PROJECT DESIGN PHASE-II
SOLUTION REQUIREMENTS (FUNCTIONAL & NON-FUNCTIONAL)

Date	16 October 2022
Team ID	PNT2022TMID00111
Project Name	Efficient Water Quality Analysis and Prediction 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 Registration	Form registration Gmail Registration
FR-2	User Confirmation	Confirmation via Email. OTP is sent mobile for confirmation.
FR-3	User Login/ Authentication	Validate Login ID and password.
FR-4	Deployment of the Machine Learning Model	Developing the Machine Learning Regression Model to predict the Water Quality Index. Developing the Machine Learning Classification Model to predict the Water Quality Classification.
FR-5	Testing the Water Samples	To provide an option to test any kind of water sample with required parameters and to calculate the Water Quality Index and impurities present.
FR-6	Functions of the Interface	Provides an interface for: 1. Viewing the Water Quality Index value. 2. Displaying the Water Sample type. 3. Producing any purification technique recommended for the sample.
FR-7	Reporting	If any issues are faced by the customer or user it should be directly notified to the developer.
FR-8	Rules of Compliance	Privacy Policy, Terms and Conditions.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Customers can access the system more efficiently and in a simpler way. The customers can have the opportunity to view a better interpretation of results. The customers are also recommended with the purification techniques based on the impurities.
NFR-2	**Security**	All the predicted information is accessed only by the authenticated users.
NFR-3	**Reliability**	It should be reliable in producing effective and efficient water quality prediction results. It should ensure the trust and belief among people that this water quality prediction system produces correct results when used.
NFR-4	**Performance**	The system should be consistent in producing the prediction results of Water Quality Index (WQI) and also needs to ensure better throughput and response time compared to other systems.
NFR-5	**Availability**	The system can be utilized by the customers 24/7 and it should be availed to test any kind of water samples anywhere.
NFR-6	**Scalability**	It can be used by wide variety of users like testing agencies, private and public laboratories, restaurants and hotels and people who wish to test the quality of water they consume. The system should also be compatible enough so as to be integrated with the future technologies also.