

DATE	13-11-2022
TEAM ID	PNT2022TMID08799
PROJECT NAME	AI-POWERED NUTRITION ANALYSER FOR FITNESSENTHUSIASTICS

MODEL BUILDING

Initializing the model:

```
#import keras libraries
from tensorflow import keras
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Activation, Dense, Flatten, BatchNormalization, Conv2D, MaxPool2D
from tensorflow.keras.optimizers import Adam
from tensorflow.keras.metrics import categorical_crossentropy
from sklearn.metrics import confusion_matrix
from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

Adding the CNN layer:

```
[ ] #initialize CNN model
model=Sequential()
```

Adding the dense layer:

```
[ ] #adding dense layer
classifier.add(Dense(units=128,activation="relu"))
classifier.add(Dense(units=5,activation="softmax"))
```

Configure the learning process:

```
[ ] #configure the learning process
classifier.compile(optimizer="rmsprop",loss="categorical_crossentropy",metrics=["accuracy"])
```

importing the model building libraries:

```
[ ] #import keras libraries
from tensorflow import keras
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from sklearn.metrics import confusion_matrix
from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

Save the model:

```
[ ] #save the model
    classifier.save("model.h5")
```

Test the model:

```
[ ] #test the model
    img = image.load_img(r"/content/drive/MyDrive/DataSet/Dataset/TEST_SET/BANANA/100_100.jpg", target_size = (64, 64))
    x = image.img_to_array(img)
    x = np.expand_dims(x, axis = 0)
    prediction = model.predict(x)
    Index = ['APPLES', 'BANANA', 'ORANGE', 'PINEAPPLE', 'WATERMELON']
    prediction
```

Train the model:

```
#train the model
classifier.fit(x_train, steps_per_epoch=82, epochs=20, validation_data=x_test, validation_steps=28)
```