!pip install albumentations opencv-python matplotlib

from google.colab import files

import cv2

import albumentations as A

import matplotlib.pyplot as plt

import os

import shutil

# Upload an image

uploaded = files.upload()

file\_path = next(iter(uploaded)) # Get the uploaded file name

# Load the image

image = cv2.imread(file\_path)

if image is None:

print("Failed to load the image. Please upload a valid image file.")

else:

print(f"Successfully loaded: {file\_path}")

# Display the original image

def display\_image(image, title="Image"):

plt.imshow(cv2.cvtColor(image, cv2.COLOR\_BGR2RGB))

plt.title(title)

plt.axis("off")

plt.show()

display\_image(image, title="Original Image")

# Apply augmentations and save images

def apply\_augmentations(image, output\_dir="augmented\_images"):

# ✅ Delete old images before saving new ones

if os.path.exists(output\_dir):

shutil.rmtree(output\_dir) # Remove previous images

os.makedirs(output\_dir, exist\_ok=True) # Recreate folder

# ✅ Save the original image first

original\_path = os.path.join(output\_dir, "original\_image.png")

cv2.imwrite(original\_path, image)

# Define augmentations

augmentations = [

A.HorizontalFlip(p=1.0), # Horizontal Flip → Augmented 1

A.VerticalFlip(p=1.0), # Vertical Flip → Augmented 2

]

augmented\_images = []

for i, transform in enumerate(augmentations):

augmented = transform(image=image)["image"]

output\_path = os.path.join(output\_dir, f"augmented\_{i+1}.png")

cv2.imwrite(output\_path, augmented)

display\_image(augmented, title=f"Augmented {i+1}")

augmented\_images.append(augmented)

# ✅ Apply horizontal flip on the vertically flipped image

vert\_horiz\_flip = A.HorizontalFlip(p=1.0)(image=augmented\_images[1])["image"] # Augmented 3

output\_path = os.path.join(output\_dir, "augmented\_3.png")

cv2.imwrite(output\_path, vert\_horiz\_flip)

display\_image(vert\_horiz\_flip, title="Augmented 3 (Vertical + Horizontal Flip)")

apply\_augmentations(image)

# ✅ Ensure ZIP contains all augmented images

shutil.make\_archive("augmented\_images", "zip", "augmented\_images")

files.download("augmented\_images.zip")