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

Date	03 October 2022
Team ID	PNT2022TMID36043
Project Name	Statistical Machine Learning Approaches to Liver Disease Prediction
Maximum Marks	4 Marks

Technical Architecture:

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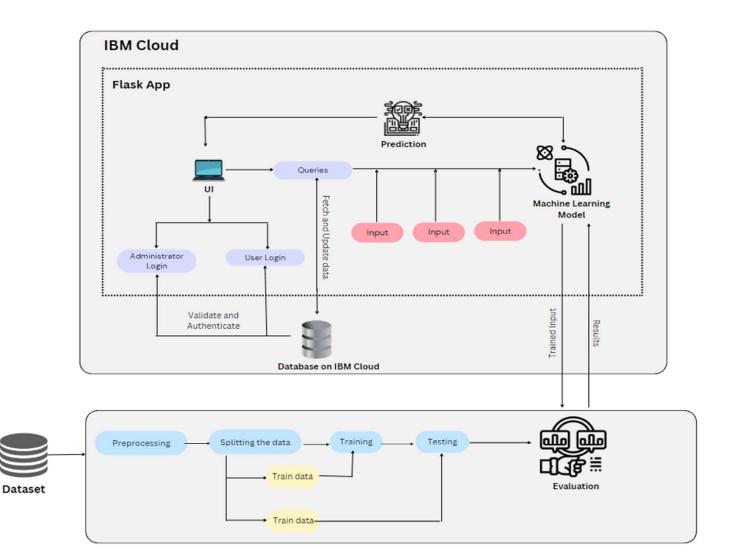
IBM Cloud

Flask App

Prediction

UI

Queries

Machine Learning Model

Input   Input   Input

Administrator Login

User Login

Fetch and Update data

Validate and Authenticate

Database on IBM Cloud

Trained Input

Results

Dataset

Preprocessing → Splitting the data → Training → Testing → Evaluation

Train data

Train data

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User interacts with the system through the developed Web Application	Flask
2.	Building Model	Pre-process the dataset, train the model using the train data and test the model with the test data and user input data as per performance metrics.	Python, Numpy, Scikit-learn, Tensorflow
3.	Fine tuning the model	Model is fine tuned to increase the accuracy of prediction	Optimizer, Tensorflow
4.	Navigation within Web UI	All the available features can be accessed from the dashboard.	Flask
5.	Cloud Database	Database Service on Cloud	IBM DB2
6.	File Storage	File storage requirements	IBM Block Storage
7.	External API	Login/Registration through Google Account	Google API
8.	Machine Learning Model	To detect Liver Disease using Machine Learning	Xception, VGG19
9.	Cloud Infrastructure	Cloud Server Configuration	Cloud Foundry

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask micro web framework	Python, Numpy, Tensorflow, Scikit-learn, IBM Watson, Google API, Flask
2.	Security Implementations	With all aspects of the job including detecting malicious attacks, analysing the network endpoint protection and vulnerability assessment, Sign-in Encryption	IBM Cloud App ID Services
3.	Availability	Available for all data size	IBM Cloud Services
4.	Performance	Can extend the storage according to our needs	Python, IBM Cloud