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   "metadata": {},
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    "from keras.preprocessing.image import ImageDataGenerator\n",

"train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_range
=0.2,horizontal_flip=True)\n",
    "test_datagen=ImageDataGenerator(rescale=1)"
   ]
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     "output_type": "stream",
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      "Found 11386 images belonging to 9 classes.\n",
      "Found 3416 images belonging to 9 classes.\n"
     ]
    }
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   "source": [

"x_train=train_datagen.flow_from_directory(r'C:\\Users\\sridevi\\project\\D
ataset Plant Disease\\Veg-dataset\\Veg-
dataset\\train_set',target_size=(128,128),batch_size=2,class_mode='categori
cal')\n",
```

```
"x_test=test_datagen.flow_from_directory(r'C:\\Users\\sridevi\\project\\Dat
aset Plant Disease\\Veg-dataset\\Veg-
dataset\\test_set',target_size=(128,128),batch_size=2,class_mode='categoric
al')"

   ]

  },

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   "metadata": {},

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   "source": [

    "from keras.models import Sequential\n",

    "from keras.layers import Dense\n",

    "from keras.layers import Convolution2D\n",

    "from keras.layers import MaxPooling2D\n",

    "from keras.layers import Flatten"

   ]

  },

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    "model=Sequential()"

   ]

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"model.add(Convolution2D(32,(3,3),input_shape=(128,128,3),activation='relu'
))"
   ]
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    "model.add(MaxPooling2D(pool_size=(2,2)))"
   ]
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    "model.add(Flatten())"
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```

```
"model.add(Dense(units=300,kernel_initializer='uniform',activation='relu'))
"
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"model.add(Dense(units=150,kernel_initializer='uniform',activation='relu'))
"
   ]
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   "metadata": {},
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"model.add(Dense(units=75,kernel_initializer='uniform',activation='relu'))"
   ]
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  {
   "cell_type": "code",
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   "id": "fedefb79",
   "metadata": {},
   "outputs": [],
   "source": [
```

```
"model.add(Dense(units=9,kernel_initializer='uniform',activation='softmax')
)"

   ]

  },

  {

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   "source": [


"model.compile(loss='categorical_crossentropy',optimizer=\"adam\",metrics=[
\"accuracy\"])"

   ]

  },

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   "metadata": {},

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      "Epoch 1/20\n",

      "89/89 [==============================] - 95s 1s/step - loss: 2.1765
- accuracy: 0.1404 - val_loss: 107.0669 - val_accuracy: 0.2407\n",

      "Epoch 2/20\n",

      "89/89 [==============================] - 61s 679ms/step - loss:
2.1010 - accuracy: 0.2303 - val_loss: 73.7251 - val_accuracy: 0.0741\n",

      "Epoch 3/20\n",

      "89/89 [==============================] - 67s 755ms/step - loss:
2.1514 - accuracy: 0.1348 - val_loss: 56.0996 - val_accuracy: 0.1111\n",

      "Epoch 4/20\n",
```

```
      "89/89 [==============================] - 64s 717ms/step - loss:
2.0868 - accuracy: 0.1573 - val_loss: 23.7097 - val_accuracy: 0.3148\n",

      "Epoch 5/20\n",

      "89/89 [==============================] - 60s 671ms/step - loss:
2.0239 - accuracy: 0.3090 - val_loss: 99.1493 - val_accuracy: 0.2222\n",

      "Epoch 6/20\n",

      "89/89 [==============================] - 72s 807ms/step - loss:
1.9236 - accuracy: 0.2753 - val_loss: 172.7210 - val_accuracy: 0.1296\n",

      "Epoch 7/20\n",

      "89/89 [==============================] - 86s 971ms/step - loss:
1.9143 - accuracy: 0.2753 - val_loss: 107.2718 - val_accuracy: 0.2778\n",

      "Epoch 8/20\n",

      "89/89 [==============================] - 58s 646ms/step - loss:
1.7796 - accuracy: 0.3034 - val_loss: 64.2221 - val_accuracy: 0.3148\n",

      "Epoch 9/20\n",

      "89/89 [==============================] - 60s 676ms/step - loss:
1.7756 - accuracy: 0.3427 - val_loss: 182.9076 - val_accuracy: 0.3519\n",

      "Epoch 10/20\n",

      "89/89 [==============================] - 59s 665ms/step - loss:
1.8444 - accuracy: 0.2978 - val_loss: 138.7072 - val_accuracy: 0.2407\n",

      "Epoch 11/20\n",

      "89/89 [==============================] - 53s 598ms/step - loss:
1.7811 - accuracy: 0.2640 - val_loss: 111.3470 - val_accuracy: 0.3333\n",

      "Epoch 12/20\n",

      "89/89 [==============================] - 57s 637ms/step - loss:
1.8700 - accuracy: 0.2809 - val_loss: 104.8549 - val_accuracy: 0.2778\n",

      "Epoch 13/20\n",

      "89/89 [==============================] - 53s 593ms/step - loss:
1.8179 - accuracy: 0.3371 - val_loss: 88.9790 - val_accuracy: 0.3519\n",

      "Epoch 14/20\n",

      "89/89 [==============================] - 53s 590ms/step - loss:
1.7108 - accuracy: 0.2921 - val_loss: 79.7810 - val_accuracy: 0.4074\n",

      "Epoch 15/20\n",

      "89/89 [==============================] - 57s 644ms/step - loss:
1.8212 - accuracy: 0.2416 - val_loss: 187.6725 - val_accuracy: 0.2222\n",

      "Epoch 16/20\n",

      "89/89 [==============================] - 53s 589ms/step - loss:
1.7251 - accuracy: 0.3483 - val_loss: 148.7835 - val_accuracy: 0.4259\n",

      "Epoch 17/20\n",
```

```
      "89/89 [==============================] - 56s 624ms/step - loss:
1.6795 - accuracy: 0.3146 - val_loss: 109.7393 - val_accuracy: 0.2593\n",

      "Epoch 18/20\n",

      "89/89 [==============================] - 54s 608ms/step - loss:
1.8275 - accuracy: 0.3202 - val_loss: 90.4495 - val_accuracy: 0.3148\n",

      "Epoch 19/20\n",

      "89/89 [==============================] - 53s 591ms/step - loss:
1.7737 - accuracy: 0.3427 - val_loss: 141.6376 - val_accuracy: 0.2593\n",

      "Epoch 20/20\n",

      "89/89 [==============================] - 53s 592ms/step - loss:
1.7060 - accuracy: 0.4213 - val_loss: 96.3340 - val_accuracy: 0.3889\n"

     ]

    },

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       "<keras.callbacks.History at 0x25aa4cdb7f0>"

      ]

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"model.fit(x_train,steps_per_epoch=89,epochs=20,validation_data=x_test,vali
dation_steps=27)"

   ]

  },

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    "model.save(r'C:\\Users\\ishu\\project\\flask\\uploads\\vegetable.h5')
"
   ]
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"_________________________________________________________________\n",
      " 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",
      " dense (Dense)               (None, 300)               38102700
\n",
      "
\n",
```

```
      " dense_1 (Dense)             (None, 150)               45150
\n",
      "
\n",
      " dense_2 (Dense)             (None, 75)                11325
\n",
      "
\n",
      " dense_3 (Dense)             (None, 9)                 684
\n",
      "
\n",

"=================================================================\n",
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      "Non-trainable params: 0\n",
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     ]
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    "model.summary()"
   ]
  }
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    "version": 3
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