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

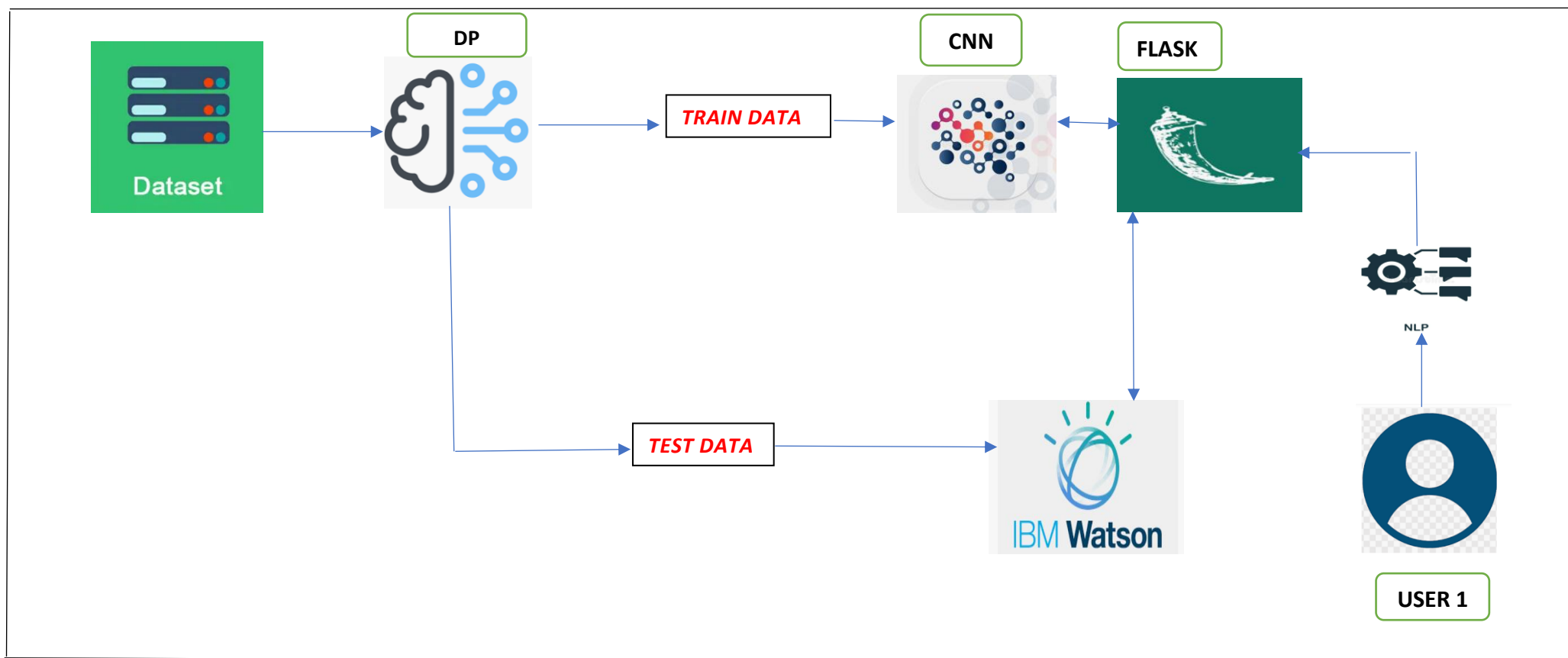| Date	03 October 2022
Team ID	PNT2022TMID35886
Project Name	Real Time Communication System for Specially-Abled
Maximum Marks	4 Marks

Technical Architecture:

Table-1: Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	By using Web UI and Mobile app user interacts with the application	HTML, CSS, Python
2.	Application Logic-1	Getting the Hand Gesture Images dataset	Python
3.	Application Logic-2	Analysing the application and the representation of the hand gestures	IBM Watson, Python, CNN
4.	Application Logic-3	Getting audio as input data	IBM Watson, Python, CNN
5.	Database	Data Type- Hand Gesture movements (Images)and their representations	MySQL, JavaScript, IBM DB2
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	Received hand gesture movements and the audio speech is stored in the cloud	IBM Block Storage, IBM cloud, Local Storage
8.	CNN (Convolutional Neural Network)	Purpose of CNN is used for the understanding of sign to human readable language and vice-versa	CNN, Object detection model, NLP
9.	Machine Learning Model	Purpose of AI-Machine Learning model is used for the identification of hand gestures recognition, Sign language and vice-versa	Object Recognition Model, CNN and NLP for voice data and hand gestures
10.	Infrastructure (Server / Cloud)	We will be deploying the AI and CNN model using flask in the web application of cloud server	Python Flask

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Open-Source framework used in IBM Watson	Technology of Opensource framework
2.	Security Implementations	IBM cloud	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	Database server-On the basis of new applications acquiring from the user, the dataset can be modified accordingly. Application Server-While updating of dataset takes the integration of the application as per user demands and requirements can be done.	IBM Watson Assistant, MySQL, Python
4.	Availability	The AI and CNN model is available instantly when in need without any modifications process can be made	IBM Watson Cloud Assistant
5.	Performance	IBM Watson and the Cloud is used to store data where the deep learning and NLP model is used for training of data (audio/hand gestures). By using IBM Watson studio better performance and convenience.	IBM Watson Assistant, NLP