

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

Date	17 October 2022
Team ID	PNT2022TMID54402
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	A registration platform will be provided on the subsequent mail id through Gmail where the user can fill out their registration form.
FR-2	User Confirmation	Confirmation Through Email and Confirmation OTP.
FR-3	User Validation	Validation of Login ID and password.
FR-4	Deployment of the model using Machine Learning Platform	Develop a Machine learning Classification model for Water Quality Classification and develop a Machine Learning relapse model for Water Quality Index.
FR-5	Analyzing and predicting the water samples	Providing an adequate option for any kind of water samples with the required parameters for the calculation of the Water Quality Index and testing of impurities present in the water.
FR-6	Interface Function	Provide an Interface by displaying the water sample can view the Water Quality Index for the required samples and even its results for any recommended purification technique for the required samples.
FR-7	Compliance to Rules	Terms and conditions, Privacy Policy, User Agreement.
FR-8	Support System	If any issues are faced by the user, they will be directed to the application developer.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	To analyze and predict whether the water is safe to drink or not using some parameters like Ph value, conductivity, hardness, etc.
NFR-2	Security	The predicted information can be accessed only by authenticated users only and cannot be accessed by non-authenticated users.
NFR-3	Reliability	The use of multiple regression algorithms has proven to be important and effective in predicting the water quality index.
NFR-4	Performance	Machine learning approaches are capable of accurately predicting the water quality with high efficiency.
NFR-5	Availability	It can be available to all of them and can be accessed 24/7.
NFR-6	Scalability	This method provides high precision, flexible customization, and convenient extensibility.