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PRO Professional Academy

Digital Talent Scholarship 2022

Device Based model in TF Lite 2

Lead a sprint through the Machine Learning Track

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Agenda

- Running TF model in Android App
- TF Lite on devices

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Are your students ML-ready?

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Recap

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[On-device object detection: Train and deploy a custom TensorFlow Lite model - YouTube]

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PART 4

Android Introduction

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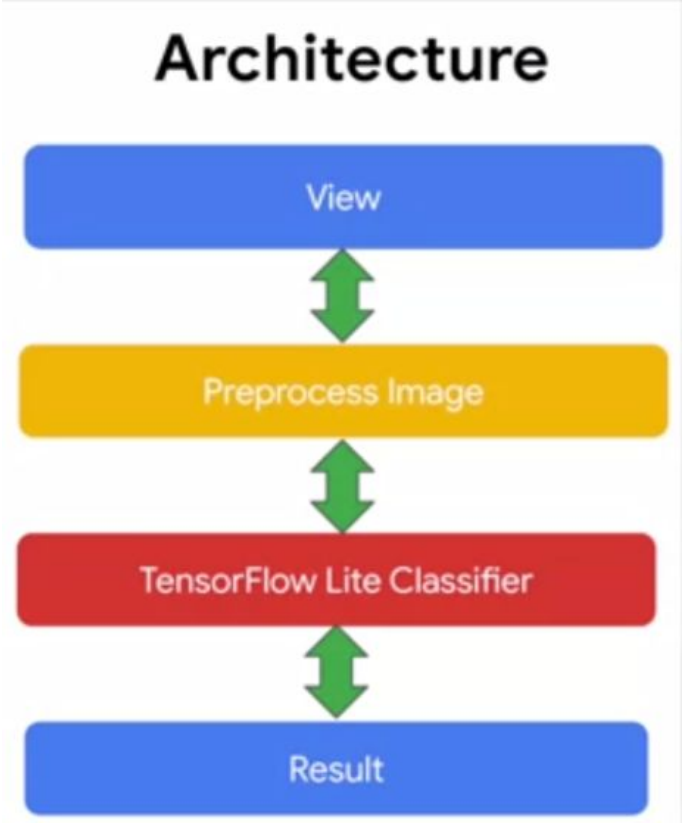
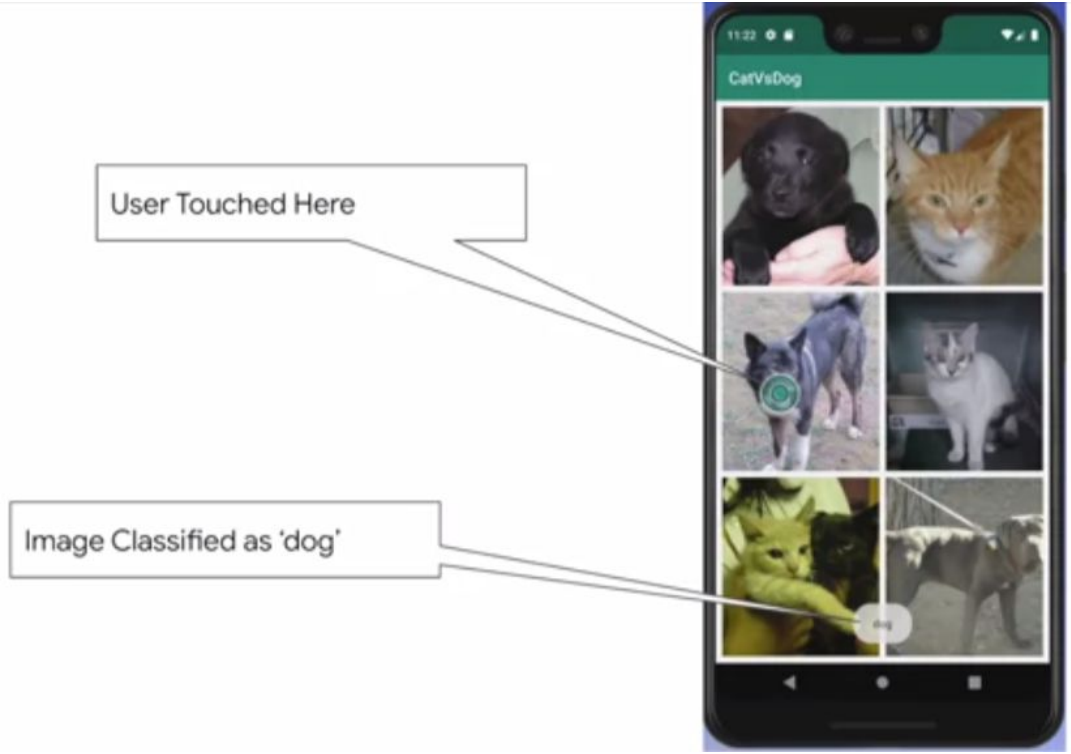
Installation and Resource

- Download Android Studio
- Add dependencies and add aaptOptions

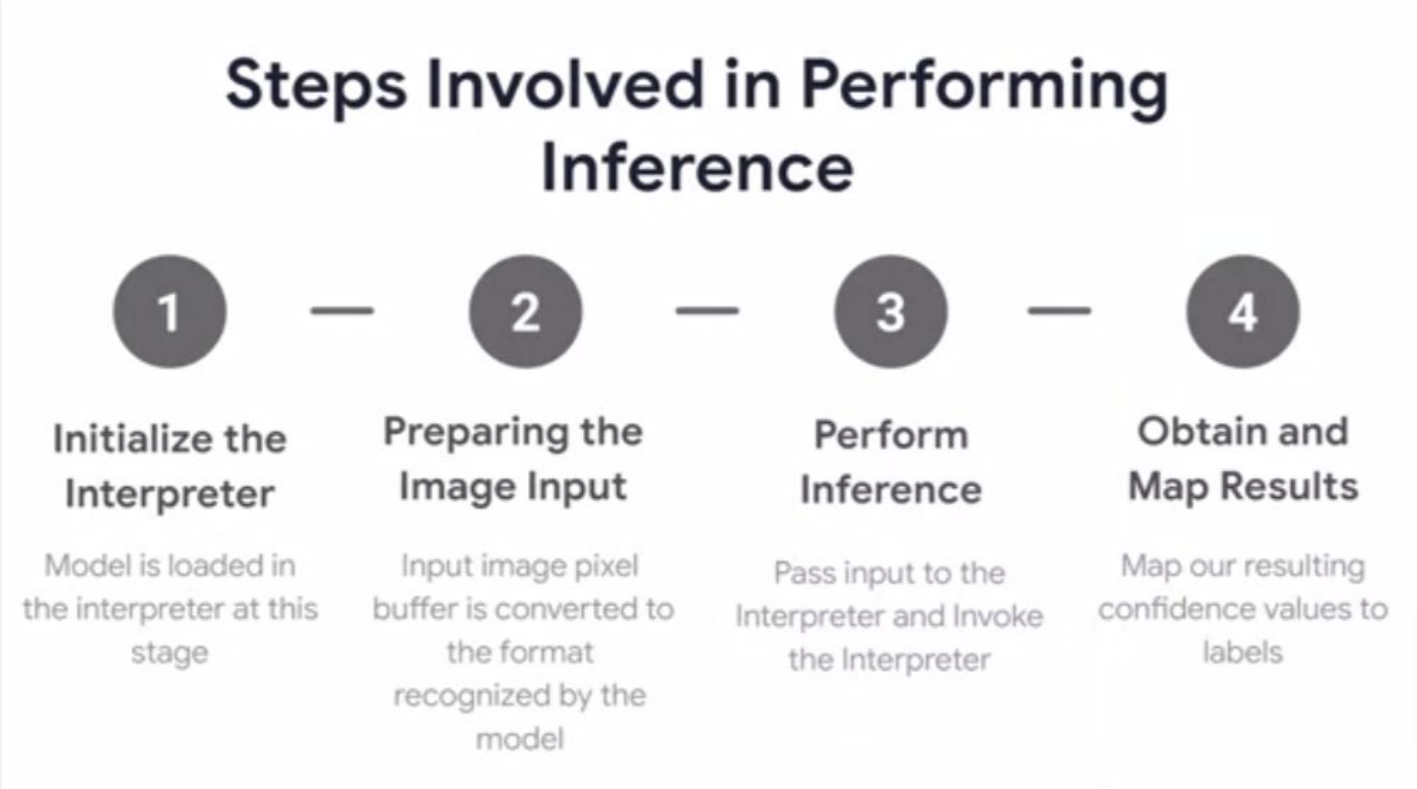
Architecture of a model



Initializing the Interpreter



Initializing the Interpreter



Set the Interpreter’s Options

Options: A class for controlling runtime interpreter behaviour

- `setNumThreads(int numThreads)`
- `setUseNNAPI(boolean useNNAPI)`
- `setAllowFp16PrecisionForFp32(boolean allow)`
- `addDelegate(Delegate delegate)`

DEMO Cats and Dogs Classifier

PART 5

Classifying Camera Images

Image Classification

- Menggunakan Machine Learning untuk mengidentifikasi apa yang direpresentasikan sebuah gambar
- Quantized MobileNet yang sudah ditrain dengan ImageNet dataset, terdiri dari 1000 objek kelas yang berbeda.

DEMO Camera Image Classification

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Train a custom object detection model using your data - YouTube

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[Introduction to object detection on Raspberry Pi - YouTube]

PART 6

Object Detection App

Object Detection Model

- Identifies classes of objects along with localizing them
- MobileNet SSD trained on COCO dataset
- COCO dataset has 80 classes
- Labels file is used to list COCO classes and map to output confidences

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DEMO Object Detection

https://youtube.com/playlist?list=PLTgRMOcmRb3NvWH-5JApxc4nEhKZkT6Ot

[How to use machine learning in android app | Machine learning in android studio | Android | ML - YouTube]

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Q & A

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Thank You