Objective:

The goal of this assignment is to write a Python program that uses the K-Means clustering algorithm to extract the color palette (top 3 dominant colors) from an image.

Instructions:

1. **Set Up Your Environment:**
    - Install the necessary libraries: `numpy`, `opencv-python` or `pillow`, `scikit-learn`, and `matplotlib`.
2. **Read and Preprocess the Image:**
    - Use OpenCV or Pillow to read the image.
    - Convert the image from BGR (OpenCV format) to RGB, or set the mode to RGB if you are using pillow.
3. **Reshape the Image:**
    - Reshape the image into a 2D array of pixels, where each pixel is represented by its RGB values.
4. **Apply K-Means Clustering:**
    - Use the K-Means algorithm from the `sklearn`
    - Set the number of clusters to 5 to find the top 5 dominant colors.
    - Fit the model to the image data and predict the cluster for each pixel.
5. **Extract Dominant Colors:**
    - Calculate the centroid of each cluster, which represents the dominant color.
    - Convert these centroid values to integers to represent RGB values.
6. **Visualize the Results:**
    - Display the original image and a color bar showing the top 5 dominant colors.