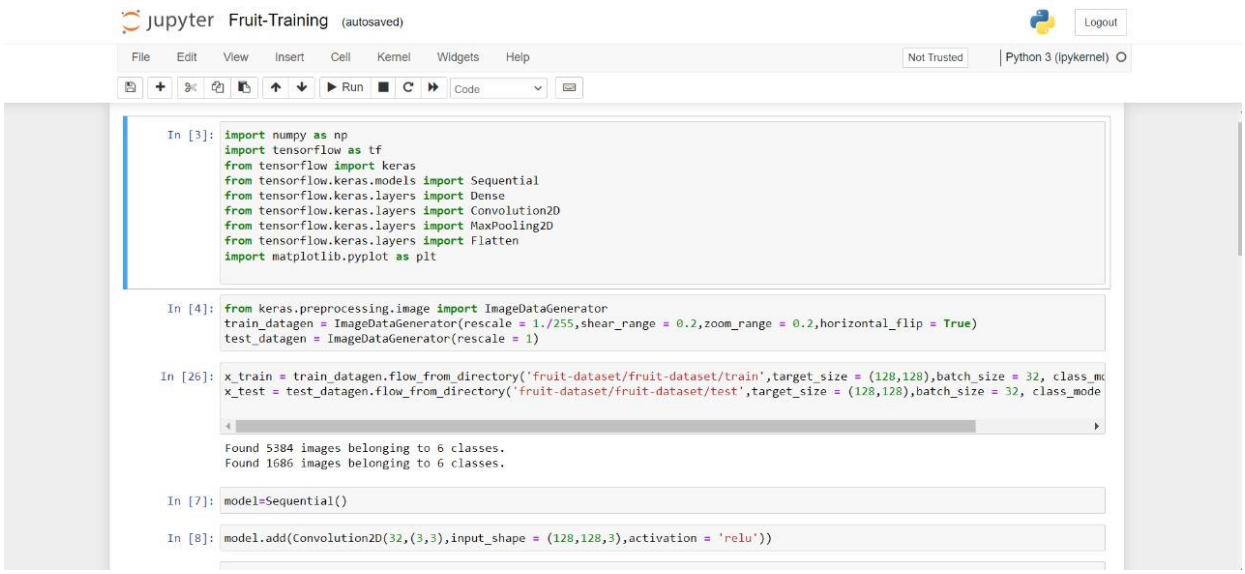
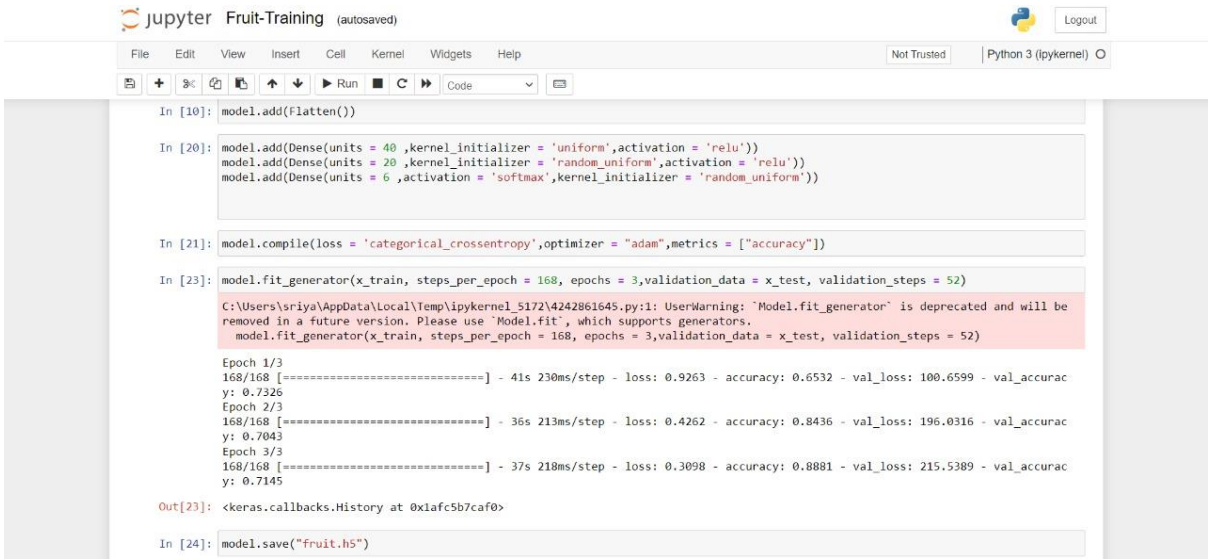
SPRINT-1

TRAINING THE DATASETS:

FRUIT DATASET:





VEGETABLE DATASET:

jupyter Vegitable-training (autosaved)

File Edit View Insert Cell Kernel Widgets Help — Not Trusted — Python 3 (ipykernel) — Logout

Run Code

```
In [1]: import numpy as np
        import tensorflow as tf
        from tensorflow import keras
        from tensorflow.keras.models import Sequential
        from tensorflow.keras.layers import Dense
        from tensorflow.keras.layers import Convolution2D
        from tensorflow.keras.layers import MaxPooling2D
        from tensorflow.keras.layers import Flatten
        import matplotlib.pyplot as plt

In [2]: from keras.preprocessing.image import ImageDataGenerator
        train_datagen = ImageDataGenerator(rescale = 1./255,shear_range = 0.2,zoom_range = 0.2,horizontal_flip = True)
        test_datagen = ImageDataGenerator(rescale = 1)

In [6]: x_train = train_datagen.flow_from_directory('Veg-dataset/Veg-dataset/train_set',target_size = (128,128),batch_size = 32, class_m
        x_test = test_datagen.flow_from_directory('Veg-dataset/Veg-dataset/test_set',target_size = (128,128),batch_size = 32, class_mode

        Found 11386 images belonging to 9 classes.
        Found 3416 images belonging to 9 classes.

In [7]: model=Sequential()

In [8]: model.add(Convolution2D(32,(3,3),input_shape = (128,128,3),activation = 'relu'))

In [9]: model.add(MaxPooling2D(pool_size = (2,2)))
```

jupyter Vegitable-training (autosaved)

File Edit View Insert Cell Kernel Widgets Help — Not Trusted — Python 3 (ipykernel) — Logout

Run Code

```
In [9]: model.add(MaxPooling2D(pool_size = (2,2)))

In [10]: model.add(Flatten())

In [12]: model.add(Dense(units = 300 ,kernel_initializer = 'uniform',activation = 'relu'))
         model.add(Dense(units = 150 ,kernel_initializer = 'uniform',activation = 'relu'))
         model.add(Dense(units = 75 ,activation = 'relu',kernel_initializer = 'uniform'))
         model.add(Dense(units = 9 ,activation = 'softmax',kernel_initializer = 'uniform'))

In [13]: model.compile(loss = 'categorical_crossentropy',optimizer = "adam",metrics = ["accuracy"])

In [14]: model.fit_generator(x_train, steps_per_epoch = 89, epochs = 20,validation_data = x_test, validation_steps = 27)

         Epoch 1/20

         C:\Users\sriya\AppData\Local\Temp\ipykernel_25452\1643366923.py:1: UserWarning: `Model.fit_generator` is deprecated and will be
         removed in a future version. Please use `Model.fit`, which supports generators.
           model.fit_generator(x_train, steps_per_epoch = 89, epochs = 20,validation_data = x_test, validation_steps = 27)

         89/89 [==============================] - 35s 387ms/step - loss: 2.1018 - accuracy: 0.1791 - val_loss: 101.1147 - val_accuracy:
         0.1273
         Epoch 2/20
         89/89 [==============================] - 34s 380ms/step - loss: 2.0854 - accuracy: 0.1692 - val_loss: 34.7438 - val_accuracy:
         0.1782
         Epoch 3/20
         89/89 [==============================] - 34s 379ms/step - loss: 2.0405 - accuracy: 0.1847 - val_loss: 62.4292 - val_accuracy:
         0.2720
         Epoch 4/20
```

jupyter Vegitable-training (autosaved)

File Edit View Insert Cell Kernel Widgets Help — Not Trusted — Python 3 (ipykernel) — Logout

Run Code

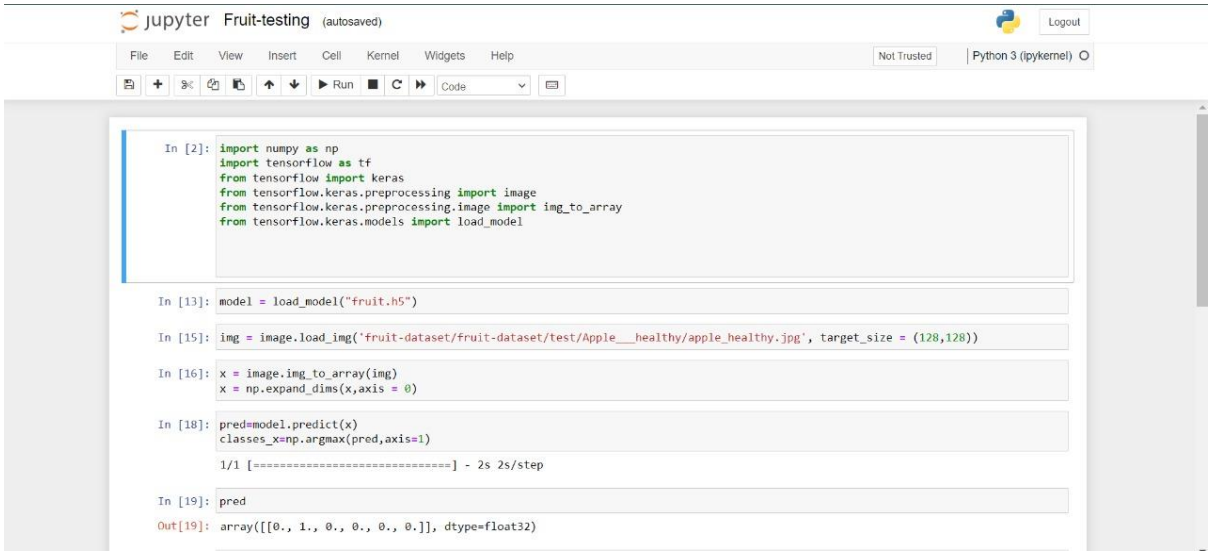
```
         0.4016
         Epoch 14/20
         89/89 [==============================] - 49s 548ms/step - loss: 0.6738 - accuracy: 0.7658 - val_loss: 964.8778 - val_accuracy:
         0.3785
         Epoch 15/20
         89/89 [==============================] - 42s 475ms/step - loss: 0.7187 - accuracy: 0.7581 - val_loss: 600.6293 - val_accuracy:
         0.4225
         Epoch 16/20
         89/89 [==============================] - 47s 530ms/step - loss: 0.6361 - accuracy: 0.7840 - val_loss: 759.7274 - val_accuracy:
         0.3889
         Epoch 17/20
         89/89 [==============================] - 43s 485ms/step - loss: 0.6651 - accuracy: 0.7791 - val_loss: 864.9741 - val_accuracy:
         0.3299
         Epoch 18/20
         89/89 [==============================] - 44s 500ms/step - loss: 0.5702 - accuracy: 0.8072 - val_loss: 968.4995 - val_accuracy:
         0.4190
         Epoch 19/20
         89/89 [==============================] - 39s 436ms/step - loss: 0.6014 - accuracy: 0.7960 - val_loss: 1045.8334 - val_accuracy:
         0.3519
         Epoch 20/20
         89/89 [==============================] - 40s 454ms/step - loss: 0.5043 - accuracy: 0.8329 - val_loss: 1101.1173 - val_accuracy:
         0.4097

Out[14]: <keras.callbacks.History at 0x24dcb570b80>

In [15]: model.save("vegetable.h5")
```

TESTING THE DATASETS:

FRUIT DATASET:



VEGETABLE DATASET: