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from sklearn.model_selection import train_test_split
from sklearn.svm import SVC
from sklearn.metrics import accuracy_score
from tensorflow.keras.preprocessing.image import img_to_array, load_img
import numpy as np
import os
import zipfile
import requests
url = 'https://storage.googleapis.com/mledu-datasets/cats_and_dogs_filtered.zip'
filename = 'cats_and_dogs_filtered.zip'

if not os.path.exists(filename):
    print("Downloading dataset...")
    r = requests.get(url)
    with open(filename, 'wb') as f:
        f.write(r.content)
    print("Download complete.")
if not os.path.exists('cats_and_dogs_filtered'):
    with zipfile.ZipFile(filename, 'r') as zip_ref:
        zip_ref.extractall()
data = []
labels = []
base_dir = 'cats_and_dogs_filtered/train'

for category in ['cats', 'dogs']:
    folder = os.path.join(base_dir, category)
    for img_name in os.listdir(folder)[:100]:
        img_path = os.path.join(folder, img_name)
        img = load_img(img_path, target_size=(64, 64))
        img = img_to_array(img).flatten() / 255.0
        data.append(img)
        labels.append(0 if category == 'cats' else 1)

X = np.array(data)
y = np.array(labels)
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
model = SVC(kernel='linear')
model.fit(X_train, y_train)
y_pred = model.predict(X_test)
acc = accuracy_score(y_test, y_pred)
print(f"SVM Cats vs Dogs Accuracy: {acc * 100:.2f}%")

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➡ Downloading dataset...
Download complete.
SVM Cats vs Dogs Accuracy: 67.50%

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