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

Date	03 October 2022
Team ID	PNT2022TMID52603
Project Name	Project – 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 (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Image Data	The ability of a computer to recognize human handwritten digits from a number of sources, such as pictures, documents, touch screens, etc., and classify them into ten predetermined categories is known as handwritten digit recognition (0-9). This has been the focus of innumerable studies in the field of deep learning.
FR-4	Website	The code, graphics, and other components of a website are made available online by web hosting. Every website you've ever visited is hosted by a server. The amount of server space provided to a website depends on the hosting type. The four primary types of hosting are shared, dedicated, VPS, and reseller.
FR-5	Digit Classifier Model	Utilize the MNIST collection of handwritten digits to train a convolutional network to predict a digit from an image. Assemble the data for training and validation first.
FR-6	Cloud	A variety of IT services, such as virtual storage, networking, servers, databases, and applications, are available in the cloud. Cloud computing is defined as an internet-based virtual platform that allows for limitless data storage and access.
FR-7	Modified National Institute of Standards and Technology dataset	The MNIST dataset is known by the term MNIST. It consists of 60,000 minuscule square grayscale images, each measuring 28 by 28, each with a handwritten single digit between 0 and 9.
FR-8	Evaluation	Examining the model to see if the prediction is accurate.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The recognition of handwritten characters is one of the major issues with pattern recognition applications. Using digit recognition technology for filling out forms and processing bank checks and mail sorting.
NFR-2	Security	1) In addition to classifying the digit, the system also gives a full description of the instantiation parameters, which could reveal details like the writing style. 2) Segmentation powered by recognition is a capability of the generative models.
NFR-3	Reliability	The neural network uses the data to automatically determine rules for deciphering handwritten numerals. By increasing the number of training instances, the network may also learn more about handwriting and hence improve its accuracy. To recognize handwritten numbers, a variety of methods and algorithms can be employed, including Deep Learning/CNN, SVM, Gaussian Naive Bayes, KNN, Decision Trees, Random Forests, etc.
NFR-4	Performance	Optical character recognition (OCR) technology provides accuracy rates of more than 99% for typed text in high-quality pictures. Less accurate character identification is caused by variations in spacing, anomalies in handwriting, and the diversity of human writing styles.
NFR-5	Availability	Software is accessible for both general and business use.
NFR-6	Scalability	It also aids numerous people in finding solutions to their issues with high precision and little time spent.