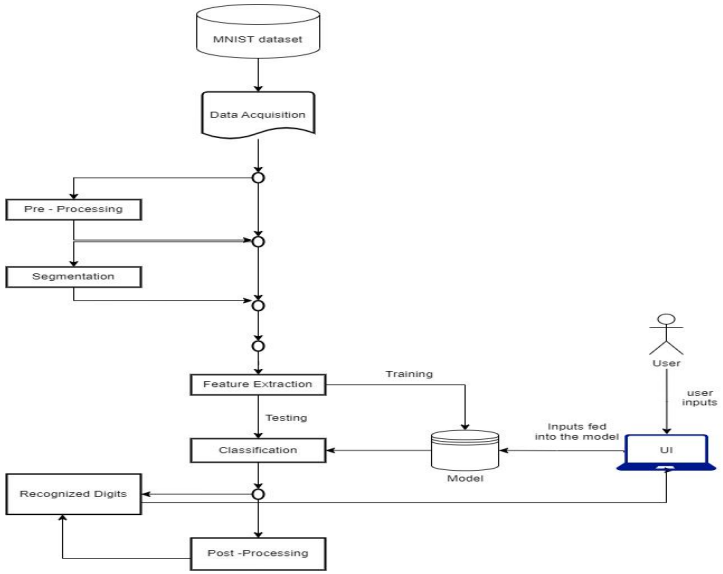
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID07944
Project Name	A Novel Method For Handwritten Digit Recognition System
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2



Guidelines:

1. Include all the processes (As an application logic / Technology Block)
2. Provide infrastructural demarcation (Local / Cloud)
3. Indicate external interfaces (third party API's etc.)
4. Indicate Data Storage components / services
5. Indicate interface to machine learning models (if applicable)

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	user interacts with applications like Web UI, Mobile App	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Python
3.	Database	A database is an organized collection of structured information, or data, typically stored electronically in a computer system. Here We used MNIST data sets	MySQL
4.	Cloud Database	A cloud database is a database built to run in a public or hybrid cloud environment to help organize, store, and manage data within an organization	IBM Cloudant
5.	File Storage	File storage is a data storage system that puts complete files in a series of nested folders for organizational purposes. Any hard drive on a computer uses the file storage model.	IBM Block Storage or Other Storage Service or Local Filesystem
6.	Machine Learning Model	A machine learning model is a program that can find patterns or make decisions from a previously unseen dataset.	Object Recognition Model, etc.
7.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local, Cloud Foundry, Kubernetes, etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Handle data from multiple sources and protocols, Machine learning frameworks is used to train a predictive model	Flask, Open cv
2.	Security Implementations	The system should automatically be able to authenticate all users with their unique username and password	Password based login, Authorization
3.	Scalable Architecture	The website traffic limit must be scalable enough to support 2 lakhs users at a time	3-tier
4.	Availability	This system will retrieve the handwritten text regions only if image contains written text in it	Convolution Neural Network
5.	Performance	Handwritten characters in the input image will be recognized with an accuracy of about 99% and more.	MNIST datasets