**UNIT-1 LINK:**

<https://developers.google.com/learn/pathways/tensorflow#codelab-https://developers.google.com/codelabs/tensorflow-2-computervision>

**GOOGLE FORM LINK:**

<https://forms.gle/Yxopt7BGjPT78wrXA>

**STAGE-1 The Hello World of Machine Learning CODELAB LINK**

<https://colab.research.google.com/github/lmoroney/mlday-tokyo/blob/master/Lab1-Hello-ML-World.ipynb#scrollTo=5QyOUhFw1OUX>

**STAGE-2 TIntroduction to Computer Vision CODELAB LINK**

<https://colab.research.google.com/github/lmoroney/mlday-tokyo/blob/master/Lab2-Computer-Vision.ipynb>

**STAGE-3 Introduction to Convolutions CODELAB LINK**

<https://colab.research.google.com/github/lmoroney/mlday-tokyo/blob/master/Lab3-What-Are-Convolutions.ipynb>

**STAGE-4 Convolutional Neural Networks (CNNs) CODELAB LINK**

<https://colab.research.google.com/github/lmoroney/mlday-tokyo/blob/master/Lab4-Using-Convolutions.ipynb>

**STAGE-5 Complex Images CODELAB LINK**

<https://colab.research.google.com/github/lmoroney/mlday-tokyo/blob/master/Lab5-Using-Convolutions-With-Complex-Images.ipynb>

--------------------------------------------------------------------------------------------------------

!wget --no-check-certificate \

    https://storage.googleapis.com/learning-datasets/horse-or-human.zip \

    -O /tmp/horse-or-human.zip

!wget --no-check-certificate \

    https://storage.googleapis.com/learning-datasets/validation-horse-or-human.zip \

    -O /tmp/validation-horse-or-human.zip

--------------------------------------------------------------------------------------------------------

**STAGE-6 Use CNNs with larger datasets CODELAB LINK**

<https://colab.research.google.com/github/lmoroney/mlday-tokyo/blob/master/Lab6-Cats-v-Dogs.ipynb>

**CHANGE THE ERROR BLOCK CODE TO WITH BELOW CODE**

--------------------------------------------------------------------------------------------------------

!wget --no-check-certificate \

    "https://download.microsoft.com/download/3/E/1/3E1C3F21-ECDB-4869-8368-6DEBA77B919F/kagglecatsanddogs\_5340.zip" \

    -O "/tmp/cats-and-dogs.zip"

local\_zip = '/tmp/cats-and-dogs.zip'

zip\_ref   = zipfile.ZipFile(local\_zip, 'r')

zip\_ref.extractall('/tmp')

zip\_ref.close()

--------------------------------------------------------------------------------------------------------

**CODE TO DOWNLOAD THE TENSORFLOW MODEL**

model.save('Cats & Dogs Model.h5') // this will save the TensorFlow model

Task: we need to convert the TensorFlow model into the TensorFlowLite Model for better performance

=====>

**CODE TO DOWNLOAD THE TENSORFLOW LITE  MODEL**

**# Replace 'keras\_model\_path' with the path to your Keras model (open folders in codelab to check the path)**

keras\_model\_path = '/content/Cats & Dogs Model.h5'

model = tf.keras.models.load\_model(keras\_model\_path)

**# Convert the model**

converter = tf.lite.TFLiteConverter.from\_keras\_model(model)

tflite\_model = converter.convert()

# Save the TensorFlow Lite model to a file

tflite\_model\_name = 'CatsAndDogsModel.tflite'

with open('CatsAndDogsModel.tflite', 'wb') as f:

    f.write(tflite\_model)

#This line will download the tflite file to our device

files.download('CatsAndDogsModel.tflite')

—-----------------------------------------------------------------------------------------------------

Android Studio Download Link: <https://developer.android.com/studio>

KOTLIN PLAYGROUND: <https://developer.android.com/training/kotlinplayground>

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NOTE: DOWNLOAD 7Zip SOFTWARE TO ZIP OR UNZIP GIVEN ANDROID PROJECT CODES.

STEPS TO OPEN THE PROJECT:

1. OPEN ANDROID STUDIO

2. CLICK ON OPEN PROJECT OPTION

3. OPEN THE PROJECT FOLDER, MAKE SURE TO OPEN FINAL OR STARTER CODE. (ANDROID ICON WILL BE THERE CHECK)

POINTS TO REMEMBER:

In all the project code there is starter and final app codes

-> Want to start from scratch open starter app code

-. Want to see the final output, open the final app code.

**UNIT-2 LINK:** <https://developers.google.com/learn/pathways/get-started-object-detection?hl=en>

**Addition details about MLKit:** <https://developers.google.com/ml-kit/vision/object-detection>

**Object Detection Code-1:** <https://drive.google.com/file/d/10e2P3HtMM_li2RFBtVxDhu7onK9ula7G/view?usp=drive_link>

**If errors faced in Object Detection Code-1, follow the below step:**

1. In errors, Open Unsupported Java and click on suggestion "upgrade version7....."

2. Gotta upgrade assistant and change the version to the 7.8.2 or higher current 8.2.2

**UNIT-3 LINK:** <https://developers.google.com/learn/pathways/going-further-object-detection?hl=en>

**Object Detection Code-2:** <https://drive.google.com/file/d/1pg3DdyWfCNqPwZn0Tx4fU9YlJFgI9P_i/view?usp=drive_link>

If errors faced in Object Detection Code-2, follow the below step:

1. In errors, Open Unsupported Java and click on suggestion "upgrade version7....."

2. add the below code in gradle.build.properties:

**CODE:**

--------------------------------------------------------------------------------------------------------

**gradle.wrapper.properties**

dependencies={

implementation='com.google.code.gson:gson:2.8.9'

}=

--------------------------------------------------------------------------------------------------------

Gotta upgrade assistant and change the version to the 7.4.2 or higher current 8.2.2

**UNIT-4 LINK:** <https://developers.google.com/learn/pathways/get-started-image-product-search?hl=en>

**ProductSearch Code-1:** <https://drive.google.com/file/d/1JbkLFHBjv3SsN0Ncwn1k4rvb6DBE3SS8/view?usp=drive_link>

**ProductSearch Code-1**

1. In errors, Open Unsupported Java and click on suggestion "upgrade version7....."

Gotta upgrade assistant and change the version to the 7.4.2 or higher current 8.2.2

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**UNIT-5 LINK:** <https://developers.google.com/learn/pathways/going-further-image-product-search?hl=en>

**Product Search Code-2:** <https://drive.google.com/file/d/1YYTTmvuG-4Z8Rcuhw3eeck8cl8O-rwP2/view?usp=drive_link>

**CODELAB:** <https://colab.research.google.com/github/googlecodelabs/odml-pathways/blob/main/object-detection/codelab2/python/Train_a_salad_detector_with_TFLite_Model_Maker.ipynb>

**Product Search Code-2**

1. In errors, Open Unsupported Java and click on suggestion "upgrade version7....."

Gotta upgrade assistant and change the version to the 7.4.2 or higher current 8.2.2

**UNIT-6 LINK:**

<https://developers.google.com/learn/pathways/going-further-image-classification?hl=en>

Exercise:1

<https://colab.research.google.com/github/lmoroney/dlaicourse/blob/master/Exercises/Exercise%201%20-%20House%20Prices/Exercise_1_House_Prices_Question.ipynb#scrollTo=mw2VBrBcgvGa>

Exercise:1 Answer

<https://colab.research.google.com/github/lmoroney/dlaicourse/blob/master/Exercises/Exercise%201%20-%20House%20Prices/Exercise_1_House_Prices_Answer.ipynb>

Exercise:2

<https://colab.research.google.com/github/lmoroney/dlaicourse/blob/master/Exercises/Exercise%202%20-%20Handwriting%20Recognition/Exercise2-Question.ipynb>

Exercise:2 Answer

<https://colab.research.google.com/github/lmoroney/dlaicourse/blob/master/Exercises/Exercise%202%20-%20Handwriting%20Recognition/Exercise2-Answer.ipynb>

Exercise:3

<https://colab.research.google.com/github/lmoroney/dlaicourse/blob/master/Exercises/Exercise%203%20-%20Convolutions/Exercise%203%20-%20Question.ipynb>

Exercise:3 Answer:

<https://colab.research.google.com/github/lmoroney/dlaicourse/blob/master/Exercises/Exercise%203%20-%20Convolutions/Exercise%203%20-%20Answer.ipynb>

Exercise:4

<https://colab.research.google.com/github/lmoroney/dlaicourse/blob/master/Exercises/Exercise%204%20-%20Handling%20Complex%20Images/Exercise%204-Question.ipynb>

Exercise:4 Answer

<https://colab.research.google.com/github/lmoroney/dlaicourse/blob/master/Exercises/Exercise%204%20-%20Handling%20Complex%20Images/Exercise4-Answer.ipynb>