```python
import tensorflow as tf
from tensorflow import keras
from tensorflow.keras import layers
from tensorflow.keras.preprocessing.image import ImageDataGenerator
IMG_SIZE = 244
BATCH_SIZE = 32


train_datagen = ImageDataGenerator(rescale=1./255,validation_split=0.2) # Correct the typo here


train_generator = train_datagen.flow_from_directory(
    '/content/drive/MyDrive/Eggs Classification',
    target_size=(IMG_SIZE, IMG_SIZE),
    batch_size= BATCH_SIZE,
    class_mode='binary',
    subset='training'
    )
val_generator = train_datagen.flow_from_directory(
    '/content/drive/MyDrive/Eggs Classification',
        target_size=(IMG_SIZE,IMG_SIZE),
        batch_size=BATCH_SIZE,
        class_mode='binary',
        subset='validation'
    )
```

```
Found 636 images belonging to 2 classes.
Found 158 images belonging to 2 classes.
```

```python
model = keras.Sequential([
    layers.Conv2D(32, (3,3),activation='relu',input_shape=(IMG_SIZE,IMG_SIZE,3)),
    layers.MaxPooling2D(2,2),
    layers.Conv2D(64,(3,3),activation='relu'),
    layers.MaxPooling2D(2,2),
    layers.Conv2D(128,(3,3),activation='relu'),
    layers.MaxPooling2D(2,2),
    layers.Flatten(),
    layers.Dense(128,activation='relu'),
    layers.Dense(1,activation='sigmoid')  #output layer
])


model.compile(optimizer='adam',loss='binary_crossentropy', metrics=['accuracy'])


model.fit(train_generator,validation_data=val_generator,epochs=5)
```

```
Epoch 1/5
20/20 [==============================] - 198s 10s/step - loss: 0.7381 - accuracy: 0.7217 - val_loss: 0.5197 - val_accu
Epoch 2/5
20/20 [==============================] - 106s 5s/step - loss: 0.4653 - accuracy: 0.8066 - val_loss: 0.5138 - val_accur
Epoch 3/5
20/20 [==============================] - 112s 6s/step - loss: 0.3915 - accuracy: 0.8412 - val_loss: 0.5316 - val_accur
Epoch 4/5
```

```python
model.save("Model.h5","label.txt")
```

```
/usr/local/lib/python3.10/dist-packages/keras/src/engine/training.py:3103: UserWarning: You are saving your model as a
  saving_api.save_model(
```

```python
from tensorflow.keras.models import load_model
from tensorflow.keras.preprocessing import image
import numpy as np


model = load_model('/content/Model.h5')
test_image_path = ('/content/drive/MyDrive/Eggs Classification/Not Damaged/not_damaged_1.jpg')
img = image.load_img(test_image_path, target_size=(244, 244))  # Change target size to 244x244
img_array = image.img_to_array(img)
img_array = np.expand_dims(img_array, axis=0)

img_array = img_array / 255.0
```

```python
predictions = model.predict(img_array)
print(predictions)
```

```
1/1 [==============================] - 0s 182ms/step
[[0.12986402]]
```

```python
if predictions < 0.5:
    print('It is a Damaged')
else:
    print('It is a Not Damaged')
```

```
It is a Damaged
```