Database Connection Started

2024-05-14 01:18:44.159458: I tensorflow/core/util/port.cc:113] oneDNN custom operations are on. You may see slightly different numerical results due to floating-point round-off errors from different computation orders. To turn them off, set the environment variable `TF\_ENABLE\_ONEDNN\_OPTS=0`.

2024-05-14 01:18:48.057953: I tensorflow/core/util/port.cc:113] oneDNN custom operations are on. You may see slightly different numerical results due to floating-point round-off errors from different computation orders. To turn them off, set the environment variable `TF\_ENABLE\_ONEDNN\_OPTS=0`.

Hello, world!

Starting DataPreparation

Orignal Data :

Connected to the database

Database connection closed.

Train data count: 858

Test data count: 220

Species dict: {1: 'Aloevera', 2: 'Amla', 3: 'Amruthaballi', 4: 'Arali', 5: 'Ashoka', 6: 'Bamboo', 7: 'Betel', 8: 'Brahmi', 9: 'Castor', 10: 'Curry'}

Data preparation complete.

staring training InceptionV3

2024-05-14 01:19:23.055203: I tensorflow/core/platform/cpu\_feature\_guard.cc:210] This TensorFlow binary is optimized to use available CPU instructions in performance-critical operations.

To enable the following instructions: AVX2 FMA, in other operations, rebuild TensorFlow with the appropriate compiler flags.

Epoch 1/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.5790 - loss: 2.0046

Epoch 1: val\_loss improved from inf to 19.19893, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 44s 1s/step - accuracy: 0.5835 - loss: 1.9887 - val\_accuracy: 0.4409 - val\_loss: 19.1989 - learning\_rate: 0.0100

Epoch 2/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.8902 - loss: 0.5602

Epoch 2: val\_loss improved from 19.19893 to 8.91796, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.8908 - loss: 0.5585 - val\_accuracy: 0.6136 - val\_loss: 8.9180 - learning\_rate: 0.0100

Epoch 3/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9568 - loss: 0.2468

Epoch 3: val\_loss improved from 8.91796 to 4.47555, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9565 - loss: 0.2489 - val\_accuracy: 0.7227 - val\_loss: 4.4756 - learning\_rate: 0.0100

Epoch 4/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9541 - loss: 0.2191

Epoch 4: val\_loss improved from 4.47555 to 2.02145, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9540 - loss: 0.2200 - val\_accuracy: 0.8273 - val\_loss: 2.0214 - learning\_rate: 0.0100

Epoch 5/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9559 - loss: 0.2133

Epoch 5: val\_loss did not improve from 2.02145

27/27 ━━━━━━━━━━━━━━━━━━━━ 35s 1s/step - accuracy: 0.9560 - loss: 0.2125 - val\_accuracy: 0.8000 - val\_loss: 2.7485 - learning\_rate: 0.0100

Epoch 6/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9877 - loss: 0.0520

Epoch 6: val\_loss improved from 2.02145 to 0.94178, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9874 - loss: 0.0536 - val\_accuracy: 0.9000 - val\_loss: 0.9418 - learning\_rate: 0.0100

Epoch 7/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9837 - loss: 0.1075

Epoch 7: val\_loss improved from 0.94178 to 0.64520, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9834 - loss: 0.1081 - val\_accuracy: 0.9364 - val\_loss: 0.6452 - learning\_rate: 0.0100

Epoch 8/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9823 - loss: 0.0772

Epoch 8: val\_loss did not improve from 0.64520

27/27 ━━━━━━━━━━━━━━━━━━━━ 35s 1s/step - accuracy: 0.9822 - loss: 0.0785 - val\_accuracy: 0.9136 - val\_loss: 0.9279 - learning\_rate: 0.0100

Epoch 9/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9798 - loss: 0.0767

Epoch 9: ReduceLROnPlateau reducing learning rate to 0.0009999999776482583.

Epoch 9: val\_loss did not improve from 0.64520

27/27 ━━━━━━━━━━━━━━━━━━━━ 35s 1s/step - accuracy: 0.9798 - loss: 0.0774 - val\_accuracy: 0.8955 - val\_loss: 1.1440 - learning\_rate: 0.0100

Epoch 10/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9950 - loss: 0.0166

Epoch 10: val\_loss did not improve from 0.64520

27/27 ━━━━━━━━━━━━━━━━━━━━ 35s 1s/step - accuracy: 0.9949 - loss: 0.0167 - val\_accuracy: 0.9273 - val\_loss: 0.8281 - learning\_rate: 1.0000e-03

Epoch 11/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9856 - loss: 0.0487

Epoch 11: ReduceLROnPlateau reducing learning rate to 0.0001.

Epoch 11: val\_loss did not improve from 0.64520

27/27 ━━━━━━━━━━━━━━━━━━━━ 35s 1s/step - accuracy: 0.9859 - loss: 0.0480 - val\_accuracy: 0.9273 - val\_loss: 0.6741 - learning\_rate: 1.0000e-03

Epoch 12/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9925 - loss: 0.0287

Epoch 12: val\_loss improved from 0.64520 to 0.63539, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9925 - loss: 0.0287 - val\_accuracy: 0.9318 - val\_loss: 0.6354 - learning\_rate: 1.0000e-04

Epoch 13/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9865 - loss: 0.0237

Epoch 13: val\_loss improved from 0.63539 to 0.60999, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9867 - loss: 0.0236 - val\_accuracy: 0.9364 - val\_loss: 0.6100 - learning\_rate: 1.0000e-04

Epoch 14/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9956 - loss: 0.0134

Epoch 14: val\_loss improved from 0.60999 to 0.59096, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9955 - loss: 0.0134 - val\_accuracy: 0.9409 - val\_loss: 0.5910 - learning\_rate: 1.0000e-04

Epoch 15/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9967 - loss: 0.0060

Epoch 15: val\_loss improved from 0.59096 to 0.58004, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.9966 - loss: 0.0061 - val\_accuracy: 0.9455 - val\_loss: 0.5800 - learning\_rate: 1.0000e-04

Epoch 16/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9888 - loss: 0.0287

Epoch 16: val\_loss improved from 0.58004 to 0.57821, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 38s 1s/step - accuracy: 0.9888 - loss: 0.0290 - val\_accuracy: 0.9455 - val\_loss: 0.5782 - learning\_rate: 1.0000e-04

Epoch 17/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9960 - loss: 0.0112

Epoch 17: val\_loss improved from 0.57821 to 0.57646, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 41s 2s/step - accuracy: 0.9960 - loss: 0.0112 - val\_accuracy: 0.9455 - val\_loss: 0.5765 - learning\_rate: 1.0000e-04

Epoch 18/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9950 - loss: 0.0198

Epoch 18: val\_loss improved from 0.57646 to 0.57166, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.9950 - loss: 0.0200 - val\_accuracy: 0.9455 - val\_loss: 0.5717 - learning\_rate: 1.0000e-04

Epoch 19/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9973 - loss: 0.0099

Epoch 19: val\_loss improved from 0.57166 to 0.56693, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9971 - loss: 0.0101 - val\_accuracy: 0.9455 - val\_loss: 0.5669 - learning\_rate: 1.0000e-04

Epoch 20/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9918 - loss: 0.0156

Epoch 20: val\_loss improved from 0.56693 to 0.56479, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9919 - loss: 0.0154 - val\_accuracy: 0.9455 - val\_loss: 0.5648 - learning\_rate: 1.0000e-04

Epoch 21/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9957 - loss: 0.0182

Epoch 21: val\_loss improved from 0.56479 to 0.56193, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9956 - loss: 0.0185 - val\_accuracy: 0.9455 - val\_loss: 0.5619 - learning\_rate: 1.0000e-04

Epoch 22/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9935 - loss: 0.0087

Epoch 22: val\_loss improved from 0.56193 to 0.55745, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9936 - loss: 0.0086 - val\_accuracy: 0.9455 - val\_loss: 0.5574 - learning\_rate: 1.0000e-04

Epoch 23/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9951 - loss: 0.0179

Epoch 23: val\_loss improved from 0.55745 to 0.55246, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9951 - loss: 0.0180 - val\_accuracy: 0.9455 - val\_loss: 0.5525 - learning\_rate: 1.0000e-04

Epoch 24/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9969 - loss: 0.0080

Epoch 24: val\_loss improved from 0.55246 to 0.54671, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.9969 - loss: 0.0081 - val\_accuracy: 0.9455 - val\_loss: 0.5467 - learning\_rate: 1.0000e-04

Epoch 25/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9972 - loss: 0.0098

Epoch 25: val\_loss improved from 0.54671 to 0.53877, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9972 - loss: 0.0097 - val\_accuracy: 0.9455 - val\_loss: 0.5388 - learning\_rate: 1.0000e-04

Epoch 26/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9983 - loss: 0.0073

Epoch 26: val\_loss improved from 0.53877 to 0.53560, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 38s 1s/step - accuracy: 0.9983 - loss: 0.0073 - val\_accuracy: 0.9455 - val\_loss: 0.5356 - learning\_rate: 1.0000e-04

Epoch 27/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9974 - loss: 0.0136

Epoch 27: val\_loss improved from 0.53560 to 0.53470, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9974 - loss: 0.0137 - val\_accuracy: 0.9455 - val\_loss: 0.5347 - learning\_rate: 1.0000e-04

Epoch 28/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9992 - loss: 0.0013

Epoch 28: val\_loss improved from 0.53470 to 0.53376, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.9991 - loss: 0.0013 - val\_accuracy: 0.9455 - val\_loss: 0.5338 - learning\_rate: 1.0000e-04

Epoch 29/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9911 - loss: 0.0187

Epoch 29: val\_loss improved from 0.53376 to 0.53364, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.9912 - loss: 0.0184 - val\_accuracy: 0.9455 - val\_loss: 0.5336 - learning\_rate: 1.0000e-04

Epoch 30/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9941 - loss: 0.0125

Epoch 30: val\_loss improved from 0.53364 to 0.52727, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.9941 - loss: 0.0126 - val\_accuracy: 0.9455 - val\_loss: 0.5273 - learning\_rate: 1.0000e-04

Epoch 31/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9967 - loss: 0.0103

Epoch 31: val\_loss improved from 0.52727 to 0.52294, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.9967 - loss: 0.0104 - val\_accuracy: 0.9455 - val\_loss: 0.5229 - learning\_rate: 1.0000e-04

Epoch 32/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 1.0000 - loss: 0.0014

Epoch 32: val\_loss improved from 0.52294 to 0.52209, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 1.0000 - loss: 0.0014 - val\_accuracy: 0.9455 - val\_loss: 0.5221 - learning\_rate: 1.0000e-04

Epoch 33/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9955 - loss: 0.0170

Epoch 33: val\_loss improved from 0.52209 to 0.52036, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9955 - loss: 0.0171 - val\_accuracy: 0.9455 - val\_loss: 0.5204 - learning\_rate: 1.0000e-04

Epoch 34/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9998 - loss: 8.8963e-04

Epoch 34: val\_loss improved from 0.52036 to 0.51973, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.9998 - loss: 9.3169e-04 - val\_accuracy: 0.9500 - val\_loss: 0.5197 - learning\_rate: 1.0000e-04

Epoch 35/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9978 - loss: 0.0097

Epoch 35: val\_loss did not improve from 0.51973

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9978 - loss: 0.0098 - val\_accuracy: 0.9455 - val\_loss: 0.5217 - learning\_rate: 1.0000e-04

Epoch 36/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9963 - loss: 0.0141

Epoch 36: val\_loss improved from 0.51973 to 0.51865, saving model to InceptionV3\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9963 - loss: 0.0140 - val\_accuracy: 0.9455 - val\_loss: 0.5187 - learning\_rate: 1.0000e-04

Epoch 37/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9965 - loss: 0.0122

Epoch 37: val\_loss did not improve from 0.51865

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9965 - loss: 0.0122 - val\_accuracy: 0.9455 - val\_loss: 0.5193 - learning\_rate: 1.0000e-04

Epoch 38/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9961 - loss: 0.0119

Epoch 38: val\_loss did not improve from 0.51865

27/27 ━━━━━━━━━━━━━━━━━━━━ 35s 1s/step - accuracy: 0.9961 - loss: 0.0118 - val\_accuracy: 0.9455 - val\_loss: 0.5254 - learning\_rate: 1.0000e-04

Epoch 39/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9932 - loss: 0.0177

Epoch 39: val\_loss did not improve from 0.51865

27/27 ━━━━━━━━━━━━━━━━━━━━ 35s 1s/step - accuracy: 0.9932 - loss: 0.0179 - val\_accuracy: 0.9455 - val\_loss: 0.5240 - learning\_rate: 1.0000e-04

Epoch 40/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9982 - loss: 0.0063

Epoch 40: val\_loss did not improve from 0.51865

27/27 ━━━━━━━━━━━━━━━━━━━━ 36s 1s/step - accuracy: 0.9981 - loss: 0.0065 - val\_accuracy: 0.9455 - val\_loss: 0.5239 - learning\_rate: 1.0000e-04

Epoch 41/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.9993 - loss: 0.0013

Epoch 41: val\_loss did not improve from 0.51865

27/27 ━━━━━━━━━━━━━━━━━━━━ 35s 1s/step - accuracy: 0.9992 - loss: 0.0016 - val\_accuracy: 0.9455 - val\_loss: 0.5232 - learning\_rate: 1.0000e-04

27/27 ━━━━━━━━━━━━━━━━━━━━ 31s 1s/step

7/7 ━━━━━━━━━━━━━━━━━━━━ 7s 1s/step

Training R2: 0.9999999987023986, Mean R2: 1.1610964167441733e-10

Test R2: 0.8951964572081742, Mean R2: 0.009662283730956346

Train loss: 2.7705557386070723e-06, Train accuracy: 1.0

Test loss: 0.5232235789299011, Test accuracy: 0.9454545378684998

staring training InceptionResNetV2

WARNING:tensorflow:From C:\Users\kumar\AppData\Local\Programs\Python\Python312\Lib\site-packages\keras\src\backend\tensorflow\core.py:184: The name tf.placeholder is deprecated. Please use tf.compat.v1.placeholder instead.

Epoch 1/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.5616 - loss: 2.3578

Epoch 1: val\_loss improved from inf to 10.63663, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 115s 4s/step - accuracy: 0.5664 - loss: 2.3323 - val\_accuracy: 0.5000 - val\_loss: 10.6366 - learning\_rate: 0.0100

Epoch 2/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.8862 - loss: 0.5318

Epoch 2: val\_loss improved from 10.63663 to 2.89568, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 99s 4s/step - accuracy: 0.8863 - loss: 0.5315 - val\_accuracy: 0.7773 - val\_loss: 2.8957 - learning\_rate: 0.0100

Epoch 3/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9049 - loss: 0.5188

Epoch 3: val\_loss did not improve from 2.89568

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9049 - loss: 0.5166 - val\_accuracy: 0.7591 - val\_loss: 3.5609 - learning\_rate: 0.0100

Epoch 4/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.8961 - loss: 0.5581

Epoch 4: ReduceLROnPlateau reducing learning rate to 0.0009999999776482583.

Epoch 4: val\_loss did not improve from 2.89568

27/27 ━━━━━━━━━━━━━━━━━━━━ 95s 4s/step - accuracy: 0.8963 - loss: 0.5563 - val\_accuracy: 0.7364 - val\_loss: 3.8143 - learning\_rate: 0.0100

Epoch 5/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9456 - loss: 0.2765

Epoch 5: val\_loss improved from 2.89568 to 1.32886, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9459 - loss: 0.2741 - val\_accuracy: 0.8364 - val\_loss: 1.3289 - learning\_rate: 1.0000e-03

Epoch 6/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9618 - loss: 0.1717

Epoch 6: val\_loss improved from 1.32886 to 0.60121, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9616 - loss: 0.1724 - val\_accuracy: 0.9364 - val\_loss: 0.6012 - learning\_rate: 1.0000e-03

Epoch 7/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9690 - loss: 0.1118

Epoch 7: val\_loss improved from 0.60121 to 0.51790, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 97s 4s/step - accuracy: 0.9690 - loss: 0.1126 - val\_accuracy: 0.9364 - val\_loss: 0.5179 - learning\_rate: 1.0000e-03

Epoch 8/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9751 - loss: 0.0790

Epoch 8: val\_loss improved from 0.51790 to 0.49117, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 97s 4s/step - accuracy: 0.9750 - loss: 0.0795 - val\_accuracy: 0.9318 - val\_loss: 0.4912 - learning\_rate: 1.0000e-03

Epoch 9/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9834 - loss: 0.0715

Epoch 9: val\_loss improved from 0.49117 to 0.40881, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 97s 4s/step - accuracy: 0.9832 - loss: 0.0722 - val\_accuracy: 0.9455 - val\_loss: 0.4088 - learning\_rate: 1.0000e-03

Epoch 10/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9752 - loss: 0.1043

Epoch 10: val\_loss improved from 0.40881 to 0.39527, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9752 - loss: 0.1049 - val\_accuracy: 0.9409 - val\_loss: 0.3953 - learning\_rate: 1.0000e-03

Epoch 11/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9886 - loss: 0.0271

Epoch 11: val\_loss improved from 0.39527 to 0.39509, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9886 - loss: 0.0274 - val\_accuracy: 0.9364 - val\_loss: 0.3951 - learning\_rate: 1.0000e-03

Epoch 12/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9806 - loss: 0.1252

Epoch 12: val\_loss improved from 0.39509 to 0.35941, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9805 - loss: 0.1245 - val\_accuracy: 0.9455 - val\_loss: 0.3594 - learning\_rate: 1.0000e-03

Epoch 13/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9765 - loss: 0.0916

Epoch 13: val\_loss did not improve from 0.35941

27/27 ━━━━━━━━━━━━━━━━━━━━ 94s 4s/step - accuracy: 0.9766 - loss: 0.0908 - val\_accuracy: 0.9545 - val\_loss: 0.3972 - learning\_rate: 1.0000e-03

Epoch 14/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9855 - loss: 0.0324

Epoch 14: ReduceLROnPlateau reducing learning rate to 0.0001.

Epoch 14: val\_loss did not improve from 0.35941

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9855 - loss: 0.0325 - val\_accuracy: 0.9409 - val\_loss: 0.3728 - learning\_rate: 1.0000e-03

Epoch 15/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9784 - loss: 0.0661

Epoch 15: val\_loss did not improve from 0.35941

27/27 ━━━━━━━━━━━━━━━━━━━━ 95s 4s/step - accuracy: 0.9784 - loss: 0.0663 - val\_accuracy: 0.9455 - val\_loss: 0.3658 - learning\_rate: 1.0000e-04

Epoch 16/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9750 - loss: 0.0804

Epoch 16: val\_loss improved from 0.35941 to 0.35881, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 95s 4s/step - accuracy: 0.9752 - loss: 0.0802 - val\_accuracy: 0.9500 - val\_loss: 0.3588 - learning\_rate: 1.0000e-04

Epoch 17/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9832 - loss: 0.0611

Epoch 17: val\_loss improved from 0.35881 to 0.35088, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9831 - loss: 0.0610 - val\_accuracy: 0.9545 - val\_loss: 0.3509 - learning\_rate: 1.0000e-04

Epoch 18/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9886 - loss: 0.0542

Epoch 18: val\_loss improved from 0.35088 to 0.34657, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 97s 4s/step - accuracy: 0.9885 - loss: 0.0541 - val\_accuracy: 0.9545 - val\_loss: 0.3466 - learning\_rate: 1.0000e-04

Epoch 19/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9944 - loss: 0.0143

Epoch 19: val\_loss improved from 0.34657 to 0.34355, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9943 - loss: 0.0145 - val\_accuracy: 0.9545 - val\_loss: 0.3436 - learning\_rate: 1.0000e-04

Epoch 20/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9845 - loss: 0.0523

Epoch 20: val\_loss did not improve from 0.34355

27/27 ━━━━━━━━━━━━━━━━━━━━ 94s 4s/step - accuracy: 0.9847 - loss: 0.0522 - val\_accuracy: 0.9545 - val\_loss: 0.3438 - learning\_rate: 1.0000e-04

Epoch 21/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9895 - loss: 0.0612

Epoch 21: val\_loss did not improve from 0.34355

27/27 ━━━━━━━━━━━━━━━━━━━━ 94s 4s/step - accuracy: 0.9895 - loss: 0.0615 - val\_accuracy: 0.9545 - val\_loss: 0.3438 - learning\_rate: 1.0000e-04

Epoch 22/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9823 - loss: 0.0622

Epoch 22: val\_loss improved from 0.34355 to 0.34350, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 95s 4s/step - accuracy: 0.9825 - loss: 0.0615 - val\_accuracy: 0.9500 - val\_loss: 0.3435 - learning\_rate: 1.0000e-04

Epoch 23/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9913 - loss: 0.0449

Epoch 23: val\_loss improved from 0.34350 to 0.34245, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 95s 4s/step - accuracy: 0.9913 - loss: 0.0447 - val\_accuracy: 0.9500 - val\_loss: 0.3425 - learning\_rate: 1.0000e-04

Epoch 24/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9848 - loss: 0.0666

Epoch 24: val\_loss improved from 0.34245 to 0.34136, saving model to Inception\_ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 96s 4s/step - accuracy: 0.9849 - loss: 0.0661 - val\_accuracy: 0.9500 - val\_loss: 0.3414 - learning\_rate: 1.0000e-04

Epoch 25/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9914 - loss: 0.0159

Epoch 25: val\_loss did not improve from 0.34136

27/27 ━━━━━━━━━━━━━━━━━━━━ 94s 4s/step - accuracy: 0.9913 - loss: 0.0163 - val\_accuracy: 0.9500 - val\_loss: 0.3428 - learning\_rate: 1.0000e-04

Epoch 26/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9931 - loss: 0.0204

Epoch 26: val\_loss did not improve from 0.34136

27/27 ━━━━━━━━━━━━━━━━━━━━ 95s 4s/step - accuracy: 0.9928 - loss: 0.0211 - val\_accuracy: 0.9500 - val\_loss: 0.3424 - learning\_rate: 1.0000e-04

Epoch 27/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9773 - loss: 0.0511

Epoch 27: val\_loss did not improve from 0.34136

27/27 ━━━━━━━━━━━━━━━━━━━━ 95s 4s/step - accuracy: 0.9775 - loss: 0.0515 - val\_accuracy: 0.9500 - val\_loss: 0.3439 - learning\_rate: 1.0000e-04

Epoch 28/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9854 - loss: 0.0735

Epoch 28: val\_loss did not improve from 0.34136

27/27 ━━━━━━━━━━━━━━━━━━━━ 94s 4s/step - accuracy: 0.9855 - loss: 0.0727 - val\_accuracy: 0.9500 - val\_loss: 0.3467 - learning\_rate: 1.0000e-04

Epoch 29/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 3s/step - accuracy: 0.9899 - loss: 0.0294

Epoch 29: val\_loss did not improve from 0.34136

27/27 ━━━━━━━━━━━━━━━━━━━━ 94s 4s/step - accuracy: 0.9899 - loss: 0.0295 - val\_accuracy: 0.9500 - val\_loss: 0.3432 - learning\_rate: 1.0000e-04

27/27 ━━━━━━━━━━━━━━━━━━━━ 83s 3s/step

7/7 ━━━━━━━━━━━━━━━━━━━━ 19s 3s/step

Training R2: 0.9999813117375954, Mean R2: 1.5727712531315586e-06

Test R2: 0.9001098067481406, Mean R2: 0.008727380132033039

Train loss: 0.00028916055453009903, Train accuracy: 1.0

Test loss: 0.34318265318870544, Test accuracy: 0.949999988079071

staring training ResNet50

Epoch 1/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.2530 - loss: 3.4684

Epoch 1: val\_loss improved from inf to 8.35966, saving model to ResNet\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 44s 1s/step - accuracy: 0.2543 - loss: 3.4579 - val\_accuracy: 0.1136 - val\_loss: 8.3597 - learning\_rate: 0.0100

Epoch 2/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.3402 - loss: 2.8510

Epoch 2: val\_loss did not improve from 8.35966

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.3411 - loss: 2.8413 - val\_accuracy: 0.1045 - val\_loss: 19.8755 - learning\_rate: 0.0100

Epoch 3/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.4573 - loss: 2.1618

Epoch 3: ReduceLROnPlateau reducing learning rate to 0.0009999999776482583.

Epoch 3: val\_loss did not improve from 8.35966

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.4568 - loss: 2.1649 - val\_accuracy: 0.1273 - val\_loss: 12.6094 - learning\_rate: 0.0100

Epoch 4/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.4623 - loss: 1.9992

Epoch 4: val\_loss did not improve from 8.35966

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.4631 - loss: 1.9944 - val\_accuracy: 0.1409 - val\_loss: 11.9839 - learning\_rate: 1.0000e-03

Epoch 5/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.4903 - loss: 1.7385

Epoch 5: ReduceLROnPlateau reducing learning rate to 0.0001.

Epoch 5: val\_loss did not improve from 8.35966

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.4904 - loss: 1.7370 - val\_accuracy: 0.1227 - val\_loss: 11.7698 - learning\_rate: 1.0000e-03

Epoch 6/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 1s/step - accuracy: 0.5187 - loss: 1.5183

Epoch 6: val\_loss did not improve from 8.35966

27/27 ━━━━━━━━━━━━━━━━━━━━ 37s 1s/step - accuracy: 0.5184 - loss: 1.5191 - val\_accuracy: 0.1500 - val\_loss: 9.1950 - learning\_rate: 1.0000e-04

27/27 ━━━━━━━━━━━━━━━━━━━━ 31s 1s/step

7/7 ━━━━━━━━━━━━━━━━━━━━ 7s 1s/step

Training R2: -0.5649620514420393, Mean R2: 0.13741678595401327

Test R2: -0.5625260685268757, Mean R2: 0.13716290915481127

Train loss: 8.847227096557617, Train accuracy: 0.1538461595773697

Test loss: 9.195034980773926, Test accuracy: 0.15000000596046448

staring training VGG16

Epoch 1/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.5202 - loss: 2.3053

Epoch 1: val\_loss improved from inf to 14.91684, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.5233 - loss: 2.2925 - val\_accuracy: 0.1091 - val\_loss: 14.9168 - learning\_rate: 0.0100

Epoch 2/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.7543 - loss: 1.3229

Epoch 2: val\_loss improved from 14.91684 to 11.88312, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 52s 2s/step - accuracy: 0.7548 - loss: 1.3145 - val\_accuracy: 0.1136 - val\_loss: 11.8831 - learning\_rate: 0.0100

Epoch 3/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.8273 - loss: 0.9928

Epoch 3: val\_loss did not improve from 11.88312

27/27 ━━━━━━━━━━━━━━━━━━━━ 52s 2s/step - accuracy: 0.8271 - loss: 0.9918 - val\_accuracy: 0.1545 - val\_loss: 17.2032 - learning\_rate: 0.0100

Epoch 4/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.8733 - loss: 0.5741

Epoch 4: val\_loss improved from 11.88312 to 6.17700, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.8734 - loss: 0.5750 - val\_accuracy: 0.4182 - val\_loss: 6.1770 - learning\_rate: 0.0100

Epoch 5/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.8766 - loss: 0.5145

Epoch 5: val\_loss did not improve from 6.17700

27/27 ━━━━━━━━━━━━━━━━━━━━ 52s 2s/step - accuracy: 0.8768 - loss: 0.5153 - val\_accuracy: 0.4545 - val\_loss: 6.3500 - learning\_rate: 0.0100

Epoch 6/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9064 - loss: 0.3586

Epoch 6: val\_loss improved from 6.17700 to 3.28887, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 52s 2s/step - accuracy: 0.9061 - loss: 0.3598 - val\_accuracy: 0.6136 - val\_loss: 3.2889 - learning\_rate: 0.0100

Epoch 7/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9041 - loss: 0.4299

Epoch 7: val\_loss improved from 3.28887 to 2.34116, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9042 - loss: 0.4306 - val\_accuracy: 0.7000 - val\_loss: 2.3412 - learning\_rate: 0.0100

Epoch 8/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9201 - loss: 0.4476

Epoch 8: val\_loss did not improve from 2.34116

27/27 ━━━━━━━━━━━━━━━━━━━━ 52s 2s/step - accuracy: 0.9200 - loss: 0.4502 - val\_accuracy: 0.6136 - val\_loss: 3.6496 - learning\_rate: 0.0100

Epoch 9/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9083 - loss: 0.4075

Epoch 9: ReduceLROnPlateau reducing learning rate to 0.0009999999776482583.

Epoch 9: val\_loss did not improve from 2.34116

27/27 ━━━━━━━━━━━━━━━━━━━━ 52s 2s/step - accuracy: 0.9080 - loss: 0.4107 - val\_accuracy: 0.7136 - val\_loss: 2.6192 - learning\_rate: 0.0100

Epoch 10/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9371 - loss: 0.2527

Epoch 10: val\_loss improved from 2.34116 to 1.36547, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9371 - loss: 0.2517 - val\_accuracy: 0.7955 - val\_loss: 1.3655 - learning\_rate: 1.0000e-03

Epoch 11/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9502 - loss: 0.1731

Epoch 11: val\_loss improved from 1.36547 to 0.70576, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9505 - loss: 0.1723 - val\_accuracy: 0.8591 - val\_loss: 0.7058 - learning\_rate: 1.0000e-03

Epoch 12/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9730 - loss: 0.0958

Epoch 12: val\_loss improved from 0.70576 to 0.43533, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9726 - loss: 0.0977 - val\_accuracy: 0.8909 - val\_loss: 0.4353 - learning\_rate: 1.0000e-03

Epoch 13/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9717 - loss: 0.0880

Epoch 13: val\_loss improved from 0.43533 to 0.32200, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 54s 2s/step - accuracy: 0.9717 - loss: 0.0886 - val\_accuracy: 0.9227 - val\_loss: 0.3220 - learning\_rate: 1.0000e-03

Epoch 14/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9719 - loss: 0.1198

Epoch 14: val\_loss improved from 0.32200 to 0.28155, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 55s 2s/step - accuracy: 0.9720 - loss: 0.1190 - val\_accuracy: 0.9409 - val\_loss: 0.2816 - learning\_rate: 1.0000e-03

Epoch 15/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9756 - loss: 0.0682

Epoch 15: val\_loss improved from 0.28155 to 0.22891, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 54s 2s/step - accuracy: 0.9755 - loss: 0.0687 - val\_accuracy: 0.9455 - val\_loss: 0.2289 - learning\_rate: 1.0000e-03

Epoch 16/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9703 - loss: 0.0816

Epoch 16: val\_loss did not improve from 0.22891

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9703 - loss: 0.0822 - val\_accuracy: 0.9636 - val\_loss: 0.2402 - learning\_rate: 1.0000e-03

Epoch 17/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9790 - loss: 0.0507

Epoch 17: ReduceLROnPlateau reducing learning rate to 0.0001.

Epoch 17: val\_loss did not improve from 0.22891

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9790 - loss: 0.0513 - val\_accuracy: 0.9682 - val\_loss: 0.2314 - learning\_rate: 1.0000e-03

Epoch 18/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9760 - loss: 0.0745

Epoch 18: val\_loss improved from 0.22891 to 0.22021, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9757 - loss: 0.0758 - val\_accuracy: 0.9591 - val\_loss: 0.2202 - learning\_rate: 1.0000e-04

Epoch 19/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9784 - loss: 0.0596

Epoch 19: val\_loss improved from 0.22021 to 0.21441, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9783 - loss: 0.0594 - val\_accuracy: 0.9545 - val\_loss: 0.2144 - learning\_rate: 1.0000e-04

Epoch 20/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9822 - loss: 0.0633

Epoch 20: val\_loss improved from 0.21441 to 0.21008, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9822 - loss: 0.0629 - val\_accuracy: 0.9545 - val\_loss: 0.2101 - learning\_rate: 1.0000e-04

Epoch 21/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9765 - loss: 0.0652

Epoch 21: val\_loss improved from 0.21008 to 0.20996, saving model to VGG16\_Orignal Data.keras

27/27 ━━━━━━━━━━━━━━━━━━━━ 54s 2s/step - accuracy: 0.9763 - loss: 0.0659 - val\_accuracy: 0.9545 - val\_loss: 0.2100 - learning\_rate: 1.0000e-04

Epoch 22/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9883 - loss: 0.0345

Epoch 22: val\_loss did not improve from 0.20996

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9882 - loss: 0.0349 - val\_accuracy: 0.9545 - val\_loss: 0.2134 - learning\_rate: 1.0000e-04

Epoch 23/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9711 - loss: 0.0707

Epoch 23: val\_loss did not improve from 0.20996

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9711 - loss: 0.0715 - val\_accuracy: 0.9545 - val\_loss: 0.2128 - learning\_rate: 1.0000e-04

Epoch 24/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9870 - loss: 0.0466

Epoch 24: val\_loss did not improve from 0.20996

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9867 - loss: 0.0476 - val\_accuracy: 0.9545 - val\_loss: 0.2147 - learning\_rate: 1.0000e-04

Epoch 25/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9796 - loss: 0.0672

Epoch 25: val\_loss did not improve from 0.20996

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9796 - loss: 0.0671 - val\_accuracy: 0.9545 - val\_loss: 0.2162 - learning\_rate: 1.0000e-04

Epoch 26/100

27/27 ━━━━━━━━━━━━━━━━━━━━ 0s 2s/step - accuracy: 0.9681 - loss: 0.0695

Epoch 26: val\_loss did not improve from 0.20996

27/27 ━━━━━━━━━━━━━━━━━━━━ 53s 2s/step - accuracy: 0.9682 - loss: 0.0696 - val\_accuracy: 0.9500 - val\_loss: 0.2139 - learning\_rate: 1.0000e-04

27/27 ━━━━━━━━━━━━━━━━━━━━ 42s 2s/step

7/7 ━━━━━━━━━━━━━━━━━━━━ 11s 2s/step

Training R2: 0.9998953021785028, Mean R2: 8.255909849456698e-06

Test R2: 0.9188602225964791, Mean R2: 0.00770465528955884

Train loss: 0.00079720577923581, Train accuracy: 1.0

Test loss: 0.21385543048381805, Test accuracy: 0.949999988079071

starting training VIT Model

Starting DataPreparation

Orignal Data :

Connected to the database

Database connection closed.

Train data count: 858

Test data count: 220

Species dict: {1: 'Aloevera', 2: 'Amla', 3: 'Amruthaballi', 4: 'Arali', 5: 'Ashoka', 6: 'Bamboo', 7: 'Betel', 8: 'Brahmi', 9: 'Castor', 10: 'Curry'}

Data preparation complete.

0

1

2

3

4

5

6

7

8

9

97

220

Test Accuracy: 44.09090909090909 %

starting training SWIN Model

Starting DataPreparation

Orignal Data :

Connected to the database

Database connection closed.

Train data count: 858

Test data count: 220

Species dict: {1: 'Aloevera', 2: 'Amla', 3: 'Amruthaballi', 4: 'Arali', 5: 'Ashoka', 6: 'Bamboo', 7: 'Betel', 8: 'Brahmi', 9: 'Castor', 10: 'Curry'}

Data preparation complete.

model.safetensors: 100%|██████████████████████████████████████████████████████████████████████████████████████████████████████████████████████████████████████████████████████| 365M/365M [00:36<00:00, 9.93MB/s]

0

Traceback (most recent call last):

File "<string>", line 45, in <module>

File "D:\Project\AI\_ML\_DS\Minor\_Project\_Ai\_Plant\_Recognition\Minor\_Project\_Ai\_Plant\_Recognition\SourceCode\PythonModelScripts\Models\swin\_model.py", line 139, in swin\_main

swin\_model.train(train\_loader, test\_loader, num\_epochs)

File "D:\Project\AI\_ML\_DS\Minor\_Project\_Ai\_Plant\_Recognition\Minor\_Project\_Ai\_Plant\_Recognition\SourceCode\PythonModelScripts\Models\swin\_model.py", line 95, in train

outputs = self.model(inputs)

^^^^^^^^^^^^^^^^^^

File "C:\Users\kumar\AppData\Local\Programs\Python\Python312\Lib\site-packages\torch\nn\modules\module.py", line 1532, in \_wrapped\_call\_impl

return self.\_call\_impl(\*args, \*\*kwargs)

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

File "C:\Users\kumar\AppData\Local\Programs\Python\Python312\Lib\site-packages\torch\nn\modules\module.py", line 1541, in \_call\_impl

return forward\_call(\*args, \*\*kwargs)

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

File "C:\Users\kumar\AppData\Local\Programs\Python\Python312\Lib\site-packages\timm\models\swin\_transformer.py", line 620, in forward

x = self.forward\_features(x)

^^^^^^^^^^^^^^^^^^^^^^^^

File "C:\Users\kumar\AppData\Local\Programs\Python\Python312\Lib\site-packages\timm\models\swin\_transformer.py", line 611, in forward\_features

x = self.patch\_embed(x)

^^^^^^^^^^^^^^^^^^^

File "C:\Users\kumar\AppData\Local\Programs\Python\Python312\Lib\site-packages\torch\nn\modules\module.py", line 1532, in \_wrapped\_call\_impl

return self.\_call\_impl(\*args, \*\*kwargs)

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

File "C:\Users\kumar\AppData\Local\Programs\Python\Python312\Lib\site-packages\torch\nn\modules\module.py", line 1541, in \_call\_impl

return forward\_call(\*args, \*\*kwargs)

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

File "C:\Users\kumar\AppData\Local\Programs\Python\Python312\Lib\site-packages\timm\layers\patch\_embed.py", line 72, in forward

\_assert(H == self.img\_size[0], f"Input height ({H}) doesn't match model ({self.img\_size[0]}).")

File "C:\Users\kumar\AppData\Local\Programs\Python\Python312\Lib\site-packages\torch\\_\_init\_\_.py", line 1559, in \_assert

assert condition, message

^^^^^^^^^

AssertionError: Input height (224) doesn't match model (384).

thanks for you corporation...

D:\Project\AI\_ML\_DS\Minor\_Project\_Ai\_Plant\_Recognition\Minor\_Project\_Ai\_Plant\_Recognition\bin\Debug\net8.0\Minor\_Project\_Ai\_Plant\_Recognition.exe (process 28688) exited with code 0.

To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.

Press any key to close this window . . .