**Project Design Phase-II**

**Technology Stack (Architecture & Stack)**

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| --- | --- |
| 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** |
|  | User Interface | How user interacts with application e.g.  Web UI | HTML, CSS, JavaScript |
|  | Application Logic-1 | Model Building | Python |
|  | Application Logic-2 | Logic for a process in the application | Python |
|  | Application Logic-3 | Logic for a process in the application | IBM Watson Assistant |
|  | Database | Data Type, Configurations etc. | SQLite |
|  | File Storage | File storage requirements | IBM Block Storage, Local File system |
|  | Machine Learning Model | Purpose of Machine Learning Model | Digit Recognition model trained on MNIST dataset. |
|  | Infrastructure (Server / Cloud) | Application Deployment on Local System / Cloud | Local,Heroku, Cloud Foundry etc. |

**Table-2: Application Characteristics:**

| **S.No** | **Characteristics** | **Description** | **Technology** |
| --- | --- | --- | --- |
|  | Open-Source Frameworks | List the open-source frameworks used | Flask, Open CV, TensorFlow |
|  | Security Implementations | List all the security / access controls implemented, use of firewalls etc. | SHA-256, IAM(Identity Access Management). |
|  | 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. |
|  | 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. |
|  | 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>**