

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

Date	03 October 2022
Team ID	PNT2022TMID35588
Project Name	Project - 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

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI	HTML, CSS, JavaScript
2.	Application Logic-1	Model Building	Python
3.	Application Logic-2	Logic for a process in the application	Python
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	SQLite
6.	File Storage	File storage requirements	IBM Block Storage, Local File system
7.	Machine Learning Model	Purpose of Machine Learning Model	Digit Recognition model trained on MNIST dataset.
8.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud	Local,Heroku, Cloud Foundry etc.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Flask, Open CV, TensorFlow
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	SHA-256, IAM(Identity Access Management).
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	IBM cloud servers are used which can be scaled dynamically according to the demand, providing elasticity.
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	IBM cloud is used which ensures that the application is highly available across multiple regions through redundancy and maintaining replications.
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Servers with required specifications can be provisioned according to the need for performance.

References:

<https://c4model.com/>

<https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/>

<https://www.ibm.com/cloud/architecture>

<https://aws.amazon.com/architecture>

<https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d>