**Project Design Phase-II**

**Technology Stack (Architecture & Stack)**

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| Date | 29 Oct 2022 |
| Team ID | PNT2022TMID34509 |
| Project Name | Predicting The Energy Output Of Wind Turbine Based On Weather Condition |
| Maximum Marks | 4 Marks |

**Technical Architecture:**



**Table-1 : Components & Technologies:**

|  |  |  |  |
| --- | --- | --- | --- |
| S. No | Component | Description | Technology |
| 1. | User Interface | Web UI | HTML, CSS, JavaScript |
| 2. | Application Logic-1 | Prediction process | Java / Python |
| 3. | Database | Integer type used to store the collected and examine weather data | MySQL, NoSQL |
| 4. | Cloud Database | Database Service on Cloud | IBM DB2, IBM Cloud DB |
| 5. | File Storage | File storage requirements | IBM Block Storage or Other Storage Service or Local Filesystem |
| 6. | External API | Used to predict weather | IBM Weather API, etc. |
| 7. | Machine Learning Model | This model is developed to predict the rainfall using ML algorithms | Algorithms like regression, classification, clustering and ML models |
| 8. | Infrastructure (Server / Cloud) | Application Deployment on Local System / Cloud  Local Server Configuration: intel i3 with 4GB ram  Cloud Server Configuration :IBM cloud service | Local, IBM Cloud Storage Services |

**Table-2: Application Characteristics:**

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| --- | --- | --- | --- |
| **S. No** | **Characteristics** | **Description** | **Technology** |
| 1. | Open-Source Frameworks | Backend Framework, CSS, Relational Database | PyJWT, Flask, IBM Cloud DB |
| 2. | Security Implementations | Request authentication using JWT Tokens | SHA-256, Encryptions, SSL Certs |
| 3. | Scalable Architecture | Support for Multiple sample prediction using Excel File | Pandas Numpy |
| 4. | Availability | Availability is increased by distributed servers in Cloud VPS | Availability is increased by distributed servers in Cloud VPS |
| 5. | Performance | The application is expected to perform accurate prediction | Auto regressive models |