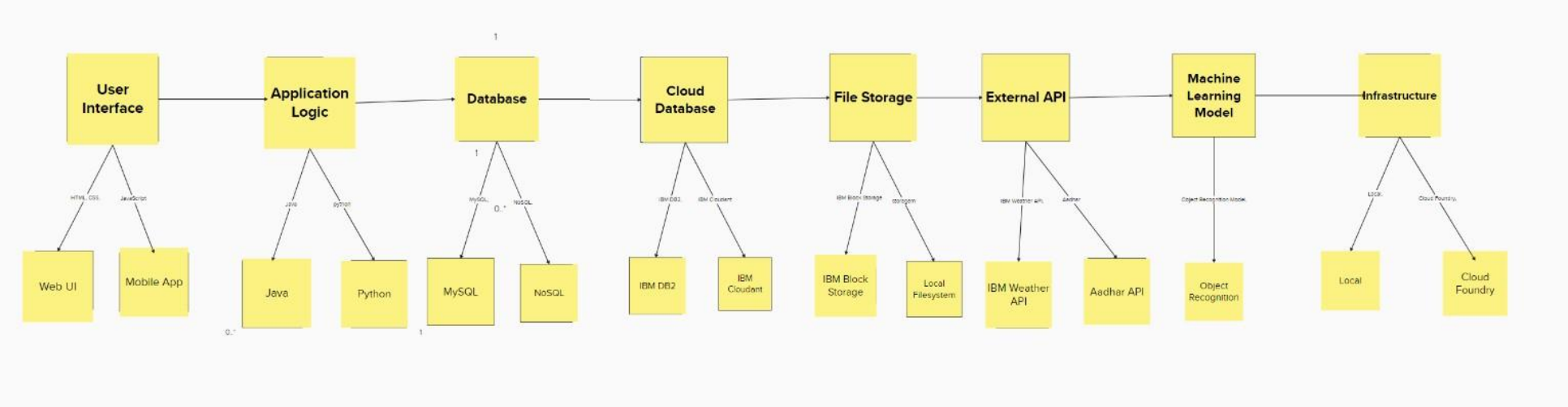
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	20 November 2023
Team ID	Team-592061
Project Name	River Water Quality Forecasting
Maximum Marks	4 Marks

Architecture Diagram Using The Given Tables:



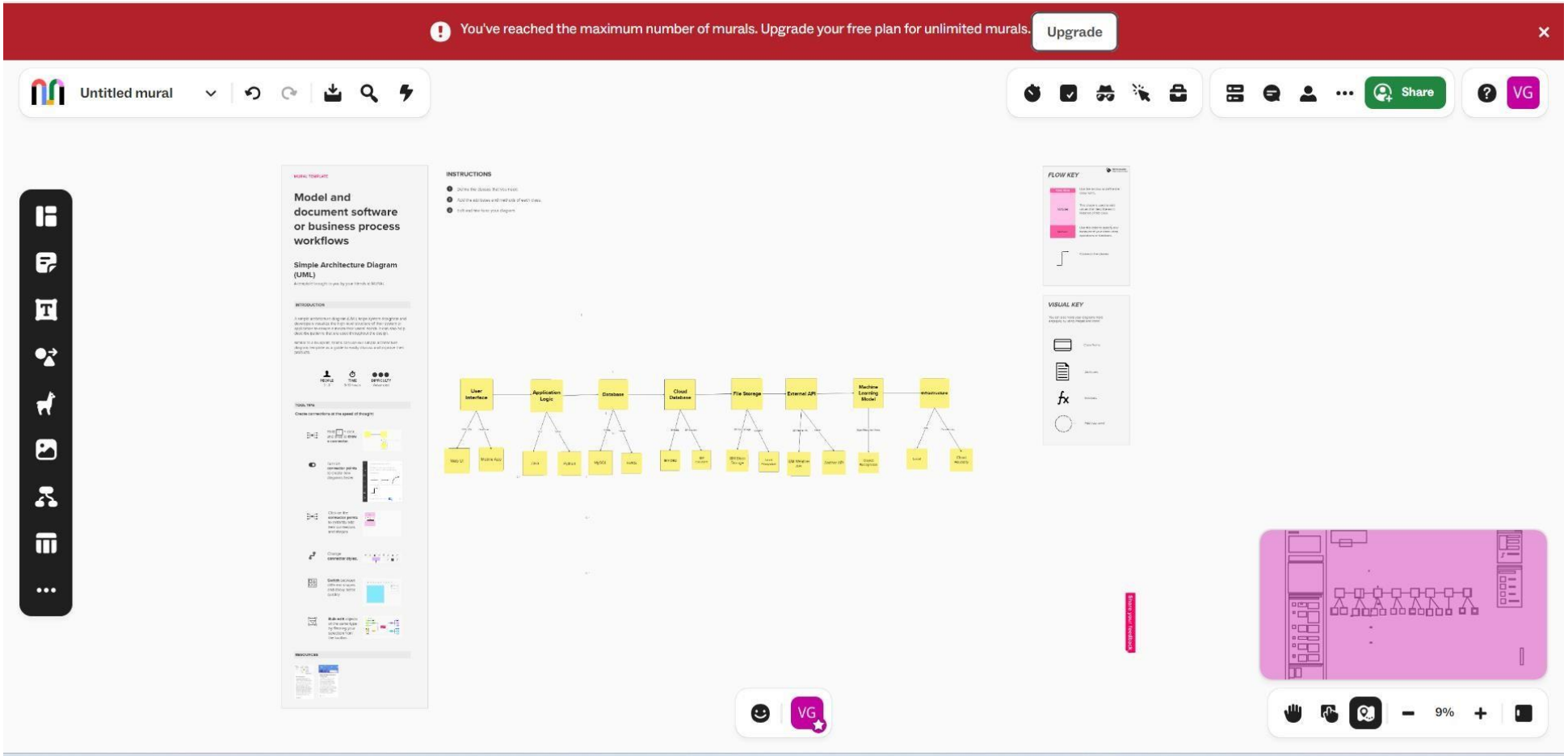


Table-1 : Components & Technologies:

S.No	Component	Description	Technology

1.	User Interface /Front End	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript
2.	Backend	Logic for a process in the application	Flask
3.	Application Logic-1	Logic for a process in the application	Flask
4.	Machine Learning Model	Predicts water potability based on input parameters	Scikit-Learn,SVM
5.	Data Preprocessing	Prepares input data for the machine learning model	Pandas,Numpy
6.	External API-1	Purpose of External API used in the application	REST, JSON
7.	Deployment	Deploying the web application on a cloud platform	Heroku,Docker
8.	Model Persistence	Saves and loads the trained machine model	Pickle,joblib
9.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Heroku, Docker.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology

1.	Open-Source Frameworks	List the open-source frameworks used	Flask, Scikit-Learn
2.	Nature of Application	Water quality prediction web Application	____
3.	User Interface(UI)	Simple input form for users to input water quality parameters .Responsive design for various screes sizes	HTML,CSS
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	Load Balances, Redundancy, High-Availability configuration
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Performance Monitoring Tools, Caching Mechanisms

Table-3 : Technology Stack:

Component	Technology/Tool
Data Analysis	Pandas, Numpy
Visualisation	Matplotlib, Seaborn
Machine Learning	Scikit-Learn
Web Framework	Flask
Frontend	HTML, CSS
Version control	Git, GitHub
Deployment	Heroku, Docker