CS7GV1 Computer Vision
Lab 1

Please complete the following exercises using a Jupyter Notebook (*.ipynb). It is recommended that you use Google Colab. However, you may use any suitable IDE such as JupyterLab, Jupyter Notebook or Sypder.

Exercises

a. Import and display the image flower.jpg from the sklearn dataset. Please note that you will need to use the function cv2_imshow() to display the image in Google Colab. You can import this image from the sklearn dataset as follows:

```
- from sklearn.datasets import load_sample_images
- dataset = load_sample_images()
```

b. Plot the histograms of the R, G, B components of the image using three different figures.

c. By examining the histograms of colour channels, you estimated in exercise (b), segment the flower in the image by applying thresholds to each of the 3 colour channels.

d. Convert the RGB image into **HSV colour system** and examine whether the segmentation of the flower could have been improved using this colour system.

e. Convert the RGB image into **Lab colour system** and display each component (L,a,b) as a grayscale image (See section 2.7.4 in https://www.ee.columbia.edu/ln/dvmm/publications/PhD_theses/jrsmith-thesis.pdf). Examine again whether the segmentation of the flower could have been improved using this colour system.