

## Problem No: 01

**Problem Name:** Introduction to image processing. (Google colab and matlab .Load a single image and dataset on colab and display the details of image.

**Description:** Image processing is a method of performing operations on an image to enhance it or extract useful information. It is one of the rapidly growing technologies in fields like artificial intelligence, computer vision, and medical imaging.

In image processing, digital images are processed using various algorithms. The process involves steps such as image acquisition, enhancement, segmentation, feature extraction, and classification. The goal is to improve image quality or analyze its contents effectively.

Here we will use two environments: MATLAB and Google Colab (python environment).Now to apply image processing at first I choose a rose dataset which has 497 images. The images of my dataset:

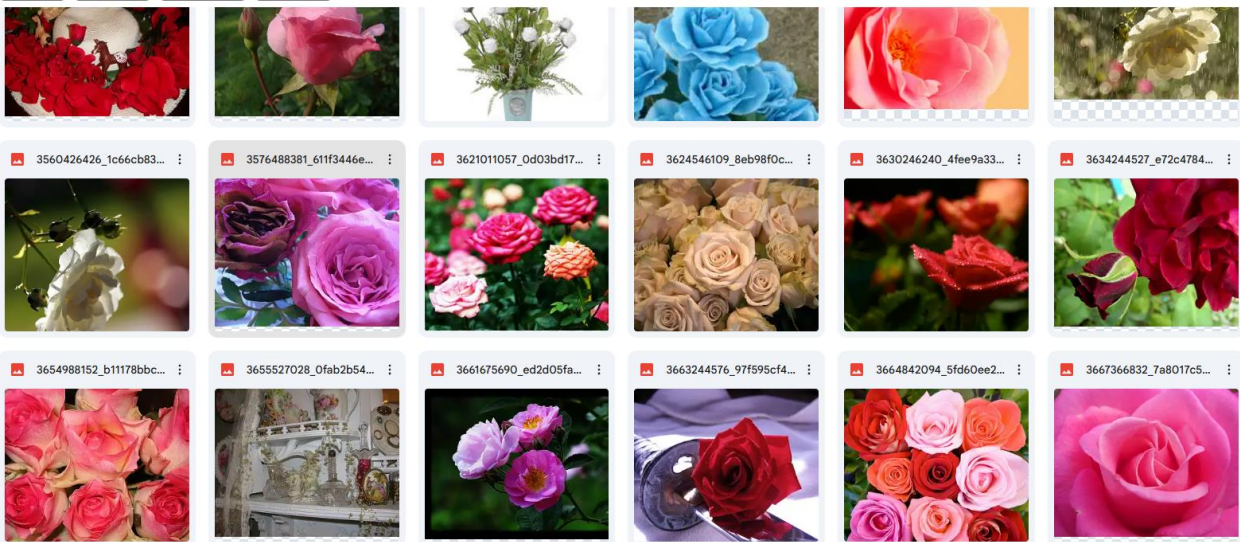


Figure: 01: Image folder.

Source Code:

```
import os
import matplotlib.pyplot as plt
import pandas as pd
from glob import glob
import cv2
flower_folder=glob('/content/drive/MyDrive/rose/*.jpg')
len(flower_folder)
img=plt.imread(flower_folder[10])
img
import numpy as np
# Initialize a list to store pixel values
all_pixel_values_color = []
# Process each image in the flower_folder
for img_path in flower_folder:
    # Read the color image
    img = cv2.imread(img_path)
    all_pixel_values_color.extend(img.flatten())
```

```
# Convert the list to a NumPy array
all_pixel_values_color = np.array(all_pixel_values_color)

# Create a histogram of the pixel values
plt.figure(figsize=(10, 6))
plt.hist(all_pixel_values_color, bins=256, range=[0, 256], color='skyblue')
plt.title('Histogram of Pixel Values in Color Images (flower_folder)')
plt.xlabel('Pixel Value')
plt.ylabel('Frequency')
plt.grid(axis='y', alpha=0.75)
plt.show()
```

## Output:

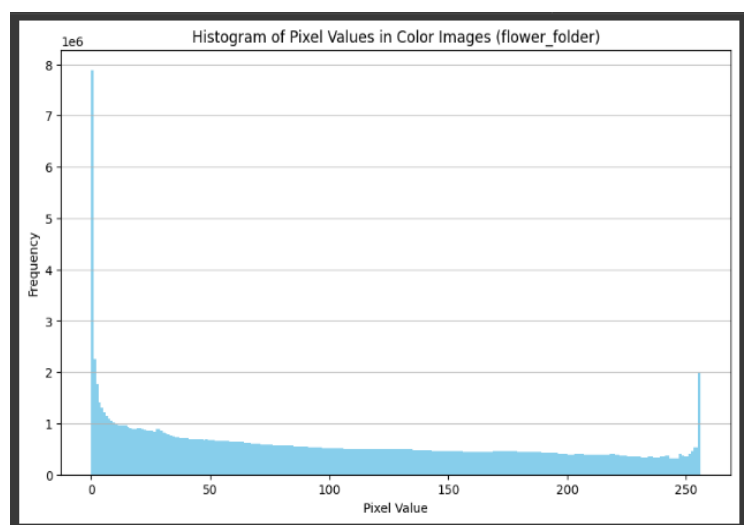


Figure: 02: Image of index 10 and histogram of images.