# Project Design Phase-II

## Solution Requirements (Functional & Non-functional)

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| **Solution Requirements (Functional & Non-functional)** Date | 13 May 2023 |
| Team ID | NM2023TMID15405 |
| Project Name | Identifying Perinatal Health Risks using Machine Learning Techniques |

**Functional Requirements:**

Following are the functional requirements of the proposed solution.

| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
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| FR-1 | Data collection | Collecting health measurements for individuals including age, blood pressure, blood sugar, body temperature, and heart rate. |
| FR-2 | Risk level assignment | Assigning a risk level to each individual based on their health measurements. |
| FR-3 | Data Pre-processing | Cleaning and pre-process the collected data including handling missing or invalid values, scaling or normalizing the data, and possibly encoding categorical variables. |
| FR-4 | Exploratory data analysis | conducting exploratory data analysis (EDA) to gain insights into the distribution, correlation, and other characteristics of the data. |
| FR-5 | Model development | To develop predictive models using machine learning or other statistical methods to predict the risk level of individuals based on their health measurements. |
| FR-6 | Model deployment | deploy the trained models in a production environment such as a web application using Flask to allow users to input their health measurements and receive a predicted risk level. |

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| FR-7 | Performance monitoring | Evaluating performance of the deployed models including accuracy, precision, recall, and other metrics to ensure that the models are working correctly and producing reliable results. |

**Non-functional Requirements:**

| Following are the non-functional requirements of the proposed solution. **FR No.** | **Non-Functional Requirement** | **Description** |
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| NFR-1 | **Usability** | The system provides a user-friendly interface for inputting and viewing health measurements and predicted risk levels. |
| NFR-2 | **Security** | The system have proper access controls in place to restrict access to sensitive data or features to authorized users only. Access control measures can include role-based access control, attribute-based access control, or mandatory access control, depending on the specific requirements of the application. |
| NFR-3 | **Reliability** | To ensure reliability, the web application built using best practices and standards, tested thoroughly, and monitored for errors and performance issues regularly. |
| NFR-4 | **Performance** | The system handle the large volumes of data efficiently and process and analyse data in real-time to provide timely results. |
| NFR-5 | **Availability** | The web application available to users at all times, with minimal downtime for maintenance or updates. The system should have proper failover and redundancy measures in place to ensure that the system remains available even in the event of hardware or software failures. |

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| NFR-6 | **Scalability** | The system be able to handle an increasing number of users and data as the system gains popularity and usage. |