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"from tensorflow.keras.models import Sequential\n",

"from tensorflow.keras.layers import Dense,Convolution2D,MaxPooling2D,Flatten \n",

"import numpy as np\n",

"from tensorflow.keras.models import load\_model\n",

"from tensorflow.keras.preprocessing import image"

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"train\_datagen=ImageDataGenerator(rescale=1./255,zoom\_range=0.2,horizontal\_flip=True,vertical\_flip=False)\n",

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

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"Found 5384 images belonging to 6 classes.\n"

]

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"model.add(Convolution2D(32,(3,3),input\_shape=(128,128,3),activation='relu'))"

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"model.add(Flatten())\n",

"model.summary()"

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" Layer (type) Output Shape Param # \n",

"=================================================================\n",

" conv2d (Conv2D) (None, 126, 126, 32) 896 \n",

" \n",

" max\_pooling2d (MaxPooling2D (None, 63, 63, 32) 0 \n",

" ) \n",

" \n",

" flatten (Flatten) (None, 127008) 0 \n",

" \n",

"=================================================================\n",

"Total params: 896\n",

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"Non-trainable params: 0\n",

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"len(x\_train)"

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"Epoch 2/10\n",

"225/225 [==============================] - 172s 762ms/step - loss: 0.2829 - accuracy: 0.9008 - val\_loss: 0.1736 - val\_accuracy: 0.9383\n",

"Epoch 3/10\n",

"225/225 [==============================] - 179s 794ms/step - loss: 0.2056 - accuracy: 0.9296 - val\_loss: 0.1954 - val\_accuracy: 0.9312\n",

"Epoch 4/10\n",

"225/225 [==============================] - 172s 765ms/step - loss: 0.1694 - accuracy: 0.9383 - val\_loss: 0.2187 - val\_accuracy: 0.9253\n",

"Epoch 5/10\n",

"225/225 [==============================] - 179s 796ms/step - loss: 0.1539 - accuracy: 0.9461 - val\_loss: 0.1366 - val\_accuracy: 0.9543\n",

"Epoch 6/10\n",

"225/225 [==============================] - 172s 765ms/step - loss: 0.1428 - accuracy: 0.9491 - val\_loss: 0.1668 - val\_accuracy: 0.9442\n",

"Epoch 7/10\n",

"225/225 [==============================] - 175s 774ms/step - loss: 0.1333 - accuracy: 0.9538 - val\_loss: 0.1976 - val\_accuracy: 0.9253\n",

"Epoch 8/10\n",

"225/225 [==============================] - 174s 774ms/step - loss: 0.1172 - accuracy: 0.9590 - val\_loss: 0.0944 - val\_accuracy: 0.9674\n",

"Epoch 9/10\n",

"225/225 [==============================] - 172s 763ms/step - loss: 0.1143 - accuracy: 0.9569 - val\_loss: 0.1306 - val\_accuracy: 0.9561\n",

"Epoch 10/10\n",

"225/225 [==============================] - 179s 795ms/step - loss: 0.0913 - accuracy: 0.9673 - val\_loss: 0.1848 - val\_accuracy: 0.9460\n"

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"from tensorflow.keras.models import load\_model\n",

"from tensorflow.keras.preprocessing import image"

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"img"

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"image/png": "\n"

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" [184., 198., 225.],\n",

" [187., 201., 228.],\n",

" [180., 194., 221.]],\n",

"\n",

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" [117., 128., 158.],\n",

" [121., 132., 162.],\n",

" ...,\n",

" [178., 192., 219.],\n",

" [191., 205., 232.],\n",

" [179., 193., 220.]],\n",

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" [117., 128., 158.],\n",

" [114., 125., 155.],\n",

" ...,\n",

" [180., 194., 221.],\n",

" [189., 203., 230.],\n",

" [179., 193., 220.]],\n",

"\n",

" ...,\n",

"\n",

" [[114., 128., 157.],\n",

" [118., 132., 161.],\n",

" [125., 139., 168.],\n",

" ...,\n",

" [177., 191., 217.],\n",

" [187., 199., 223.],\n",

" [180., 192., 216.]],\n",

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" [125., 139., 168.],\n",

" [122., 136., 165.],\n",

" ...,\n",

" [189., 197., 216.],\n",

" [188., 197., 214.],\n",

" [186., 195., 210.]],\n",

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" [118., 132., 161.],\n",

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" [172., 180., 191.],\n",

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" [187., 201., 228.],\n",

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" [179., 193., 220.]],\n",

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" [187., 199., 223.],\n",

" [180., 192., 216.]],\n",

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" [125., 139., 168.],\n",

" [122., 136., 165.],\n",

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" [188., 197., 214.],\n",

" [186., 195., 210.]],\n",

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" [118., 132., 161.],\n",

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" [160., 167., 183.],\n",

" [172., 180., 191.],\n",

" [190., 199., 208.]]]], dtype=float32)"

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" [184., 198., 225.],\n",

" [187., 201., 228.],\n",

" [180., 194., 221.]],\n",

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" [121., 132., 162.],\n",

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" [178., 192., 219.],\n",

" [191., 205., 232.],\n",

" [179., 193., 220.]],\n",

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" [189., 203., 230.],\n",

" [179., 193., 220.]],\n",

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" [118., 132., 161.],\n",

" [125., 139., 168.],\n",

" ...,\n",

" [177., 191., 217.],\n",

" [187., 199., 223.],\n",

" [180., 192., 216.]],\n",

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" [125., 139., 168.],\n",

" [122., 136., 165.],\n",

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" [189., 197., 216.],\n",

" [188., 197., 214.],\n",

" [186., 195., 210.]],\n",

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" [118., 132., 161.],\n",

" [118., 132., 161.],\n",

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" [160., 167., 183.],\n",

" [172., 180., 191.],\n",

" [190., 199., 208.]]]], dtype=float32)"

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"'Apple\_\_\_healthy'"

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"x=image.img\_to\_array(img)\n",

"x=np.expand\_dims(x,axis=0)\n",

"y=np.argmax(model.predict(x),axis=1)\n",

"index=['Apple\_\_\_Black\_rot','Apple\_\_\_healthy','Corn\_(maize)\_\_\_Northern\_Leaf\_Blight','Corn\_(maize)\_\_\_healthy','Peach\_\_\_Bacterial\_spot','Peach\_\_\_healthy']\n",

"index[y[0]]"

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