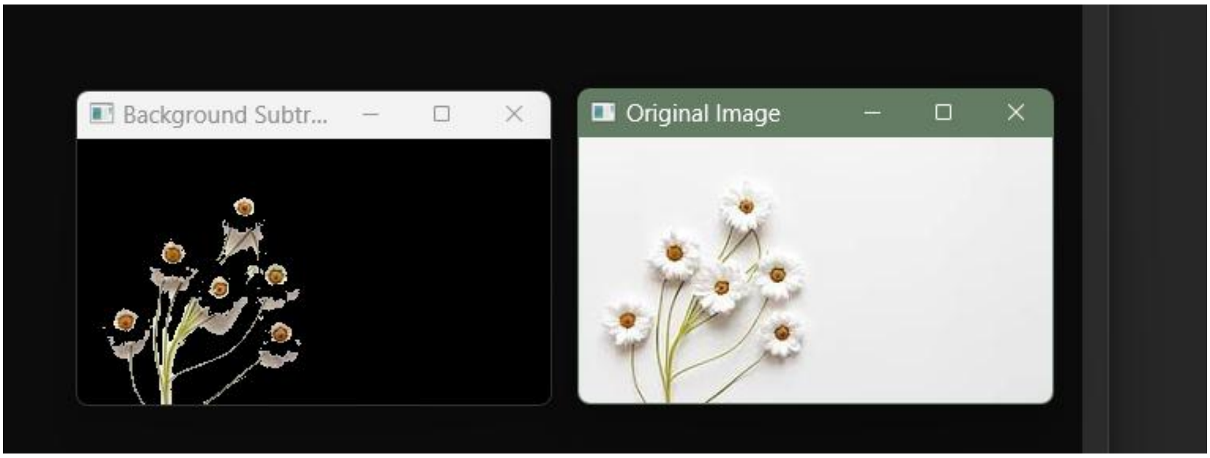
36. Write a Python function to subtract the background of the given input image based on color levels using Open CV

PROGRAM:

```
import cv2

import numpy as np


def subtract_background(image_path, lower_color, upper_color):

    # Read the image

    image = cv2.imread(image_path)

    if image is None:

        raise FileNotFoundError(f"Image not found: {image_path}")


    # Convert to HSV color space for better color segmentation

    hsv = cv2.cvtColor(image, cv2.COLOR_BGR2HSV)


    # Define lower and upper range for background color

    lower_bound = np.array(lower_color, dtype=np.uint8)

    upper_bound = np.array(upper_color, dtype=np.uint8)


    # Create mask for background

    mask = cv2.inRange(hsv, lower_bound, upper_bound)


    # Invert mask to isolate foreground

    mask_inv = cv2.bitwise_not(mask)


    # Extract the foreground using the inverted mask

    foreground = cv2.bitwise_and(image, image, mask=mask_inv)


    # Show results

    cv2.imshow("Original Image", image)

    cv2.imshow("Background Subtracted Image", foreground)
    cv2.waitKey(0)
    cv2.destroyAllWindows()


    # Optionally return the result if further processing is needed
    return foreground


# === Example usage ===
image_path = r"C:\Users\harik\Downloads\CV LAB\white.jpeg"  # Replace with your actual image path
lower_color = [0, 0, 200]      # Lower HSV range for white (tweak as needed)
upper_color = [180, 25, 255]   # Upper HSV range for white


subtract_background(image_path, lower_color, upper_color)
```

OUTPUT:


Background Subtr...
Original Image