

Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID21489
Project Name	Essential Water Quality Analysis and Prediction using Machine learning
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Essential Water Quality Detection and Prediction Technical Architecture

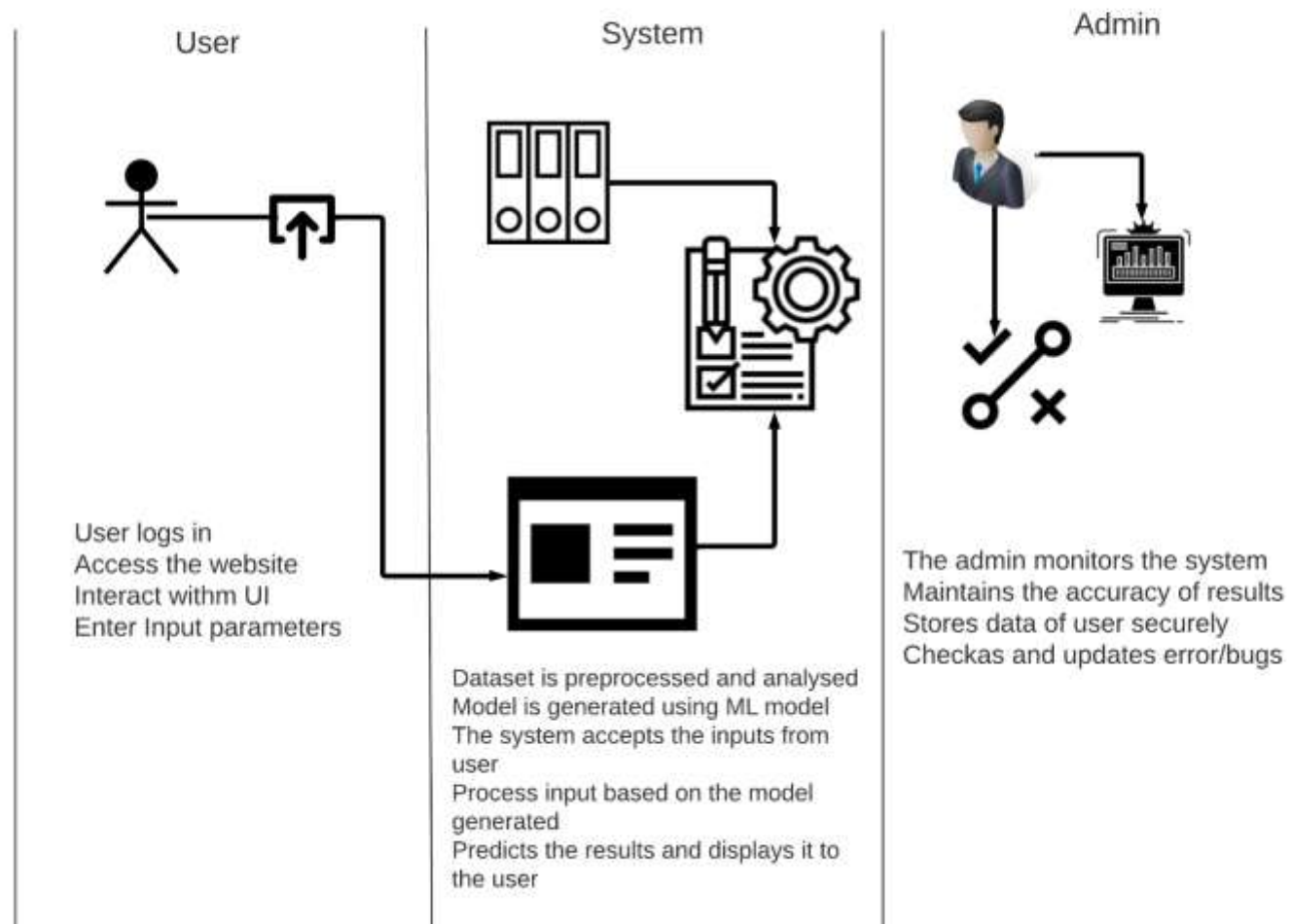


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The user interacts with the website/ application through web UI	HTML, CSS, Python
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Logic for detection of water quality in the application	Python
4.	Application Logic-3	Logic for prediction of water quality in the application	Python
5.	Database	Data format for processing	MySQL
6.	Cloud Database	Database Service on Cloud	IBM DB2.
7.	File Storage	To store files/ data for the process	Local Filesystem
8.	Machine Learning Model	Classification and clustering are techniques used in data mining to analyze collected data. Classification is used to label data, while clustering is used to group similar data instances together.	Clustering and classification Model.
9.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: built-in flask web server	Local web server

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Micro web framework written in python	Flask
2.	Security Implementations	Flask-Security allows you to quickly add common security mechanisms to your Flask application. They include Session-based authentication, Role management.	Flask Security & Validation
3.	Scalable Architecture	Flask is also highly scalable as it can process a high number of requests each day. This micro-framework modularize the entire code and let developers work on independent chunks and use them as the code base grows.	Flask
4.	Availability	High compatibility with the latest technologies and allows customization.	Flask
5.	Performance	<ul style="list-style-type: none">→ Integrated support for unit testing.→ RESTful request dispatching.→ Uses Jinja templating.→ Support for secure cookies (client-side sessions) 100% WSGI 1.0 compliant.	Flask