Code for poultry disease for enhanced health management

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PROGRAM

import os

import tensorflow as tf

from tensorflow.keras.preprocessing.image import ImageDataGenerator

from tensorflow.keras.applications import MobileNetV2

from tensorflow.keras.models import Model

from tensorflow.keras.layers import Dense, GlobalAveragePooling2D

from tensorflow.keras.optimizers import Adam

# Set paths

TRAIN\_DIR = "data/train"

VAL\_DIR = "data/val"

MODEL\_PATH = "model/poultry\_model.h5"

# Image settings

IMG\_SIZE = 224

BATCH\_SIZE = 32

# Data generators

train\_datagen = ImageDataGenerator(

rescale=1./255,

rotation\_range=30,

zoom\_range=0.2,

horizontal\_flip=True,

)

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

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

TRAIN\_DIR,

target\_size=(IMG\_SIZE, IMG\_SIZE),

batch\_size=BATCH\_SIZE,

class\_mode='categorical'

)

val\_data = val\_datagen.flow\_from\_directory(

VAL\_DIR,

target\_size=(IMG\_SIZE, IMG\_SIZE),

batch\_size=BATCH\_SIZE,

class\_mode='categorical'

)

# Load base model

base\_model = MobileNetV2(weights='imagenet', include\_top=False, input\_shape=(IMG\_SIZE, IMG\_SIZE, 3))

# Freeze base model

base\_model.trainable = False

# Add classification head

x = base\_model.output

x = GlobalAveragePooling2D()(x)

x = Dense(128, activation='relu')(x)

predictions = Dense(train\_data.num\_classes, activation='softmax')(x)

model = Model(inputs=base\_model.input, outputs=predictions)

# Compile model

model.compile(optimizer=Adam(learning\_rate=