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

Date	06 NOVEMBER 2022
Team ID	PNT2022TMID08536
Project Name	A Novel Method For Handwritten Digit Recognition
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	Getting the handwritten digit input	The handwritten digit is obtained as input from the user as an image uploading or writing on the canvas.
FR-2	Data preprocessing.	Upgrades the image to make it ready for segmentation, by performing some tasks on the input image.
FR-3	Segmentation & Feature Extraction	Segment the MNIST dataset images using edge detection technique and remove redundancy from the data
FR-4	Classification and Recognition	Passing the feature vectors as individual input to the classifiers or neural networks such as CNN
FR-5	Prediction	The deep learning model is trained and tested using the MNIST dataset, with accuracy > 90%
FR-6	Evaluation	Ensure that the digit is correctly recognised by the model and produces accurate output.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	To identify and understand handwritten digits automatically, with high accuracy.
NFR-2	**Security**	Ensures security, since uploaded images are not stored in any database
NFR-3	**Reliability**	User-friendly web interface for the system. Process confidential information without data leakage
NFR-4	**Performance**	High, since artificial neural networks are used to train the images and build deep learning model. Fast prediction using CNN algorithm.
NFR-5	**Availability**	Using web application, anyone can easily access the system, making it highly available for web and mobile browsers.
NFR-6	**Scalability**	Performs well even if the count of input handwriting increased, since MNIST dataset is used for recognition process. Low time consumption