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Assignment 8

Title Android & Machine Learning

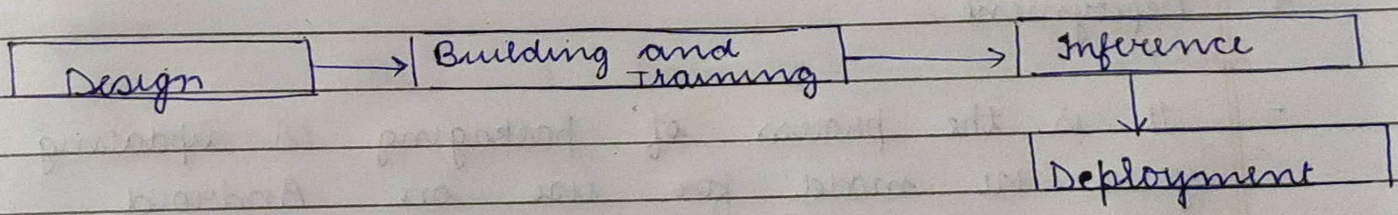
Problem Statement :
Draw inferences over data coming from phone's sensing hardware (Eg accelerometer, GPS etc) & process these samples with help of machine learning.

Theory :
Machine Learning

→ It is a programming technique that provide your apps ability to automatically learn & improve from experience without being explicitly programmed to do so

This is especially well suited for applications that utilize unstructured data such as images & text on problems with large no. of parameters such as predicting the winning sports team.

ML development Process



1. Design :
In this stage, product manager, designers & developers work together to define product

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& create a high level design of the app

2. Building & Training

- ML requires a model that's trained to perform a particular task, like making a prediction or classifying or recognizing some input.
- Developers can select an existing model or build a model from scratch.

3. Inferences.

- It is the process of using a ML model that has already been trained to perform a specific task.
- A key decision to be taken by android developers is whether to make inferencing on a device or on a cloud service that is accessed remotely.
- Usual issues to be taken into account are latency, cost & privacy issues.

4. Deployment:

- It is the process of packaging & updating your ML model for use on Android when doing on device inference. There are 3 options available:

i) Include the model with your android app.

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ii) Provide the model at runtime
iii) A combination of both

Some of the key applications of ML in android are

1. Image labelling :

- It models allow devices to recognize entities in an image without having to provide contextual metadata using either an device API as a cloud based API.
- When you use this model, you get a list of entities that were recognized. people, things, places, activities etc.

2. Barcode scanning :

- This barcode scanning model allows you to ~~to~~ read data encoded using most standard barcode formats.

Conclusion :

Thus, I have used ML models in android.