Marwadi University	Marwari University Faculty of Technology		
	Department of Information and Communication Technology		
Subject: Digital Signal and Image Processing(01CT0513)	Aim: Perform Gray Level Operations Images.		
Experiment No: 07	Date:	Enrollment No: 92200133030	

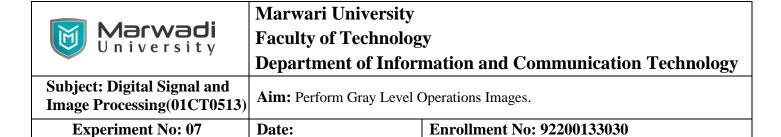
<u>Aim:</u> Perform Gray Level Operations Images.

Theory:-

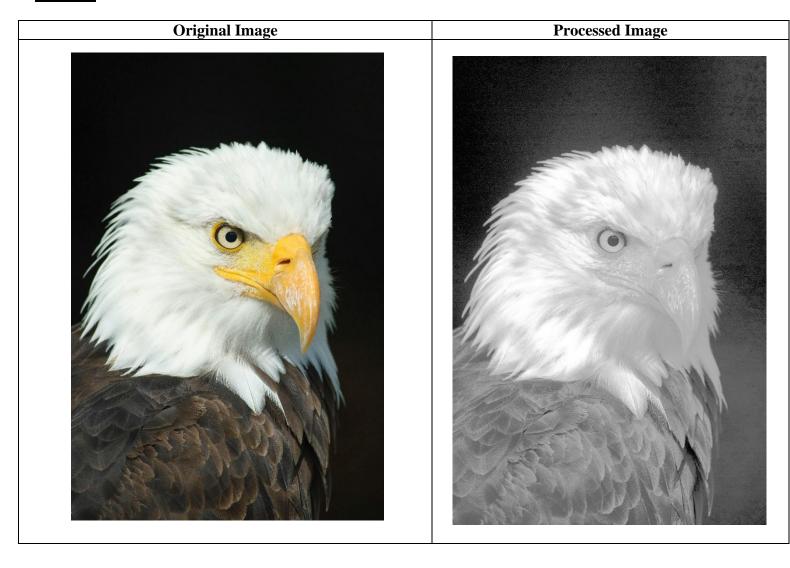
Gray-level operations involve manipulating the pixel values of an image to enhance or modify its appearance.
 These operations are commonly used in image processing tasks such as contrast adjustment, brightness correction, and image thresholding.

Programm:-

```
import cv2
def perform gray level operation(image, operation):
    gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
    if operation == 'contrast':
        contrast_image = cv2.equalizeHist(gray_image)
        processed_image = cv2.cvtColor(contrast_image, cv2.COLOR_GRAY2BGR)
    elif operation == 'brightness':
        alpha = 1.5 # brightness factor
        processed image = cv2.convertScaleAbs(gray image, alpha=alpha)
        processed_image = cv2.cvtColor(processed_image, cv2.COLOR_GRAY2BGR)
    elif operation == 'thresholding':
        _, threshold_image = cv2.threshold(gray_image, 127, 255, cv2.THRESH_BINARY)
        processed_image = cv2.cvtColor(threshold_image, cv2.COLOR_GRAY2BGR)
        print("Invalid operation. Available operations: 'contrast', 'brightness', 'thresholding'")
        return None
    return processed_image
# Load the input image
image_path = './Images.jpg'
input_image = cv2.imread(image_path)
# Perform gray level operation
operation type = 'contrast' # Change this to the desired operation: 'contrast', 'brightness',
'thresholding'
output_image = perform_gray_level_operation(input_image, operation_type)
if output_image is not None:
    # Display the processed image
    cv2.imshow('Processed Image', output_image)
    cv2.waitKey(0)
    # Save the processed image (optional)
    output_path = 'output_image.jpg'
    cv2.imwrite(output_path, output_image)
    print(f"Processed image saved at: {output_path}")
```



Output:-



Conclusion:		