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

Date	03 October 2022
Team ID	PNT2022TMID10672
Project Name	Efficient Water Quality Analysis And Prediction Using Machine Learning
Maximum Marks	4 Marks

Technical Architecture:

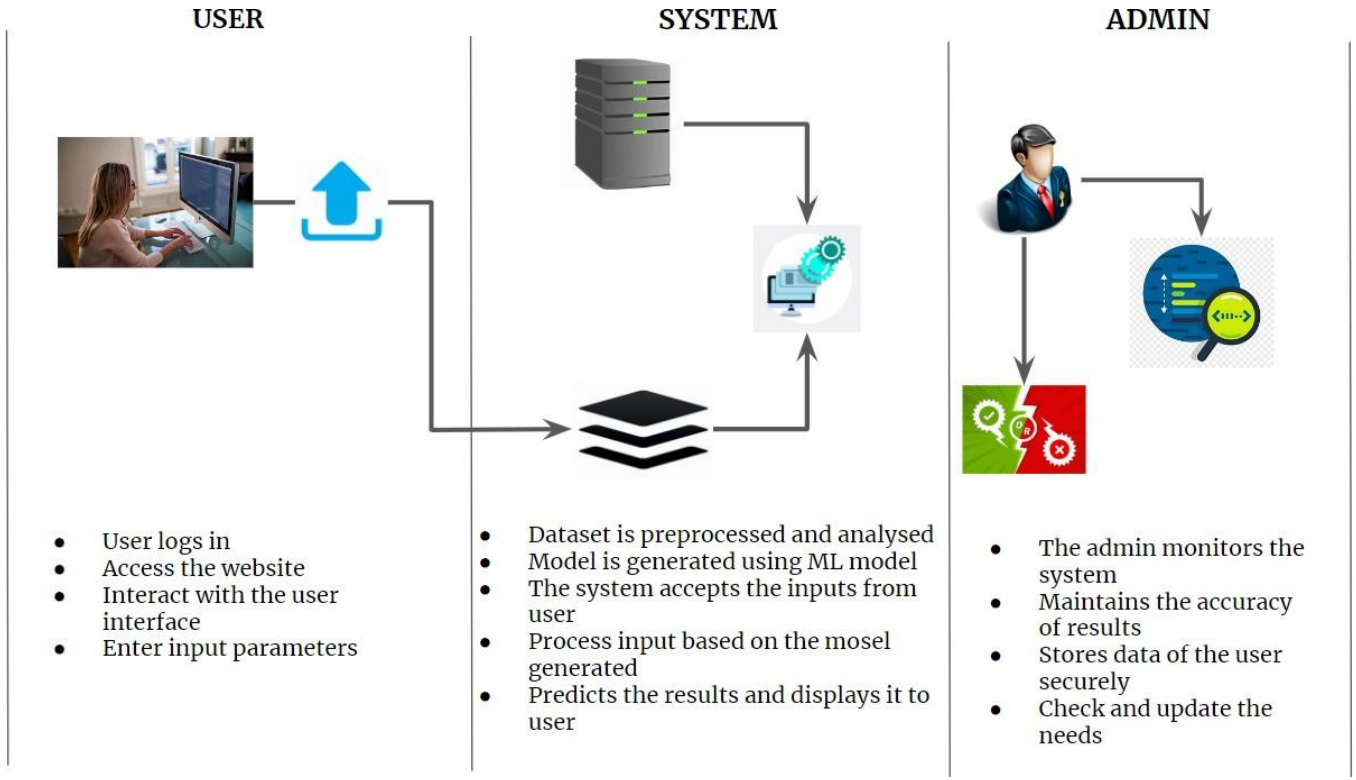

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	The user get easy interaction through web based water quality analysis (UI).	HTML, CSS, Python
2.	Application Logic-1	Logic for a process in the application based on given water quality metrics.	Python
3.	Application Logic-2	Logic for prediction of water quality throughanalysing with various parameters in the application.	Python
4.	Application Logic-3	Logic for detection of water quality that confirming with water quality index(Good, partially good, poor) 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 indata mining to analyse 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 webserver	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	• Integrated support for unit testing. • RESTful request dispatching. • Uses Jinja templating. • Support for secure cookies (client-side sessions) 100% WSGI 1.0 compliant	Flask