Lab session 6: Integrating Machine Learning Model in a Flutter application

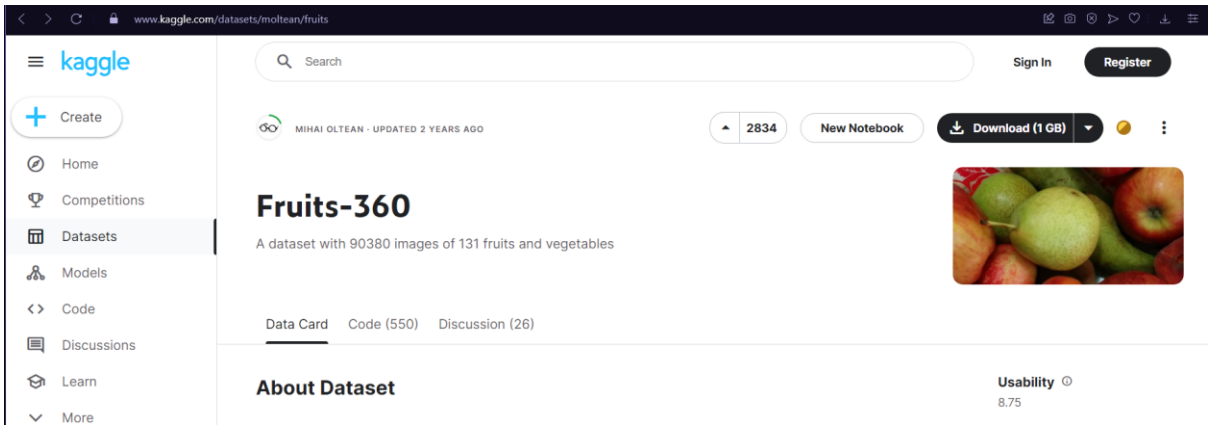
Task-2 Create an image classification Flutter application

In this Task, we will implement an image classification Flutter application that will recognize/identify fruits and vegetable images.

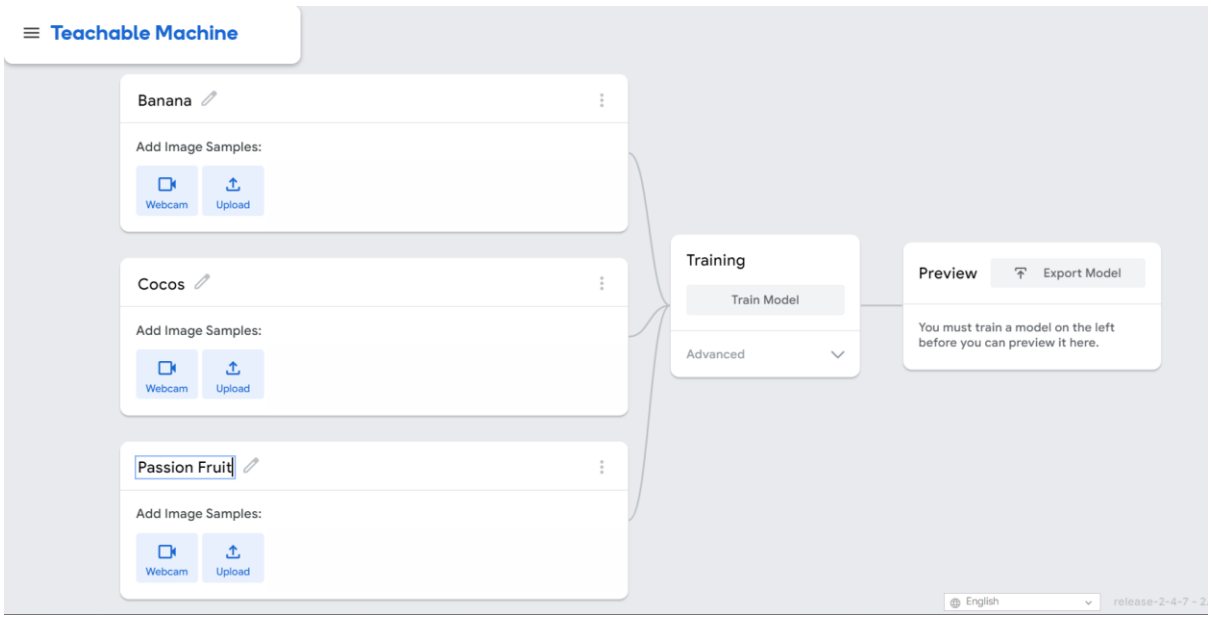
To create this application, we will build a model using Teachable Machine like we have just done in the previous task. This time we will use the Fruits-360 datasets from Kaggle to train the model.

Building a Model with Teachable Machine

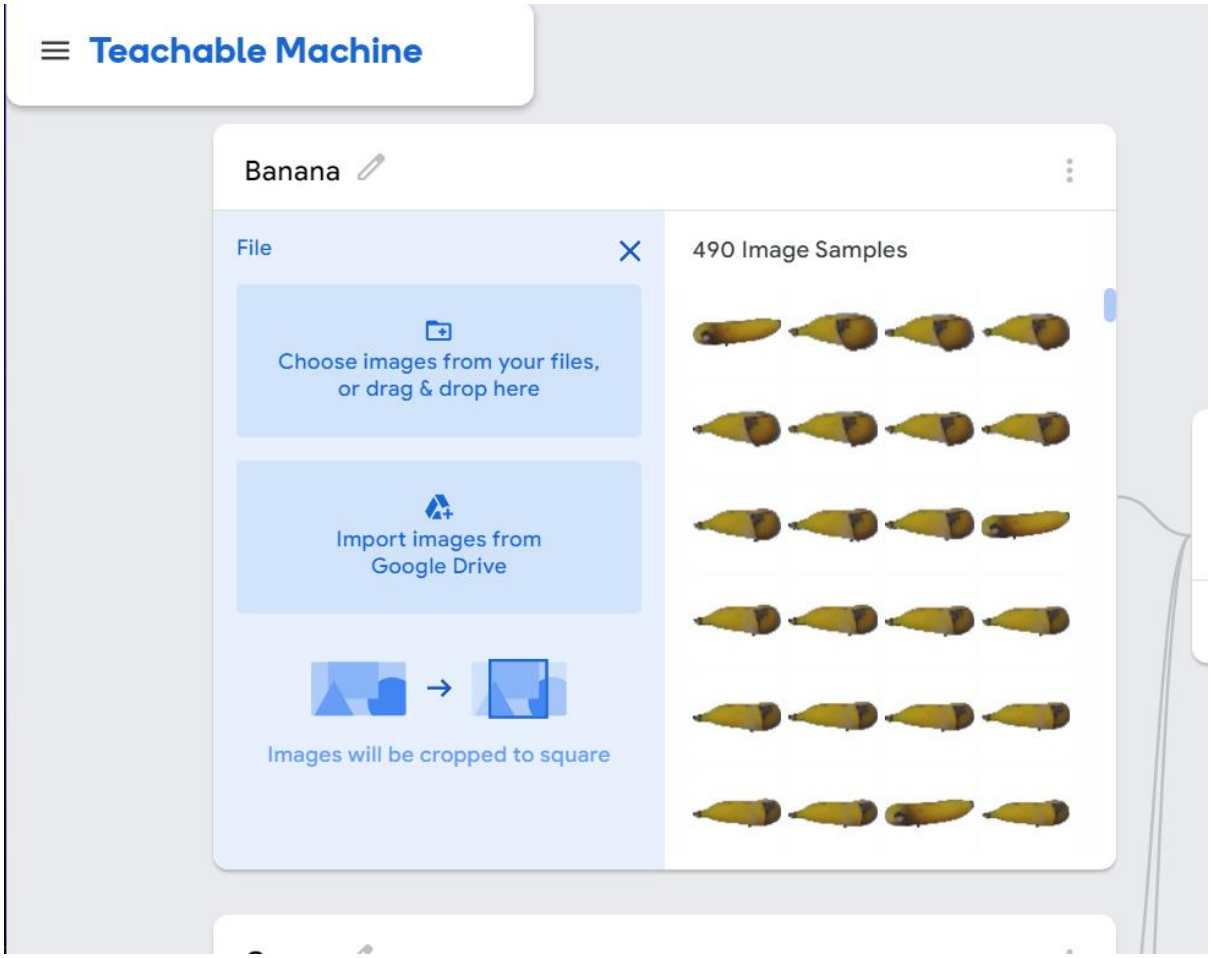
1. We will first download the dataset from Kaggle:



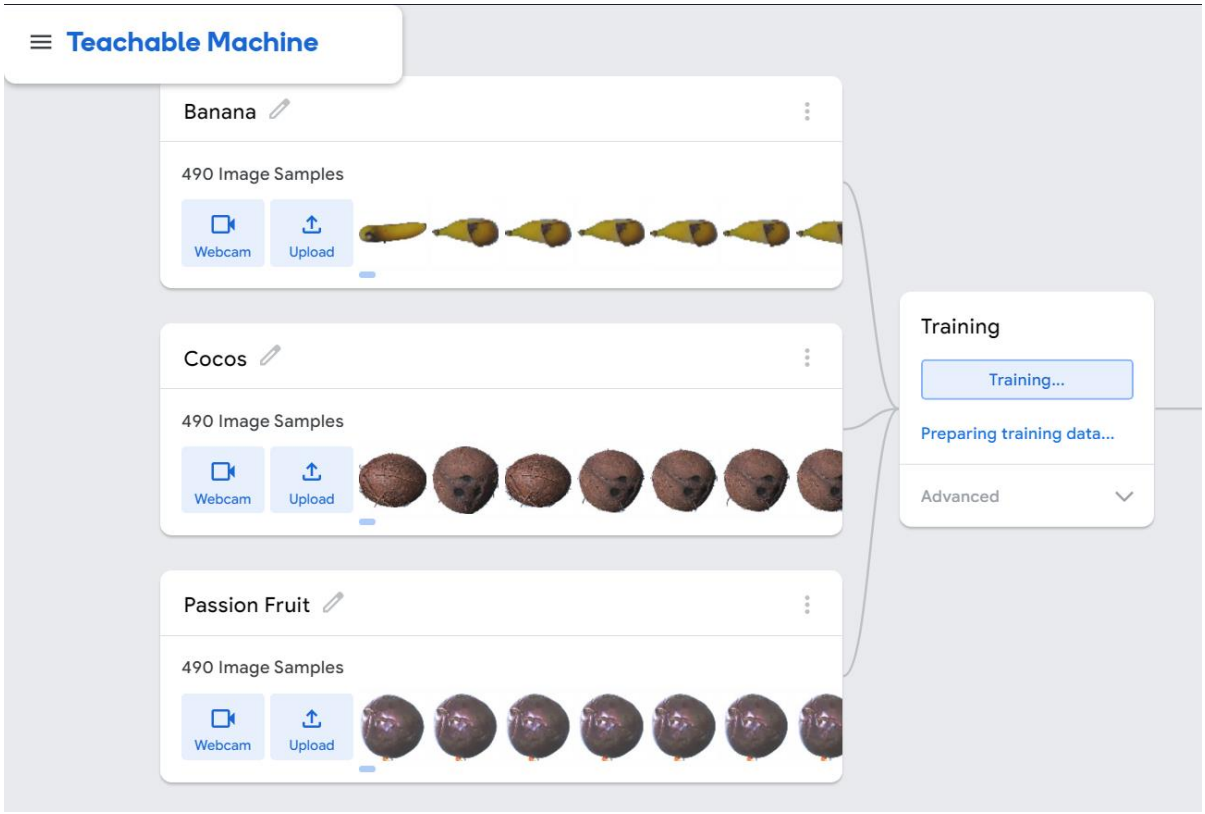
2. Next, we will create a new Image Project in Teachable machine and choose Standard Image Model when prompted.
3. Once in the training tool, add the classes and edit the labels of each class, as shown below:



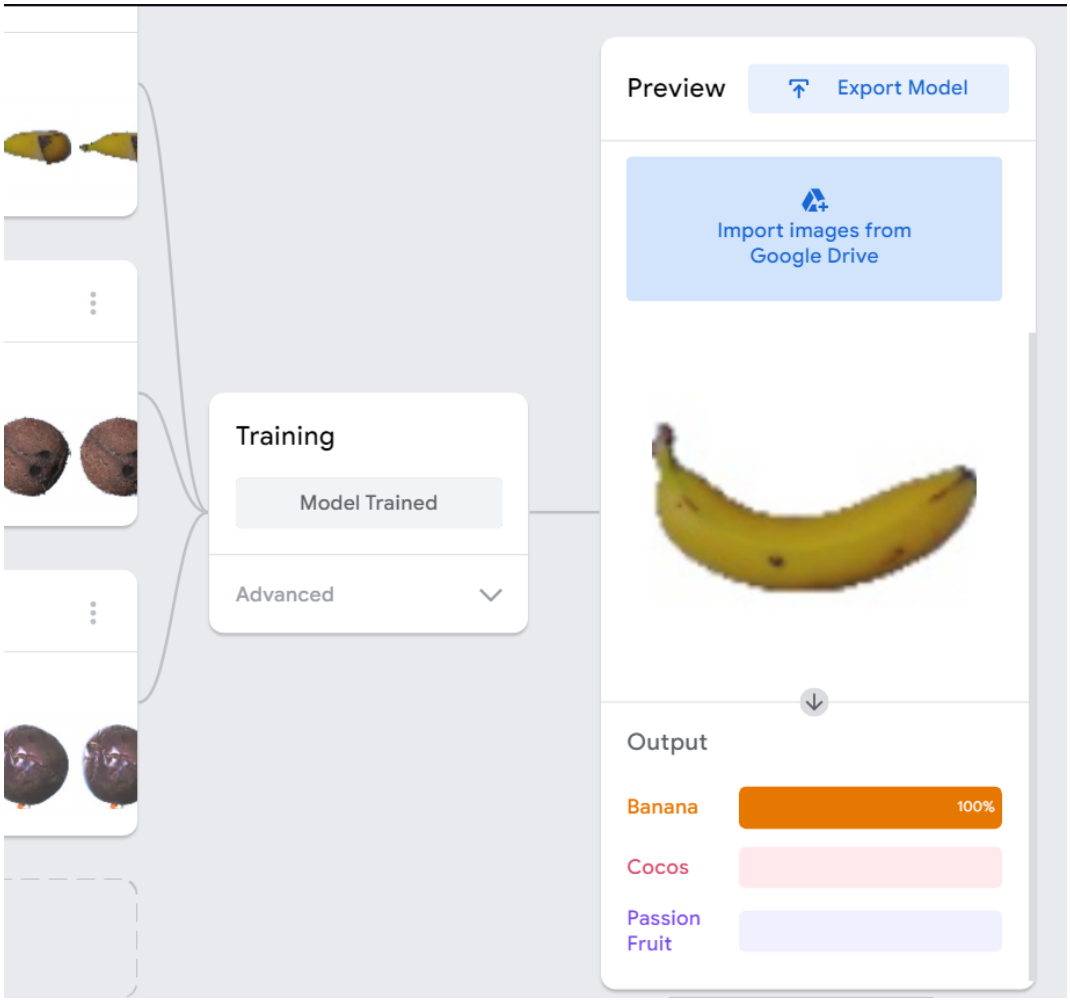
4. Next, add the training samples by clicking Upload under each class. Then, drag the folder of the appropriate plant type from the samples folder to the Choose images from your files panel.



5. After you've added all the training samples, click Train Model to train the model:



6. After the training completes, test the model with a fruit image. Use the images in the test folder, like so:



7. Finally, export the model by clicking Export Model on the Preview panel. In the dialog, choose TensorFlow Lite. That's because the target platform is mobile.
8. After you have the model file converted_tflite.zip in hand, decompress it and copy labels.txt and model_unquant.tflite to the ./assets folder in the starter project.

Implement the flutter app

We will try to modify the project created in Task 1 to recognize the fruit instead of plant.

1. We will first replace the machine learning model – model_unquant.tflite and the classification labels — labels.txt in the project plant recognition by those we got from the Teachable Machine platform.

2. Next, we will modify the app design to look like a proper Fruit recognition app.