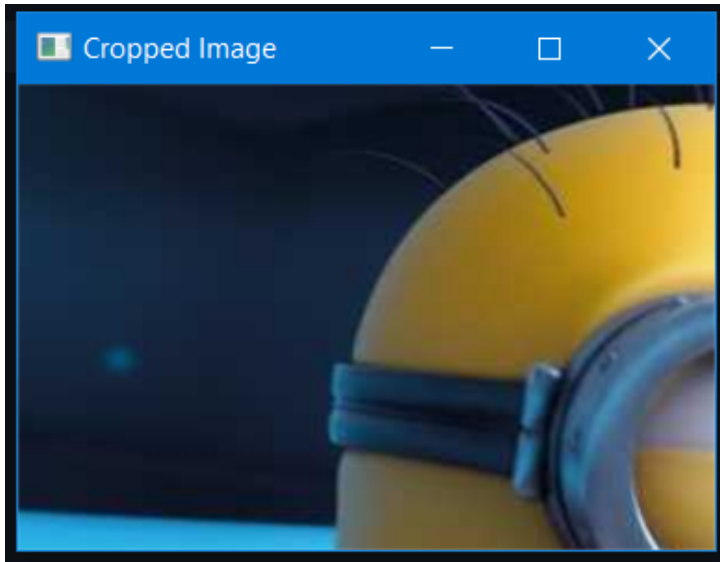
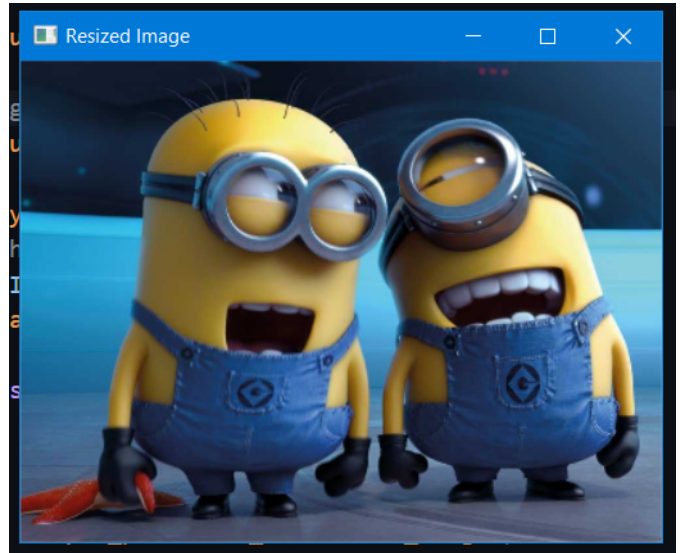


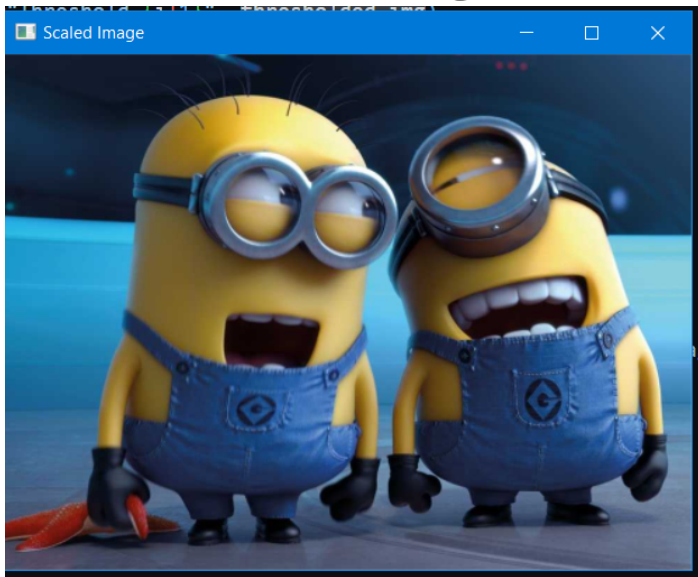
Cropped Image



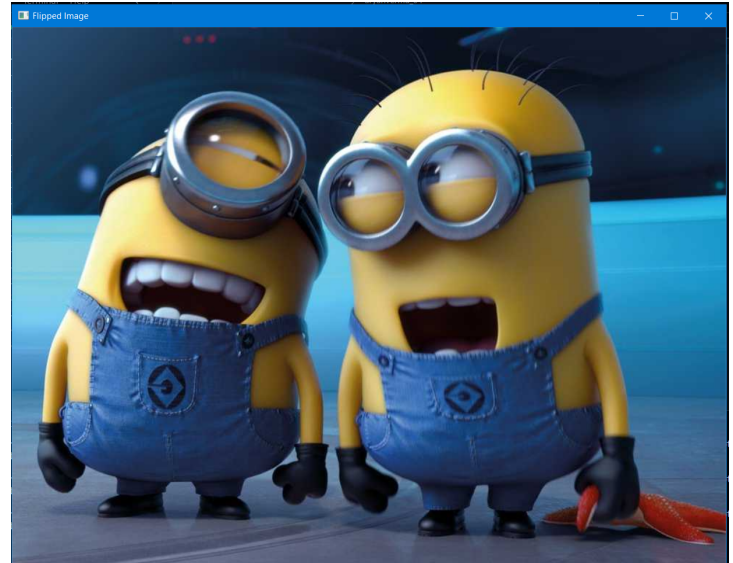
Resize Image



Scaled Image



Flipped Image



```
import cv2

def crop_image(input_path, output_path, x, y, width, height):
    try:
        # Read the input image
        img = cv2.imread(input_path)
        # Crop the image
        cropped_img = img[y:y+height, x:x+width]
        # Display and save the cropped image
        cv2.imshow("Cropped Image", cropped_img)
        cv2.imwrite(output_path, cropped_img)
        cv2.waitKey(0)
        cv2.destroyAllWindows()
    except Exception as e:
        print(f"Error: {e}")

def resize_image(input_path, output_path, new_width, new_height):
    try:
        # Read the input image
        img = cv2.imread(input_path)
        # Scale the image
        scaled_img = cv2.resize(img, None, fx=scale_factor, fy=scale_factor)
        # Display and save the scaled image
        cv2.imshow("Scaled Image", scaled_img)
        cv2.imwrite(output_path, scaled_img)
        cv2.waitKey(0)
        cv2.destroyAllWindows()
    except Exception as e:
        print(f"Error: {e}")

def flip_image(input_path, output_path, flip_code):
    try:
        # Read the input image
        img = cv2.imread(input_path)
        # Flip the image
        flipped_img = cv2.flip(img, flip_code)
        # Display and save the flipped image
        cv2.imshow("Flipped Image", flipped_img)
        cv2.imwrite(output_path, flipped_img)
        cv2.waitKey(0)
        cv2.destroyAllWindows()
    except Exception as e:
        print(f"Error: {e}")

if __name__ == "__main__":
    # Example usage
    input_path = r"C:\Users\varan verma\Documents\varanverma_04\DIP LAB\expe\input_image.jpg"
    output_path_cropped = r"C:\Users\varan verma\Documents\varanverma_04\DIP LAB\expe\cropped_image.jpg"
    output_path_resized = r"C:\Users\varan verma\Documents\varanverma_04\DIP LAB\expe\resized_image.jpg"
    output_path_scaled = r"C:\Users\varan verma\Documents\varanverma_04\DIP LAB\expe\scaled_image.jpg"
    output_path_flipped = r"C:\Users\varan verma\Documents\varanverma_04\DIP LAB\expe\flipped_image.jpg"

    # Crop the image
    crop_image(input_path, output_path_cropped, x=50, y=50, width=300, height=200)

    # Resize the image
    resize_image(input_path, output_path_resized, new_width=400, new_height=300)

    # Scale the image
    scale_image(input_path, output_path_scaled, scale_factor=0.5)

    # Flip the image (flip_code: 0 - horizontal, -1 - vertical, -2 - both)
    flip_image(input_path, output_path_flipped, flip_code=1)
```