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"execution\_count": 1,

"id": "505cf664",

"metadata": {},

"outputs": [],

"source": [

"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)"

]

},

{

"cell\_type": "code",

"execution\_count": 2,

"id": "4cca39b6",

"metadata": {},

"outputs": [

{

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"output\_type": "stream",

"text": [

"Found 11386 images belonging to 9 classes.\n",

"Found 3416 images belonging to 9 classes.\n"

]

}

],

"source": [

"x\_train=train\_datagen.flow\_from\_directory(r'C:\\Users\\srija\\project\\Dataset Plant Disease\\Veg-dataset\\Veg-dataset\\train\_set',target\_size=(128,128),batch\_size=2,class\_mode='categorical')\n",

"x\_test=test\_datagen.flow\_from\_directory(r'C:\\Users\\srija\\project\\Dataset Plant Disease\\Veg-dataset\\Veg-dataset\\test\_set',target\_size=(128,128),batch\_size=2,class\_mode='categorical')"

]

},

{

"cell\_type": "code",

"execution\_count": 3,

"id": "15120f24",

"metadata": {},

"outputs": [],

"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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"metadata": {},

"outputs": [],

"source": [

"model=Sequential()"

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{

"cell\_type": "code",

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"metadata": {},

"outputs": [],

"source": [

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

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{

"cell\_type": "code",

"execution\_count": 6,

"id": "f9721cca",

"metadata": {},

"outputs": [],

"source": [

"model.add(MaxPooling2D(pool\_size=(2,2)))"

]

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{

"cell\_type": "code",

"execution\_count": 7,

"id": "54769702",

"metadata": {},

"outputs": [],

"source": [

"model.add(Flatten())"

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{

"cell\_type": "code",

"execution\_count": 8,

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"source": [

"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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"cell\_type": "code",

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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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"metadata": {},

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"source": [

"model.add(Dense(units=9,kernel\_initializer='uniform',activation='softmax'))"

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"cell\_type": "code",

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"id": "80d841b8",

"metadata": {},

"outputs": [],

"source": [

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

]

},

{

"cell\_type": "code",

"execution\_count": 13,

"id": "35d47cf9",

"metadata": {},

"outputs": [

{

"name": "stdout",

"output\_type": "stream",

"text": [

"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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"text/plain": [

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

]

},

"execution\_count": 13,

"metadata": {},

"output\_type": "execute\_result"

}

],

"source": [

"model.fit(x\_train,steps\_per\_epoch=89,epochs=20,validation\_data=x\_test,validation\_steps=27)"

]

},

{

"cell\_type": "code",

"execution\_count": 14,

"id": "2cb00ef6",

"metadata": {},

"outputs": [],

"source": [

"model.save(r'C:\\Users\\srija\\project\\flask\\uploads\\vegetable.h5') "

]

},

{

"cell\_type": "code",

"execution\_count": 15,

"id": "abce82ea",

"metadata": {},

"outputs": [

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"output\_type": "stream",

"text": [

"Model: \"sequential\"\n",

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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",

" 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",

"Total params: 38,160,755\n",

"Trainable params: 38,160,755\n",

"Non-trainable params: 0\n",

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],

"source": [

"model.summary()"

]

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"metadata": {

"kernelspec": {

"display\_name": "Python 3 (ipykernel)",

"language": "python",

"name": "python3"

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"name": "ipython",

"version": 3

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"nbconvert\_exporter": "python",

"pygments\_lexer": "ipython3",

"version": "3.9.12"

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