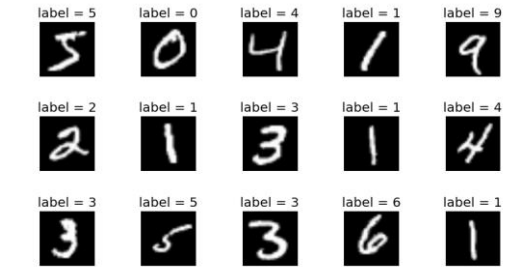
Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	03October 2022
Team ID	PNT2022TMID48349
Project Name	A Novel Method For Handwritten Digit Recognition System
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement and description :
FR-1	**Image data**: Handwritten digit recognition is the ability of a computer to recognize the human handwritten digits from different sources like images, papers, touch screens, etc and classify them into 10 predefined classes(0-9).This has been a topic of boundless-research in the field of deep learning.
FR-2	**Digit _Classifier_ Model**: Use the MNIST database of handwritten digits to train a convolutional network to predict the digit given an image. First obtain the training and validation model.
FR-3	**MNIST dataset:** The MNIST dataset is an acronym that stands for the modified National Institute of Standards and Technology dataset. It is a dataset of 60,000 small square 28 *28 pixel greyscale images of handwritten single digits between 0 and to 9. 

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement
NFR-1	**Usability:** Handwritten digit recognition is one of the practically important issues in pattern recognition applications. The applications of digit recognition include in postal mail sorting, bank check processing ,form data entry and etc.

NFR-2	**Reliability:** 1) The system not only produces a classification of the digit but also a rich description of the instantiation parameters. 2) The generative models can perform recognition driven segmentation 3) The method invokes a relatively.
NFR-3	**Performance:** The neural network uses the examples to automatically infer rules for recognizing handwritten digits. Furthermore, by increasing the number of training examples, the network can learn more about handwriting, and so improve it's accuracy. There are a number of ways and algorithms to recognize handwritten digits ,including Deep Learning/CNN, SVM, Gaussian Naive Bayes, KNN, Decision Trees, Random Forests etc.
NFR-4	**Accuracy:** Optical Character Recognition (OCR) technology provides higher than 99% accuracy with typed characters in high-quality images. However, the diversity in human writing types, spacing differences and irregularities of handwriting causes less accurate character recognition.