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

Date	15 October 2022
Team ID	PNT2022TMID00056
Project Name	Early Detection of Chronic Kidney Disease 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

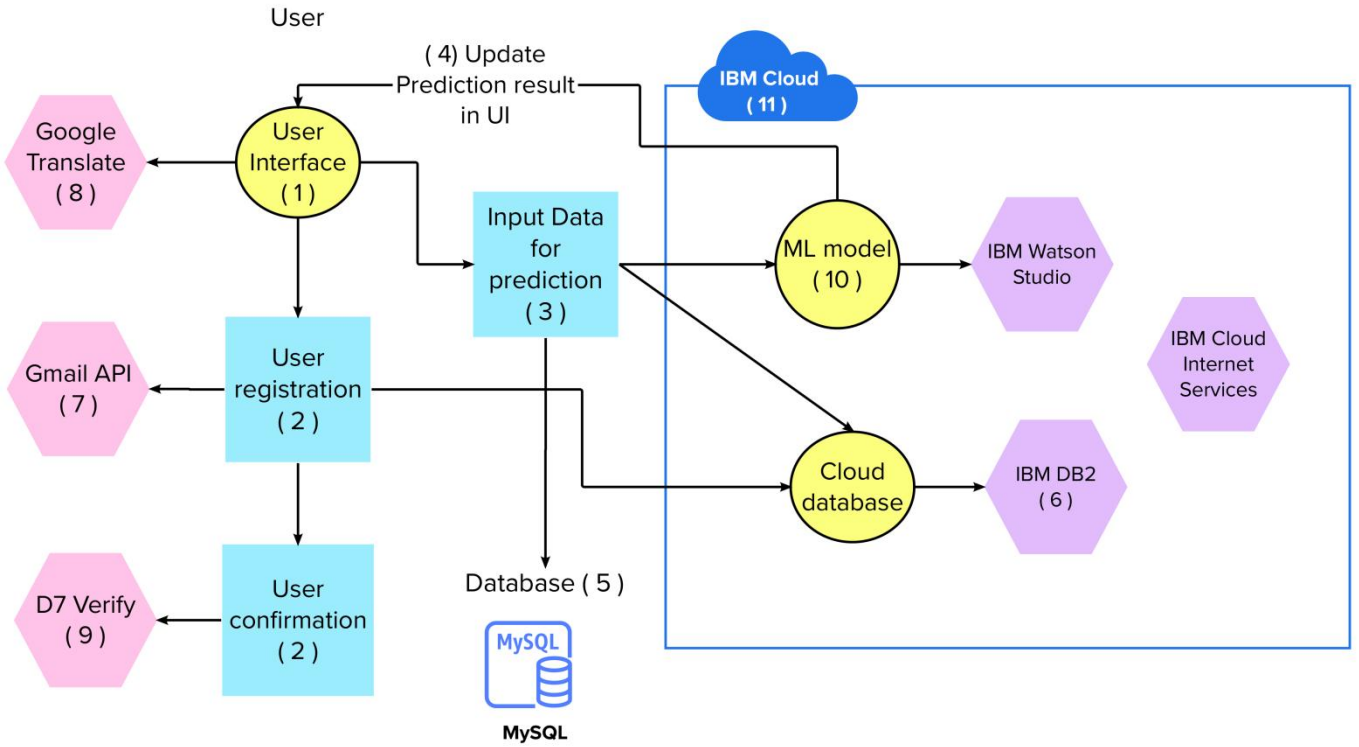

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	A website designed for users to use the prediction tool.	HTML, CSS, JavaScript
2.	User Registration and Confirmation	The users can register in the web application and receive confirmation for the same.	HTML forms and Mail
3.	Predict the disease	The user enters the input to predict the disease using the application	Machine Learning with Python
4.	Update Prediction result	The result of disease prediction is updated in the Web UI for the user to know the output.	Python
5.	Database	Relational database structure to store the user data	MySQL
6.	Cloud Database	Database Service on IBM Cloud	IBM DB2
7.	External API-1	To allow users to register using Google account.	Gmail API
8.	External API-2	To make the website accessible in multiple languages.	Google Translate
9.	External API-3	To verify the users with a one time password (OTP)	D7 Verify
10.	Machine Learning Model	To predict Chronic Kidney Disease (CKD) with various input parameters	Logistic Regression Model
11.	Infrastructure (Server / Cloud)	Application Deployment on Cloud	IBM Cloud

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The python open source frameworks are used to build the web application as well as to build Machine Learning model.	Python Flask, Numpy, Scikit-Learn, etc
2.	Scalable Architecture	The 3 – tier architecture used with a separate user interface, application tier and data tier makes it easily scalable.	IBM Watson Studio
3.	Availability	The web application is highly available as it is deployed in cloud	IBM Cloud
4.	Performance	The performance of the website is improved with caching and security.	IBM Cloud Internet Services