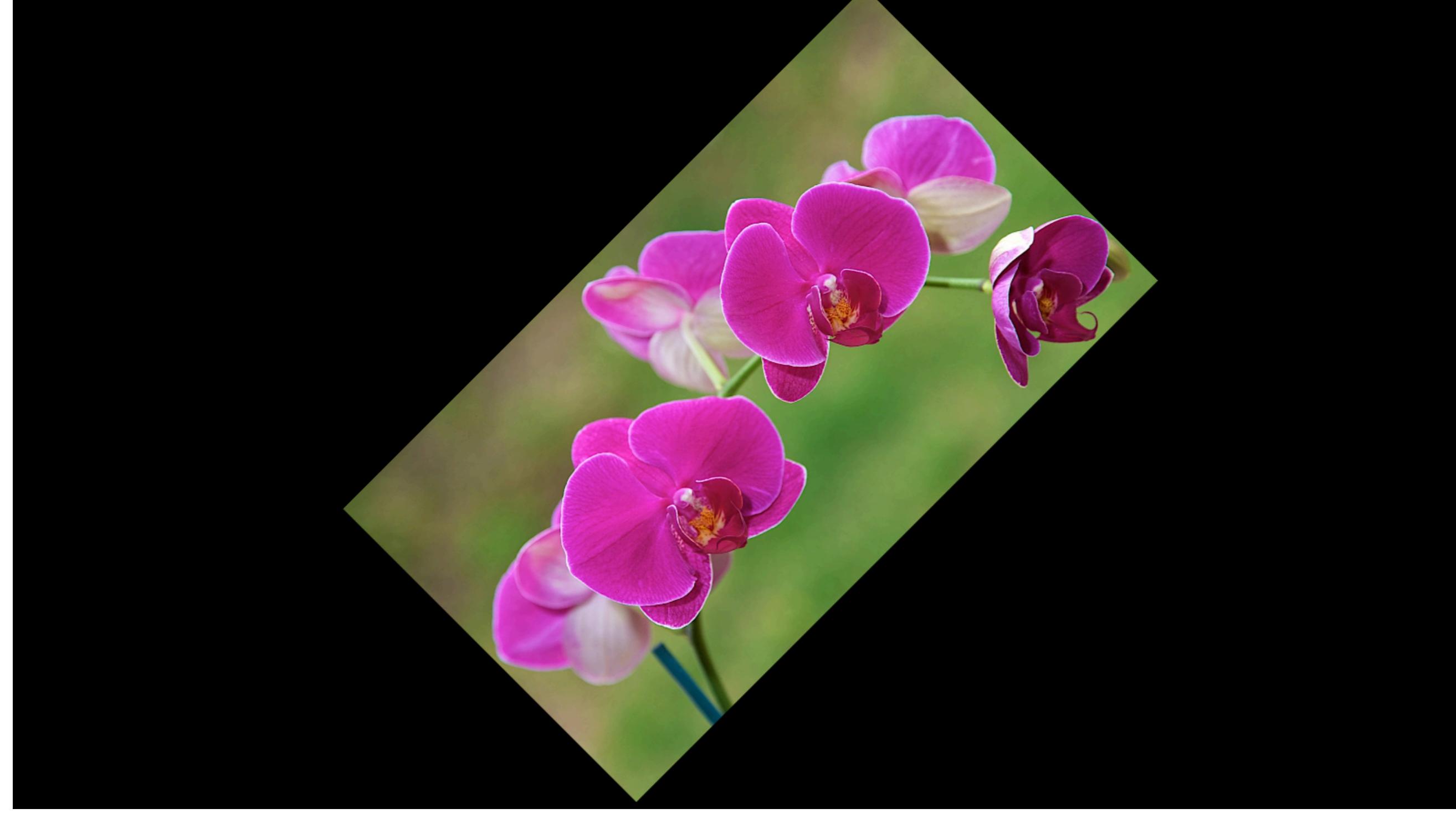
# Thực hiện lệnh quay
result = cv2.warpAffine(img, m, (w, h))

print('Ảnh gốc')
cv2_imshow(img)
print('Ảnh đã xoay 45 độ')
cv2_imshow(result)

```



Ảnh gốc



```

import cv2
from google.colab.patches import cv2_imshow
import os # Import os module to check for directory existence and list files

# Đọc ảnh
# Ensure the file name is correct
img_file = image_path + '/hoalan.jpg'
img = cv2.imread(img_file)

# Check if the image was loaded successfully
if img is None:
    print("Error: Could not load image from {img_file}")
    # Optionally, print files in the directory to verify the file name
    if os.path.exists(image_path):
        print(f"Files in {image_path}: {os.listdir(image_path)}")
    else:
        print(f"Error: Image directory {image_path} does not exist.")

else:
    # If image is loaded, proceed with processing
    (h, w) = img.shape[:2]
    center = (w // 2, h // 2)

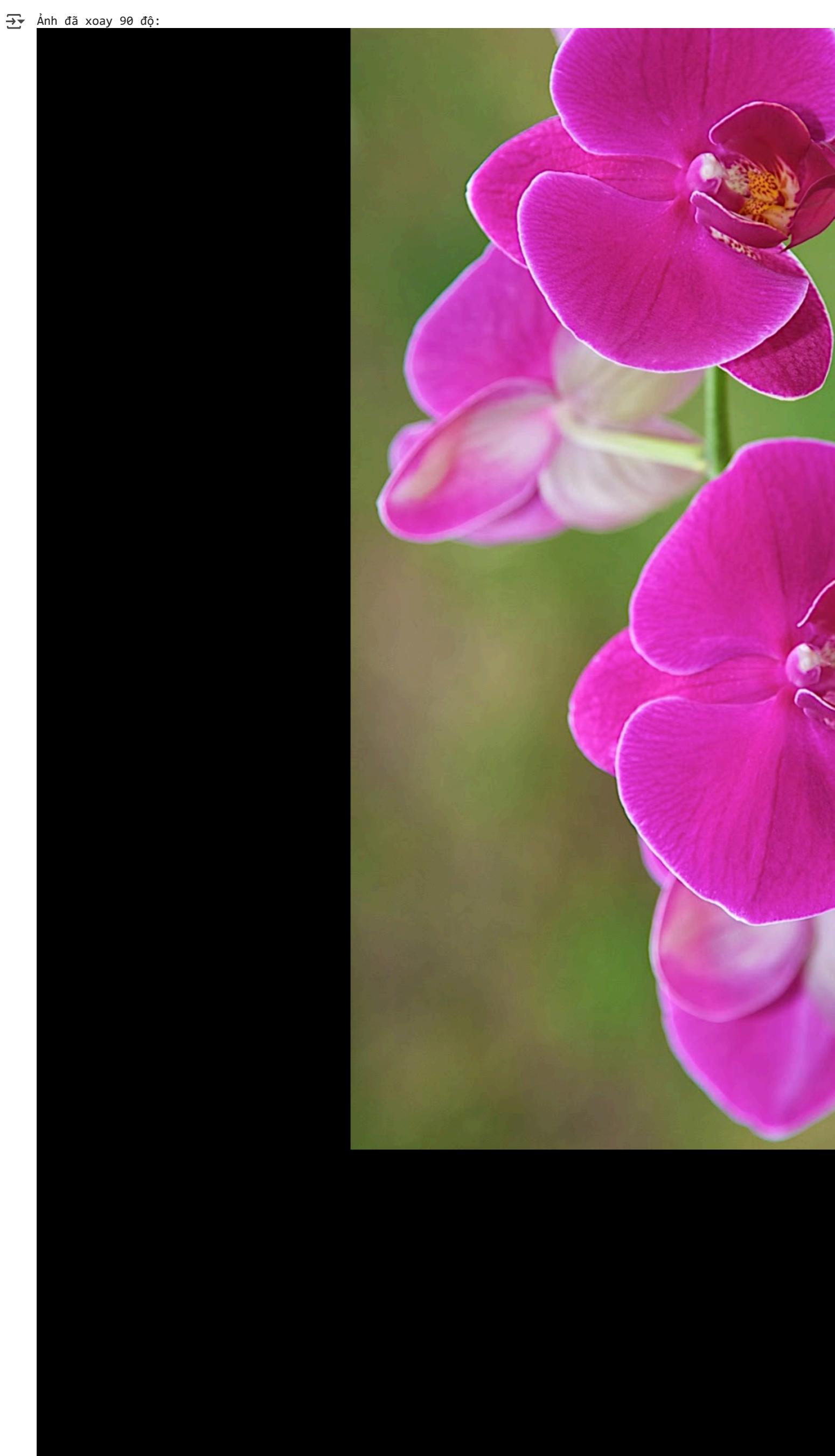
    # --- Bước 1: Xoay ảnh 90 độ ---
    # When rotating by 90 or 270 degrees, the width and height are swapped in the output shape
    rotation_matrix = cv2.getRotationMatrix2D(center, 90, 1.0)
    # Pass (h, w) as the dimensions for the rotated image to avoid cropping
    rotated_img = cv2.warpAffine(img, rotation_matrix, (h, w))

    # --- Bước 2: Phóng to ảnh đã xoay với tỷ lệ 2 lần ---
    zoomed_rotated_img = cv2.resize(rotated_img, None, fx=2.0, fy=2.0, interpolation=cv2.INTER_LINEAR)

    # Hiển thị ảnh
    print('Ảnh đã xoay 90 độ')
    cv2_imshow(rotated_img)

    print('Ảnh đã xoay và phóng to 2 lần')
    cv2_imshow(zoomed_rotated_img)

```



Ành đã xoay và phóng to 2 lần:

