

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

```
import cv2
```

```
import numpy as np
```

```
def subtract_foreground(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
```

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

```
    # Define lower and upper range for foreground color
```

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

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

```
    # Create mask to isolate foreground
```

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

```
    # Use the mask to extract only the background (i.e., remove foreground)
```

```
    background = cv2.bitwise_and(image, image, mask=cv2.bitwise_not(mask))
```

```
    # Display the original and result images
```

```
    cv2.imshow("Original Image", image)
```

```
    cv2.imshow("Foreground Subtracted Image (Only Background)", background)
```

```
    cv2.waitKey(0)
```

```
    cv2.destroyAllWindows()
```

```
# === Example usage (adjust color range as needed) ===
```

```
image_path = r"C:\Users\harik\Downloads\CV LAB\white.jpeg" # Replace with actual path
```

```
lower_color = [0, 50, 50] # Lower HSV bound for foreground
```

```
upper_color = [120, 255, 255] # Upper HSV bound for foreground
```

```
subtract_foreground(image_path, lower_color, upper_color)
```

OUTPUT:

