BATCH NO. 20

**Android Application for Handwriting Recognition using**

**Machine Learning**

**Introduction:**

Machine Learning is a field of [computer science](https://en.wikipedia.org/wiki/Computer_science) that gives [computers](https://en.wikipedia.org/wiki/Computer) the ability to learn without being explicitly programmed. Machine learning is employed in a range of computing tasks where designing and programming explicit algorithms with good performance is difficult or infeasible; example applications include [email filtering](https://en.wikipedia.org/wiki/Email_filtering), detection of network intruders or malicious insiders working towards a [data breach](https://en.wikipedia.org/wiki/Data_breach), [optical character recognition](https://en.wikipedia.org/wiki/Optical_character_recognition) (OCR) [learning to rank](https://en.wikipedia.org/wiki/Learning_to_rank), and [computer vision](https://en.wikipedia.org/wiki/Computer_vision).

Many advancements have been made to classify data from handwritten data, but the computer hasn’t been able to classify data efficiently. Hence, the need of handwriting recognition has come up.

In this project we aim at building an Android Application, which can read and classify handwritten digits drawn on the screen using Artificial Neural Networks. We train a neural network to classify the digits and export this training data into an Android Application which will be able to recognize the digits.

**Languages and Libraries Used**:

**Python** is an [interpreted](https://en.wikipedia.org/wiki/Interpreted_language) [high-level programming language](https://en.wikipedia.org/wiki/High-level_programming_language) for [general-purpose programming](https://en.wikipedia.org/wiki/General-purpose_programming_language). Created by [Guido van Rossum](https://en.wikipedia.org/wiki/Guido_van_Rossum) and first released in 1991. Python features a [dynamic type](https://en.wikipedia.org/wiki/Dynamic_type) system and automatic [memory management](https://en.wikipedia.org/wiki/Memory_management). It supports multiple [programming paradigms](https://en.wikipedia.org/wiki/Programming_paradigm), including [object-oriented](https://en.wikipedia.org/wiki/Object-oriented_programming), [imperative](https://en.wikipedia.org/wiki/Imperative_programming), [functional](https://en.wikipedia.org/wiki/Functional_programming) and [procedural](https://en.wikipedia.org/wiki/Procedural_programming), and has a large and comprehensive [standard library](https://en.wikipedia.org/wiki/Standard_library)

**TensorFlow** is an [open-source](https://en.wikipedia.org/wiki/Open-source) [software library](https://en.wikipedia.org/wiki/Library_(computing)) for [dataflow](https://en.wikipedia.org/wiki/Dataflow) programming across a range of tasks. It is a symbolic math library, and also used for [machine learning](https://en.wikipedia.org/wiki/Machine_learning) applications such as [neural networks](https://en.wikipedia.org/wiki/Neural_networks).

**KEYWORDS:** Machine Learning, Handwriting Recognition

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