| EXP NO: 1 | IMPLEMENTING VARIOUS BASIC IMAGE PROCESSING OPERATIONS<br>READING IMAGE, WRITING IMAGE AND CONVERSION OF IMAGES |
|---|---|

**AIM:**

To implement various basic image processing operations such as reading image, writing image and conversion of images.

**SUMMARY OF OPERATIONS**

| Operation | Function |
|---|---|
| Read image | cv2.imread() |
| Write image | cv2.imwrite() |
| Show image | cv2.imshow() + cv2.waitKey(0) |
| Convert to gray | cv2.cvtColor(img, cv2.COLOR_BGR2GRAY) |
| Convert to HSV | cv2.cvtColor(img, cv2.COLOR_BGR2HSV) |

**REQUIREMENTS:**

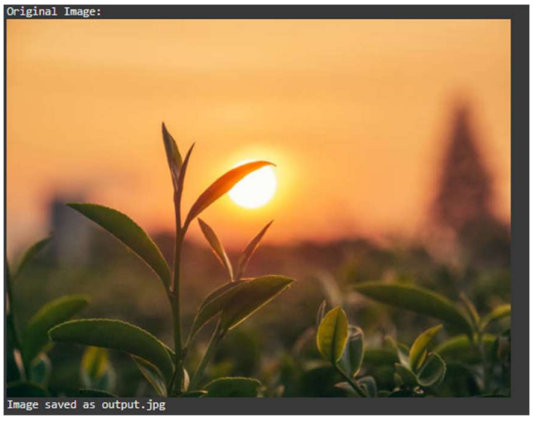
1. Install OpenCV

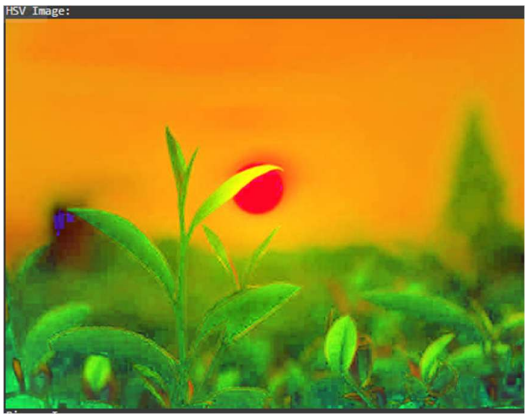
**CODE:**

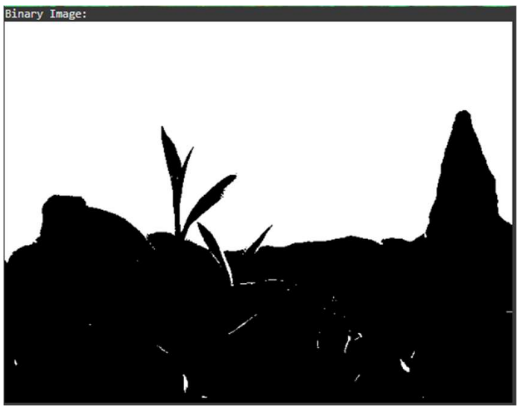
```
import cv2
from google.colab.patches import cv2_imshow
from google.colab import files


print("Please upload your image file (example.jpg or any image):")
uploaded = files.upload()


filename = next(iter(uploaded))


image = cv2.imread(filename)


if image is None:
    print("Error: Could not read the image. Check the file name and try again.")
else:
```

```
print("Original Image:")
cv2_imshow(image)

cv2.imwrite('output.jpg', image)
print("Image saved as output.jpg")

gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
print("Grayscale Image:")
cv2_imshow(gray_image)

hsv_image = cv2.cvtColor(image, cv2.COLOR_BGR2HSV)
print("HSV Image:")
cv2_imshow(hsv_image)

_, binary_image = cv2.threshold(gray_image, 127, 255, cv2.THRESH_BINARY)
print("Binary Image:")
cv2_imshow(binary_image)
```

**OUTPUT:**




**RESULT:**

The image was successfully read and displayed, saved to the specified location, and color conversions such as grayscale and HSV were performed correctly with the resulting images displayed.