```
from google.colab import drive
drive.amount('/content/gdrive')
```

```
Mounted at /content/gdrive
```

```
!wget https://bitbucket.org/ishaanjav/code-and-deploy-custom-tensorflow-lite-model/raw/a4
```

```
--2025-06-23 07:28:53--  https://bitbucket.org/ishaanjav/code-and-deploy-custom-tensc
Resolving bitbucket.org (bitbucket.org)... 104.192.142.26, 104.192.142.25, 104.192.14
Connecting to bitbucket.org (bitbucket.org)|104.192.142.26|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 105946856 (101M) [application/zip]
Saving to: ‘fruits.zip’

fruits.zip          100%[===================>] 101.04M  17.1MB/s    in 6.2s

2025-06-23 07:29:01 (16.2 MB/s) - ‘fruits.zip’ saved [105946856/105946856]
```

```
!unzip fruits.zip
```

```
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.56.02 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.56.0
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.58.24 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.58.2
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.58.28 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.58.2
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.57.37 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.57.3
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.58.02 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.58.0
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.57.52 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.57.5
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.57.07 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.57.0
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.58.18 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.58.1
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.56.48 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.56.4
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.56.35 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.56.3
  inflating: fruits/validation/orange/Screen Shot 2018-06-12 at 11.58.43 PM.png
  inflating: __MACOSX/fruits/validation/orange/._Screen Shot 2018-06-12 at 11.58.4
```

```
import tensorflow as tf
import matplotlib.pyplot as plt
```

```
tf.__version__
```

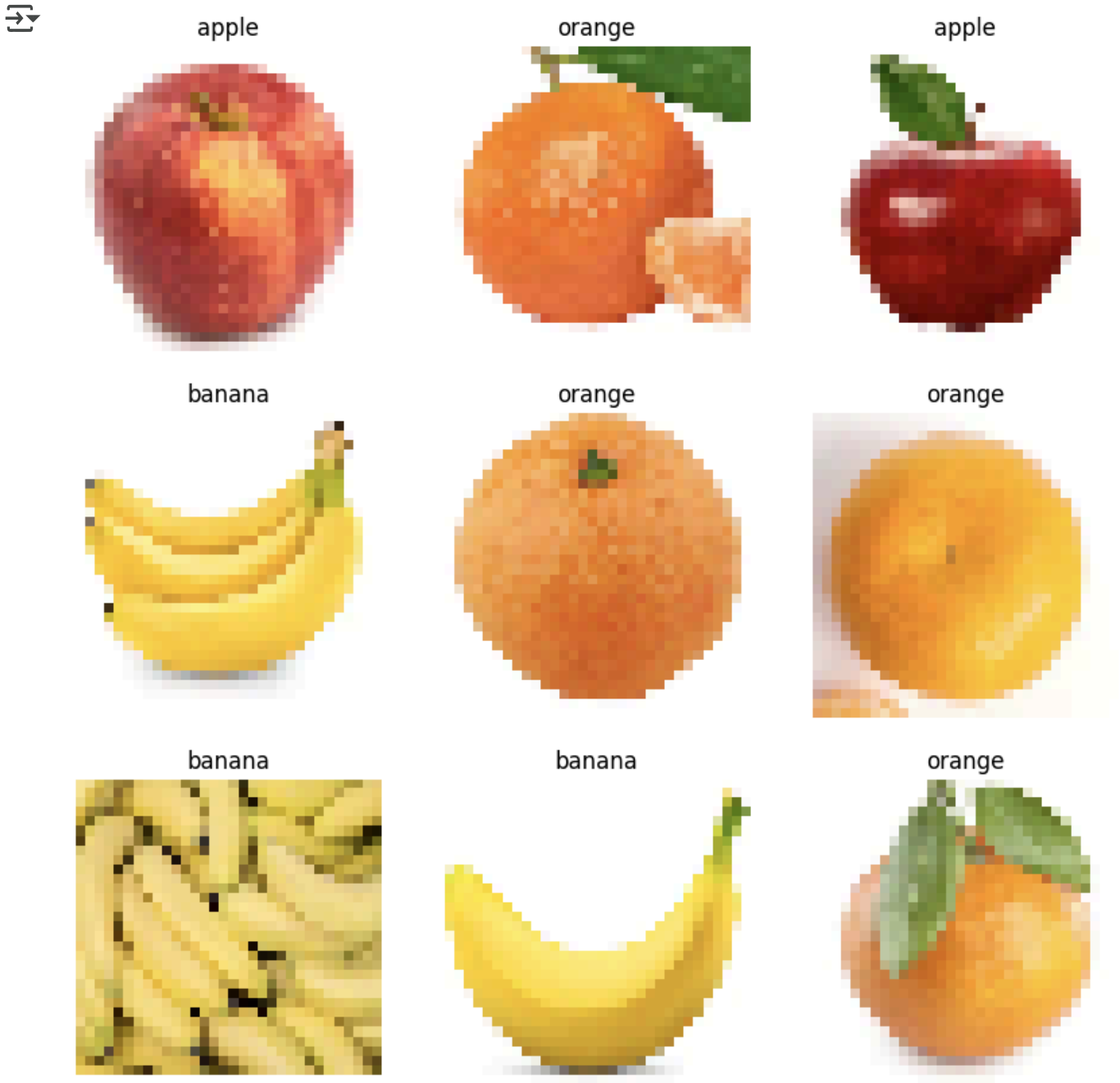
```
'2.18.0'
```

```
img_height, img_width = 32, 32
batch_size = 20

train_ds = tf.keras.utils.image_dataset_from_directory(
    "fruits/train",
    image_size = (img_height, img_width),
    batch_size = batch_size
)
val_ds = tf.keras.utils.image_dataset_from_directory(
    "fruits/validation",
    image_size = (img_height, img_width),
    batch_size = batch_size
)
test_ds = tf.keras.utils.image_dataset_from_directory(
    "fruits/test",
    image_size = (img_height, img_width),
    batch_size = batch_size
)
```

```
Found 460 files belonging to 3 classes.
Found 66 files belonging to 3 classes.
Found 130 files belonging to 3 classes.
```

```
class_names = ["apple", "banana", "orange"]
plt.figure(figsize=(10,10))
for images, labels in train_ds.take(1):
  for i in range(9):
    ax = plt.subplot(3, 3, i + 1)
    plt.imshow(images[i].numpy().astype("uint8"))
    plt.title(class_names[labels[i]])
    plt.axis("off")
```



```
   model = tf.keras.Sequential(
[
 tf.keras.layers.Rescaling(1./255),
 tf.keras.layers.Conv2D(32, 3, activation="relu"),
 tf.keras.layers.MaxPooling2D(),
 tf.keras.layers.Conv2D(64, 3, activation="relu"),
 tf.keras.layers.MaxPooling2D(),
 tf.keras.layers.Conv2D(128, 3, activation="relu"),
 tf.keras.layers.MaxPooling2D(),
 tf.keras.layers.Flatten(),
 tf.keras.layers.Dense(128, activation="softmax"),
 tf.keras.layers.Dense(3)
]
)


model.compile(
    optimizer="rmsprop",
    loss=tf.keras.losses.SparseCategoricalCrossentropy(from_logits=True),
    metrics=["accuracy"]
)


model.fit(
    train_ds,
    validation_data=val_ds,
    epochs=20

)
```

```
Epoch 1/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 4s 103ms/step - accuracy: 0.3369 - loss: 1.0987 - val_accu
Epoch 2/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 2s 99ms/step - accuracy: 0.4083 - loss: 1.0909 - val_accur
Epoch 3/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 2s 108ms/step - accuracy: 0.4982 - loss: 1.0570 - val_accu
Epoch 4/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 4s 166ms/step - accuracy: 0.5626 - loss: 0.9898 - val_accu
Epoch 5/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 3s 96ms/step - accuracy: 0.5685 - loss: 0.9844 - val_accur
Epoch 6/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 3s 100ms/step - accuracy: 0.6191 - loss: 0.9538 - val_accu
Epoch 7/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 2s 102ms/step - accuracy: 0.6884 - loss: 0.9235 - val_accu
Epoch 8/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 3s 114ms/step - accuracy: 0.7765 - loss: 0.9111 - val_accu
Epoch 9/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 5s 100ms/step - accuracy: 0.7167 - loss: 0.9037 - val_accu
Epoch 10/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 2s 96ms/step - accuracy: 0.7706 - loss: 0.8739 - val_accur
Epoch 11/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 3s 108ms/step - accuracy: 0.8628 - loss: 0.8228 - val_accu
Epoch 12/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 3s 127ms/step - accuracy: 0.8357 - loss: 0.8069 - val_accu
Epoch 13/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 4s 177ms/step - accuracy: 0.9240 - loss: 0.7608 - val_accu
Epoch 14/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 3s 104ms/step - accuracy: 0.8973 - loss: 0.7464 - val_accu
```

```
Epoch 15/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 2s 103ms/step - accuracy: 0.8817 - loss: 0.7462 - val_accu
Epoch 16/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 2s 97ms/step - accuracy: 0.9267 - loss: 0.6940 - val_accur
Epoch 17/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 3s 128ms/step - accuracy: 0.9092 - loss: 0.6908 - val_accu
Epoch 18/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 4s 151ms/step - accuracy: 0.9504 - loss: 0.6453 - val_accu
Epoch 19/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 2s 100ms/step - accuracy: 0.9424 - loss: 0.6338 - val_accu
Epoch 20/20
23/23 ━━━━━━━━━━━━━━━━━━━━ 3s 123ms/step - accuracy: 0.9577 - loss: 0.6094 - val_accu
<keras.src.callbacks.history.History at 0x7d60f97aef90>
```

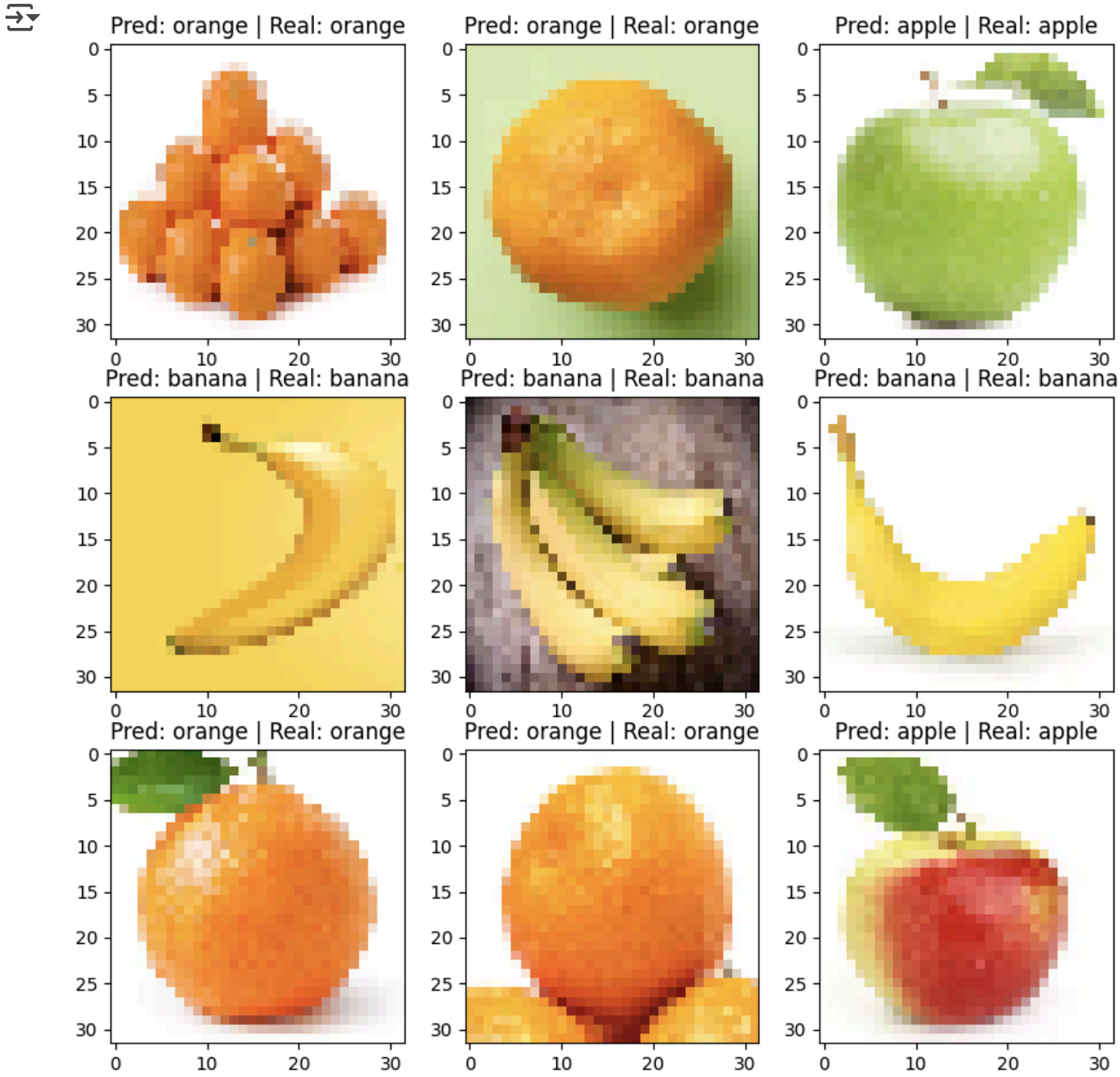
```
model.evaluate(test_ds)
```

```
7/7 ━━━━━━━━━━━━━━━━━━━━ 0s 68ms/step - accuracy: 0.9664 - loss: 0.6036
[0.6072096824645996, 0.9615384340286255]
```

```
import numpy

plt.figure(figsize=(10,10))
for images, labels in test_ds.take(1):
  classifications = model(images)
  # print(classifications)

  for i in range(9):
    ax = plt.subplot(3, 3, i + 1)
    plt.imshow(images[i].numpy().astype("uint8"))
    index = numpy.argmax(classifications[i])
    plt.title("Pred: " + class_names[index] + " | Real: " + class_names[labels[i]])
```




```
converter = tf.lite.TFLiteConverter.from_keras_model(model)
tflite_model = converter.convert()

with open("model.tflite", 'wb') as f:
  f.write(tflite_model)
```

```
Saved artifact at '/tmp/tmp6fyqe_17'. The following endpoints are available:

    * Endpoint 'serve'
```

```
  args_0 (POSITIONAL_ONLY): TensorSpec(shape=(None, 32, 32, 3), dtype=tf.float32, nam
Output Type:
  TensorSpec(shape=(None, 3), dtype=tf.float32, name=None)
Captures:
  137855451716432: TensorSpec(shape=(), dtype=tf.resource, name=None)
  137855451720464: TensorSpec(shape=(), dtype=tf.resource, name=None)
  137855451720656: TensorSpec(shape=(), dtype=tf.resource, name=None)
  137855451721616: TensorSpec(shape=(), dtype=tf.resource, name=None)
  137855451721040: TensorSpec(shape=(), dtype=tf.resource, name=None)
  137855451722576: TensorSpec(shape=(), dtype=tf.resource, name=None)
  137855451722960: TensorSpec(shape=(), dtype=tf.resource, name=None)
  137855451723920: TensorSpec(shape=(), dtype=tf.resource, name=None)
  137855451724304: TensorSpec(shape=(), dtype=tf.resource, name=None)
  137855451724688: TensorSpec(shape=(), dtype=tf.resource, name=None)
```

Start coding or generate with AI.

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