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

Date	10 NOVEMBER 2022
Team ID	PNT2022TMID22361
Project Name	A Novel Method for Handwritten DigitRecognition 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	MNIST Dataset	A training set of 60,000 instances and a test set are included in the modified National Institute of Standards and Technology dataset (MNIST) database ofhandwritten digits.10,000 examples in a set.
FR-2	Data pre-processing	Enhances the image by applying a few adjustments to the input image to get it ready for segmentation.
FR-3	GUI	Allows for the digitalization of the numbers and the user to enter a handwritten image. meant to makevirtualization easier.
FR-4	Image Data	Handwritten digit recognition is the ability of a computer to identify human handwritten digits from diverse sources, such as photographs, papers, touch displays, etc., and categories them into ten recognized classifications (0-9). In the area of deep learning, this has gotten a lot ofinvestigation.
FR-5	Digit Classifier Model	Train a neural network to predict a digit from an image Using the MNIST collection of handwritten digits. Gather the training and validation data first.
FR - 6	Evaluation	Make that the model recognizes the digit correctly and generates the correct result.
FR - 7	Website	Web hosting makes a website's code, graphics, and other elements accessible online. A server hosts everywebsite. Depending on the hosting option, a website may receive a certain amount of server space. Shared, dedicated, VPS, and reseller hosting are the four main forms of hosting.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Automate the process of accurately reading andunderstanding handwritten numbers.
NFR-2	**Security**	The system not only categorises the digit but also generates a detailed description of the instantiationparameters, which could reveal information like thewriting style. The generative models have segmentation capabilities that are driven by recognition.
NFR-3	**Reliability**	The samples are used by the neural network to automatically generate rules for deciphering handwritten digits. The network may learn more about handwriting as a result of additional trainingcases, which will also increase its accuracy. Numerous techniques and algorithms, such as Deep Learning/CNN, SVM, Gaussian Naive Bayes, KNN, Decision Trees, Random Forests, etc., can be used to recognize handwritten numbers.
NFR-4	**Performance**	High because artificial neural networks used in deep learning are trained on the training set of images. using CNN's algorithm to make rapid predictions.
NFR-5	**Availability**	Through a web application, anyone may easily access the system, making it incredibly accessible for desktop and mobile browsers.