```python
# ✅ Step 1: Upload kaggle.json (only once per session)
from google.colab import files
files.upload()  # Upload your kaggle.json file here (from Kaggle account settings)

# ✅ Step 2: Move kaggle.json to the appropriate folder
!mkdir -p ~/.kaggle
!cp kaggle.json ~/.kaggle/
!chmod 600 ~/.kaggle/kaggle.json

# ✅ Step 3: Install kaggle CLI
!pip install -q kaggle

# ✅ Step 4: Download the dataset from Kaggle (example: dog vs cat dataset)
!kaggle datasets download -d chetankv/dogs-cats-images

# ✅ Step 5: Unzip the downloaded dataset
!unzip -q dogs-cats-images.zip -d dataset

# ✅ Step 6: Load the dataset using TensorFlow / Keras
from tensorflow.keras.preprocessing.image import ImageDataGenerator

# Paths for train and test folders
train_dir = 'dataset/dog vs cat/dataset/training_set'
test_dir = 'dataset/dog vs cat/dataset/test_set'

# ✅ Step 7: Data preprocessing
train_datagen = ImageDataGenerator(rescale=1./255)
test_datagen = ImageDataGenerator(rescale=1./255)

# ✅ Step 8: Flow from directory
train_data = train_datagen.flow_from_directory(
    train_dir,
    target_size=(64, 64),
    batch_size=32,
    class_mode='binary'
)

test_data = test_datagen.flow_from_directory(
    test_dir,
    target_size=(64, 64),
    batch_size=32,
    class_mode='binary'
)
```

What can I help you build?

⊡ [Choose files] kaggle.json
- **kaggle.json**(application/json) - 67 bytes, last modified: 16/06/2025 - 100% done
Saving kaggle.json to kaggle (1).json
Dataset URL: https://www.kaggle.com/datasets/chetankv/dogs-cats-images
License(s): CC0-1.0
dogs-cats-images.zip: Skipping, found more recently modified local copy (use --force to force download)
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replace dataset/dataset/test_set/cats/cat.4059.jpg? [y]es, [n]o, [A]ll, [N]one, [r]ename: A


Found 8000 images belonging to 2 classes.
Found 2000 images belonging to 2 classes.
```

```python
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Conv2D, MaxPooling2D, Flatten, Dense

model = Sequential([
    Conv2D(32, (3, 3), activation='relu', input_shape=(64, 64, 3)),
    MaxPooling2D(pool_size=(2, 2)),
    Flatten(),
    Dense(128, activation='relu'),
    Dense(1, activation='sigmoid')  # Binary output
])

model.compile(optimizer='adam', loss='binary_crossentropy', metrics=['accuracy'])
model.fit(train_data, validation_data=test_data, epochs=5)
```

```
/usr/local/lib/python3.11/dist-packages/keras/src/layers/convolutional/base_conv.py:107: UserWarning: Do not pass an `input_shape`/`inpu
    super().__init__(activity_regularizer=activity_regularizer, **kwargs)
/usr/local/lib/python3.11/dist-packages/keras/src/trainers/data_adapters/py_dataset_adapter.py:121: UserWarning: Your `PyDataset` class
    self._warn_if_super_not_called()
Epoch 1/5
250/250 ───────────────────── 0s 140ms/step - accuracy: 0.5439 - loss: 0.8491/usr/local/lib/python3.11/dist-packages/keras/src/trainers/c
    self._warn_if_super_not_called()
250/250 ───────────────────── 42s 162ms/step - accuracy: 0.5441 - loss: 0.8485 - val_accuracy: 0.6550 - val_loss: 0.6239
Epoch 2/5
250/250 ───────────────────── 39s 156ms/step - accuracy: 0.7013 - loss: 0.5833 - val_accuracy: 0.7165 - val_loss: 0.5674
Epoch 3/5
250/250 ───────────────────── 39s 156ms/step - accuracy: 0.7414 - loss: 0.5242 - val_accuracy: 0.6735 - val_loss: 0.6128
Epoch 4/5
250/250 ───────────────────── 39s 156ms/step - accuracy: 0.7800 - loss: 0.4634 - val_accuracy: 0.6810 - val_loss: 0.5922
Epoch 5/5
250/250 ───────────────────── 38s 153ms/step - accuracy: 0.8046 - loss: 0.4203 - val_accuracy: 0.7340 - val_loss: 0.5486
<keras.src.callbacks.history.History at 0x7cc0df923250>
```

```python
loss, accuracy = model.evaluate(test_data)
print(f"Test Accuracy: {accuracy*100:.2f}%")
```

```
63/63 ───────────────────── 4s 58ms/step - accuracy: 0.7162 - loss: 0.5698
Test Accuracy: 73.40%
```

```python
model.save("binary_classifier_model.h5")
```

```
WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or `keras.saving.save_model(model)`. This file format is consi
```

```python
import numpy as np
import matplotlib.pyplot as plt
from tensorflow.keras.preprocessing import image


def predict_image(img_path):
    img = image.load_img(img_path, target_size=(64, 64))
    img_array = image.img_to_array(img)
    img_array = np.expand_dims(img_array, axis=0)  # Add batch dimension
    img_array = img_array / 255.0  # Normalize

    prediction = model.predict(img_array)[0][0]

    if prediction > 0.5:
        label = "Dog 🐶"
    else:
        label = "Cat 🐱"

    plt.imshow(img)
    plt.title(f"Prediction: {label}")
    plt.axis('off')
    plt.show()
```

```
predict_image('dataset/dog vs cat/dataset/test_set/dogs/dog.4001.jpg')  # replace with any test image path
```

1/1 ───────────── 0s 112ms/step
/usr/local/lib/python3.11/dist-packages/IPython/core/pylabtools.py:151: UserWarning: Glyph 128054 (\N{DOG FACE}) missing from font(s) De
  fig.canvas.print_figure(bytes_io, **kw)


```
from google.colab import files
uploaded = files.upload()  # Upload your own cat or dog image

for img_name in uploaded.keys():
    predict_image(img_name)
```

Choose files 5.jpg
 • **5.jpg**(image/jpeg) - 19175 bytes, last modified: 25/09/2019 - 100% done
Saving 5.jpg to 5.jpg
1/1 ───────────── 0s 71ms/step