**Project Design Phase-II**
**Solution Requirements (Functional & Non-functional)**

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|---|---|
| Date | 17 October 2022 |
| Team ID | PNT2022TMID05458 |
| Project Name | Detecting Parkinson's Disease using Machine Learning |
| Maximum Marks | 4 Marks |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
|---|---|---|
| FR-1 | User Authentication | Registration through Gmail, Login to the application, Confirmation via mail and OTP |
| FR-2 | Data management | Web server has access to change/edit data and update it to server. |
| FR-3 | Input data upload | Data is uploaded for analysis and prediction |
| FR-4 | Testing | Applying the algorithms on the test data |
| FR-5 | Prediction | Prediction is made by the model |
| FR-5 | Result | Results of presence of Parkinson or not is displayed |

**Non-functional Requirements:**

Following are the non-functional requirements of the proposed solution.

| FR No. | Non-Functional Requirement | Description |
|---|---|---|
| NFR-1 | **Usability** | The UI of the application must be user-friendly and easy to use. The input loading should be enabled faster. |
| NFR-2 | **Security** | The image and voice records should be secure and must not be accessible by everyone. |
| NFR-3 | **Reliability** | The prediction of the system must be with higher accuracy so that it will be trusted by users. |
| NFR-4 | **Performance** | The XGBoost algorithm used for detecting PD should incorporate a sparsity-aware split finding algorithm to handle different types of sparsity patterns in the data. Out-of-core computing feature of the XGBoost algorithm should optimize the available disk space and maximizes its usage. |
| NFR-5 | **Availability** | The application should be available to all groups of people all the time. |
| NFR-6 | **Scalability** | XGBooster should not only able to keep up with all those other algorithms but exceeds them in performance. XGBoost should be able to solve real-world scale problems using a minimal number of resources. |