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

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|---|---|
| Date | 25 October 2022 |
| Team ID | PNT2022TMID51231 |
| Project Name | Predicting the energy output of wind farm based on weather conditions. |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

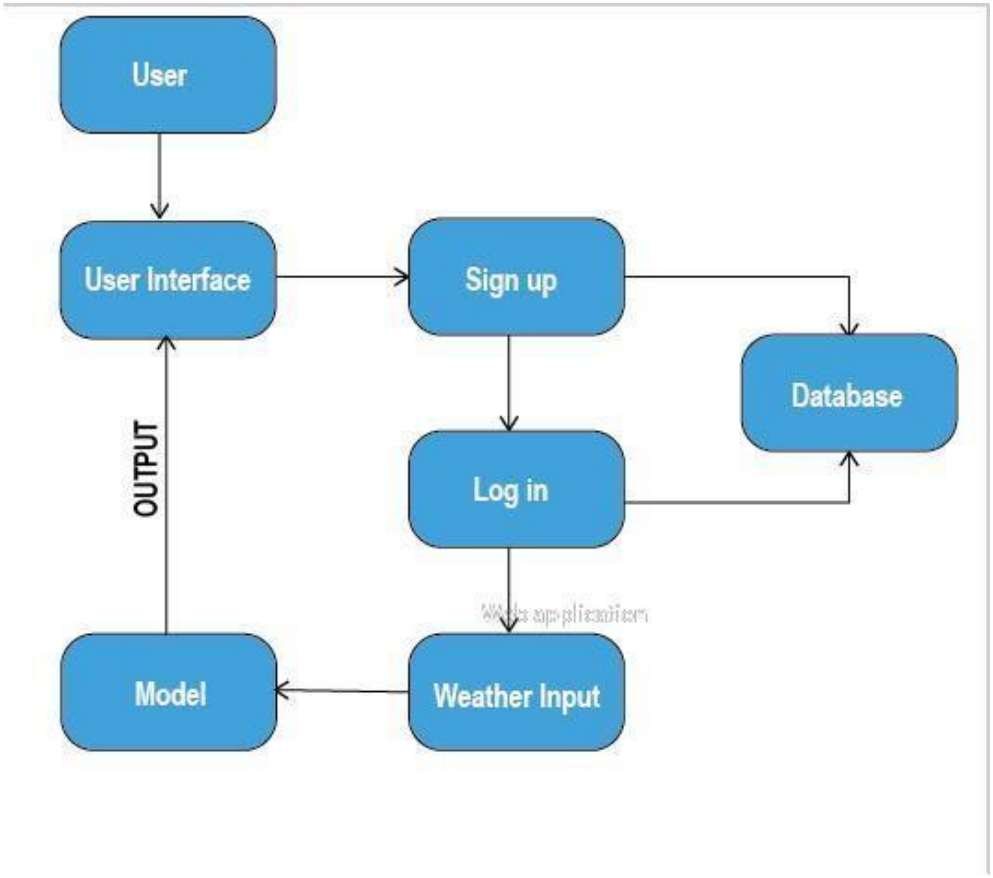

**Table-1 : Components & Technologies:**

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1. | User Interface | User can interact with web application | React JS |
| 2. | Application Logic-1 | Using python to create API's | Python |
| 3. | Application Logic-2 | Creating a model to Predict the data | IBM Watson STT service |
| 4. | Application Logic-3 | Logic for a process in the application | IBM Watson Assistant |
| 5. | Database | To store user details and dataset | NoSQL |
| 6. | Cloud Database | Database Service on Cloud | MongoDB atlas |
| 7. | File Storage | - | - |
| 8. | External API-1 | Encrypting the user name, password and communication details | NPM package encryption |
| 9. | External API-2 | Purpose of External API used in the application | Aadhar API, etc. |
| 10. | Machine Learning Model | Predicting the out of wind turbine using weather data | Regression Model |
| 11. | Infrastructure (Server / Cloud) | - | - |

**Table-2: Application Characteristics:**

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1. | Open-Source Frameworks | Using open source for external packages | Technology of Opensource framework |
| 2. | Security Implementations | For securing the details of the users | Encryption algorithms. |
| 3. | Scalable Architecture | The architecture used here is a 3tier architecture where a middleware is present to carry out the communication between client and server. | 3tier architecture. |
| 4. | Availability | It's a web application | React JS |
| 5. | Performance | 100 request per second for the server. We can also make higher number of requests per seconds by upgrading | Server hosting |

| | | | |
|---|---|---|---|
| 4. | Availability | it’s a web application | React js |
| 5. | Performance | 100 request per second for the database. | mongoDB atlas |

**References:**


https://c4model.com/

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

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

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