IMAGE PROCESSING BASIC

1. Read and display an image in gray and RGB format.
2. Read and copy an image.

Discription

1. **RGB Format:** RGB stands for Red, Green, and Blue, which are the primary colors used to create a wide range of colors in an image. In RGB format, each pixel in an image is represented by three color channels - Red, Green, and Blue. The intensity of each channel determines the color of the pixel. The intensity values typically range from 0 to 255 for each channel, where 0 represents no intensity (black) and 255 represents full intensity (full color)
2. **Grey Format:** Grey format, also known as grayscale format, represents images in shades of grey. In this format, each pixel is represented by a single intensity value that ranges from 0 (black) to 255 (white). The intensity value represents the brightness of the pixel, with lower values indicating darker shades and higher values indicating lighter shades.

Reading, displaying, and writing images are basic to image processing and computer vision. Even when cropping, resizing, rotating, or applying different filters to process images, you'll need to first read in the images. So it's important that you master these basic operations.

OpenCV, the largest computer vision library in the world has these three built-in functions, let's find out what exactly each one does:

`imread()` helps us read an image
`imshow()` displays an image in a window
`imwrite()` writes an image into the file directory

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

Importing Necessary libraries for reading and processing the image

We have imported cv2 form OpenCv for operations on images and cv2_imshow from `google.colab.patches` for showing the file in google colab

```
Colored_image = cv2.resize(cv2.imread('/content/drive/MyDrive/Cvip_Lab/images/flower.jpg', cv2.IMREAD_COLOR),(500,400
```

```
cv2_imshow(Colored_image)
```

Mounted the google drive for importing images for processing

Importing images using `cv2.imread` and saving it in variable "Colored_image"

The argument `cv2.IMREAD_COLOR` in `cv2.imread` is used to define the color of the image

resizing the "Colored_image" using `cv2.resize`

Used `cv2_imshow` for displaying the image

```
GreyScale_image = cv2.resize(cv2.imread('/content/drive/MyDrive/Cvip_Lab/images/flower.jpg', cv2.IMREAD_GRAYSCALE),(5

cv2_imshow(GreyScale_image)
```

Here we used `cv2.imwrite` for saving the image with different name in the Google Drive

saves the grayscale image data stored in the variable GreyScale_image to the file "flower1.jpg" in the specified directory.

```
cv2.imwrite("/content/drive/MyDrive/Cvip_Lab/images/flower1.jpg", GreyScale_image)

    True
```