

PROJECT DESIGN PHASE-I
PROPOSED SOLUTION TEMPLATE

DATE	19 September 2022
TEAM ID	PNT2022TMID23851
PROJECT NAME	Efficient Water Quality Analysis and Prediction using Machine Learning
MAXIMUM MARKS	2 Marks

S.NO	PARAMETERS	DESCRIPTION
1	Problem Statement (Problem to be solved)	Access to safe drinking-water is essential to health, a basic human right and a component of effective policy for health protection. This is important as a health and development issue at a national, regional and local level. In some regions, it has been shown that investments in water supply and sanitation can yield a net economic benefit, since the reduction in adverse health effects and health care costs outweigh the costs of undertaking the interventions. Prepare the ML model to predict the water quality.

2	Idea /Solution Description	<p>In this Project, we are going to implement a water quality using Machine Learning techniques. In this technique, our model predicts that the water is safe to drink or not using some parameters like Ph value, conductivity, hardness, etc..</p> <p>Machine Learning algorithm to be used:</p> <p>1.Decision Tree algorithm: Decision tree is a supervised learning technique that can be used for both classification and regression problems, but mostly it is preferred for solving classification problems.</p> <p>2.Support Vector algorithm: Support Vector Machine (SVM) is a supervised machine learning algorithm used for both classification and regression. Though we say regression problems as well its best suited for classification. The objective of SVM algorithm is to find a hyperplane in an N-dimensional space that distinctly classifies the data points.</p> <p>3.KNN algorithm: The abbreviation KNN stands for “K-Nearest Neighbour”. It is a supervised machine learning algorithm. The algorithm can be used to solve both classification regression problem statements. The number of nearest neighbours to a new unknown variable that has to be predicted or classified is denoted by the symbol ‘K’.</p>
---	-------------------------------	---

--	--	--

3	Novelty / Uniqueness	<p>In this project, the water quality is found with the help of WQI, WCI and also including the seven parameters.</p> <ol style="list-style-type: none"> 1. Ph value 2. Hardness 3. Total dissolved solids 4. Chloramines 5. Sulfate 6. Conductivity, Turbidity 7. Potability
4	Social Impact / Customer Satisfaction	<p>Water is the core of sustainable development and is critical for socioeconomic development, energy and food production, healthy ecosystems and for human survival itself. When water supplies are improved and sustainable, it significantly enhances a community's economic growth and reduce poverty.</p>
5	Business Model (Revenue Model)	<p>Industries that provide sanitation facilities and products (like water purifiers, quality testers, etc..) can deploy this solution to provide more waste water treatment plants, better insights in health concerns and there may also be an increase in awareness and demand for better water quality and availability. People will start looking for treatments related to water borne diseases as the awarenesss increases.</p>
6	Scalability of Solution	<p>This system is enriched with all the testing environment, it is scalable to test all the water available in the globe.</p>