Tensor flow Code for Model Training

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import tensorflow as tf
from tensorflow.keras.applications import ResNet50
from tensorflow.keras.models import Model
from tensorflow.keras.layers import Dense, Flatten
from tensorflow.keras.optimizers import Adam

train_data_dir = 'Strawberry_DataSet'
# Set the image dimensions and number of classes
image_size = (224, 224)
num_classes = 3

# Set up data augmentation and preprocessing
datagen = tf.keras.preprocessing.image.ImageDataGenerator(
    rescale=1./255,
    rotation_range=20,
    width_shift_range=0.2,
    height_shift_range=0.2,
    shear_range=0.2,
    zoom_range=0.2,
    horizontal_flip=True
)

# Load the dataset
train_data = datagen.flow_from_directory(
    train_data_dir,
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    target_size=image_size,
    batch_size=32,
    class_mode='categorical'
)

# Load the pre-trained Coco SSD model without the classification head
base_model = ResNet50(weights='imagenet',include_top=False,  input_shape=(224,224, 3))

# Freeze the base model layers
for layer in base_model.layers:
    layer.trainable = False

# Add a classification head on top of the base model
x = Flatten()(base_model.output)
x = Dense(256, activation='relu')(x)
x = Dense(num_classes, activation='softmax')(x)

# Create the final model
model = Model(inputs=base_model.input, outputs=x)

# # Compile the model
model.compile(optimizer=Adam(), loss='categorical_crossentropy', metrics=['accuracy'])

# Train the model
model.fit(
    train_data,
    epochs=20
)
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# Save the trained model
model.save('strawberry_rapiness_model.h5')
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