Date	12 November 2022
Team ID	PNT2022TMID12899
Project Name	Fertilizers Recommendation System for disease prediction

```
# -*- coding: utf-8 -*-
"""veg data.ipynb

Automatically generated by Colaboratory.

Original file is located at
    https://colab.research.google.com/drive/1EyjsABIaXDXTPgUeZJgEBKqYVryamZZi
"""

from tensorflow.keras.preprocessing.image import ImageDataGenerator

train_datagen=ImageDataGenerator(rescale=1./255,zoom_range=0.2,horizontal_flip=True,vertical_flip=False)

test_datagen=ImageDataGenerator(rescale=1./255)

x_train=train_datagen.flow_from_directory(r"C:\Users\maris_q3mm6nk\Desktop\FILES\data_for_ibm\Fertilizers_Recommendation_ System_For_Disease_ Prediction\Dataset Plant Disease\Veg-dataset\Veg-dataset\train_set",target_size=(128,128),
                                          class_mode='categorical',batch_size=24)

x_test=test_datagen.flow_from_directory(r'C:\Users\maris_q3mm6nk\Desktop\FILES\data_for_ibm\Fertilizers_Recommendation_ System_For_Disease_ Prediction\Dataset Plant Disease\Veg-dataset\Veg-dataset\test_set',target_size=(128,128),
                                          class_mode='categorical',batch_size=24)
```

```
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense,Convolution2D,MaxPooling2D,Flatten

model=Sequential()

model.add(Convolution2D(32,(3,3),input_shape=(128,128,3),activation='relu'))

model.add(MaxPooling2D(pool_size=(2,2)))

model.add(Flatten())

model.summary()

model.add(Dense(300,activation='relu'))
model.add(Dense(150,activation='relu'))

model.add(Dense(9,activation='softmax'))

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

len(x_train)

1238/24

model.fit(x_train,steps_per_epoch=len(x_train),validation_data=x_test,validation_steps=len(
x_test),epochs=10)

model.save('vegetabledata.h5')

import numpy as np
```

```
from tensorflow.keras.models import load_model

from tensorflow.keras.preprocessing import image


model=load_model('vegetabledata.h5')


img=image.load_img(r"C:\Users\maris_q3mm6nk\Desktop\FILES\data_for_ibm\Fertilizers_ Recommendation_ System_For_Disease_ Prediction\Dataset Plant Disease\Veg-dataset\Veg-dataset\test_set\Potato___Early_blight/b817817e-a6b1-4123-88e7-db98b453ce17___RS_Early.B 6880.jpg")


img


x=image.img_to_array(img)


img=image.load_img(r"C:\Users\maris_q3mm6nk\Desktop\FILES\data_for_ibm\Fertilizers_ Recommendation_ System_For_Disease_ Prediction\Dataset Plant Disease\Veg-dataset\Veg-dataset\test_set\Potato___Early_blight/b817817e-a6b1-4123-88e7-db98b453ce17___RS_Early.B 6880.jpg",target_size=(128,128))

img


x=image.img_to_array(img)


x


x=np.expand_dims(x,axis=0)


x


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


x_train.class_indices
```

```
index=['Pepper,_bell___Bacterial_spot','Pepper,_bell___healthy','Potato___Early_blight','Potato___Late_blight','Potato___healthy','Tomato___Bacterial_spot','Tomato___Late_blight','Tomato___Leaf_Mold','Tomato___Septoria_leaf_spot']
```

```
index[y[0]]
```

```
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