EDGE INTELLIGENCE

LAB - 1

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CODE:

```python
import os

import glob

import cv2

import numpy as np

import matplotlib.pyplot as plt

import random # <-- Import the random module


# Define the exact path to your dataset folder using a raw string (r"...")

data_dir = r"C:\Users\batch1\Downloads\Celebrity_Faces_Dataset"


# --- Reshape Parameters ---

TARGET_HEIGHT = 128

TARGET_WIDTH = 128

TARGET_SHAPE = (TARGET_WIDTH, TARGET_HEIGHT) # OpenCV
expects (width, height) order for size


# 1. Find the paths for all image files in the directory

image_paths = glob.glob(os.path.join(data_dir, '*.jpg'))


total_images_found = len(image_paths)

print(f"Found {total_images_found} images total.")
```

```python
# --- ADDED: Shuffle the paths randomly ---
random.shuffle(image_paths)
print("Image paths have been randomly shuffled.")



# 2. Load and Reshape all images using OpenCV
loaded_images_rgb = []
for path in image_paths:
    img_bgr = cv2.imread(path)

    if img_bgr is not None:
        # Reshape the image
        img_resized_bgr = cv2.resize(img_bgr, TARGET_SHAPE, interpolation=cv2.INTER_AREA)

        # Convert BGR to RGB for consistent display in Matplotlib
        img_resized_rgb = cv2.cvtColor(img_resized_bgr, cv2.COLOR_BGR2RGB)

        loaded_images_rgb.append(img_resized_rgb)
    else:
        print(f"Error loading image: {path}")

# Convert the list of images into a single NumPy array
images_np = np.array(loaded_images_rgb)

print(f"\nSuccessfully loaded {len(images_np)} images into a NumPy array.")
print(f"Shape of the final NumPy array: {images_np.shape}")
```

\# 3. Display a few images to confirm loading and shape

\# These 4 images will be different every time you run the entire cell block:

```python
if len(images_np) > 0:
    plt.figure(figsize=(12, 4))
    for i in range(min(4, len(images_np))):
        plt.subplot(1, 4, i + 1)
        plt.imshow(images_np[i])
        plt.title(f"Image {i+1} (Random)")
        plt.axis('off')
    plt.show()
```

OUTPUT:

```
Found 50000 images total.
Image paths have been randomly shuffled.

Successfully loaded 50000 images into a NumPy array.
Shape of the final NumPy array: (50000, 128, 128, 3)
```


Image 1 (Random)   Image 2 (Random)   Image 3 (Random)   Image 4 (Random)