**Cat and Dog Image Classifier : Develop an image classification model to distinguish between images of cats and dogs using data science techniques in Python.**

import tensorflow as tf

from tensorflow.keras.preprocessing.image import ImageDataGenerator

# Data preprocessing

train\_datagen = ImageDataGenerator(

rescale=1./255,

shear\_range=0.2,

zoom\_range=0.2,

horizontal\_flip=True

)

train\_generator = train\_datagen.flow\_from\_directory(

'train\_data',

target\_size=(224, 224),

batch\_size=32,

class\_mode='binary'

)

test\_datagen = ImageDataGenerator(rescale=1./255)

test\_generator = test\_datagen.flow\_from\_directory(

'test\_data',

target\_size=(224, 224),

batch\_size=32,

class\_mode='binary'

)

# Model selection and training

base\_model = tf.keras.applications.MobileNetV2(input\_shape=(224, 224, 3),

include\_top=False,

weights='imagenet')

base\_model.trainable = False

model = tf.keras.Sequential([

base\_model,

tf.keras.layers.GlobalAveragePooling2D(),

tf.keras.layers.Dense(1, activation='sigmoid')

])

model.compile(optimizer='adam',

loss='binary\_crossentropy',

metrics=['accuracy'])

model.fit(train\_generator,

steps\_per\_epoch=len(train\_generator),

epochs=10,

validation\_data=test\_generator,

validation\_steps=len(test\_generator))

# Model evaluation

loss, accuracy = model.evaluate(test\_generator)

print('Test Accuracy:', accuracy)