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

Date	29 October 2022
Team ID	PNT2022TMID49992
Project Name	Deep Learning Fundus Image Analysis for Early Detection of Diabetic Retinopathy
Maximum Marks	4 Marks

Technical Architecture:

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

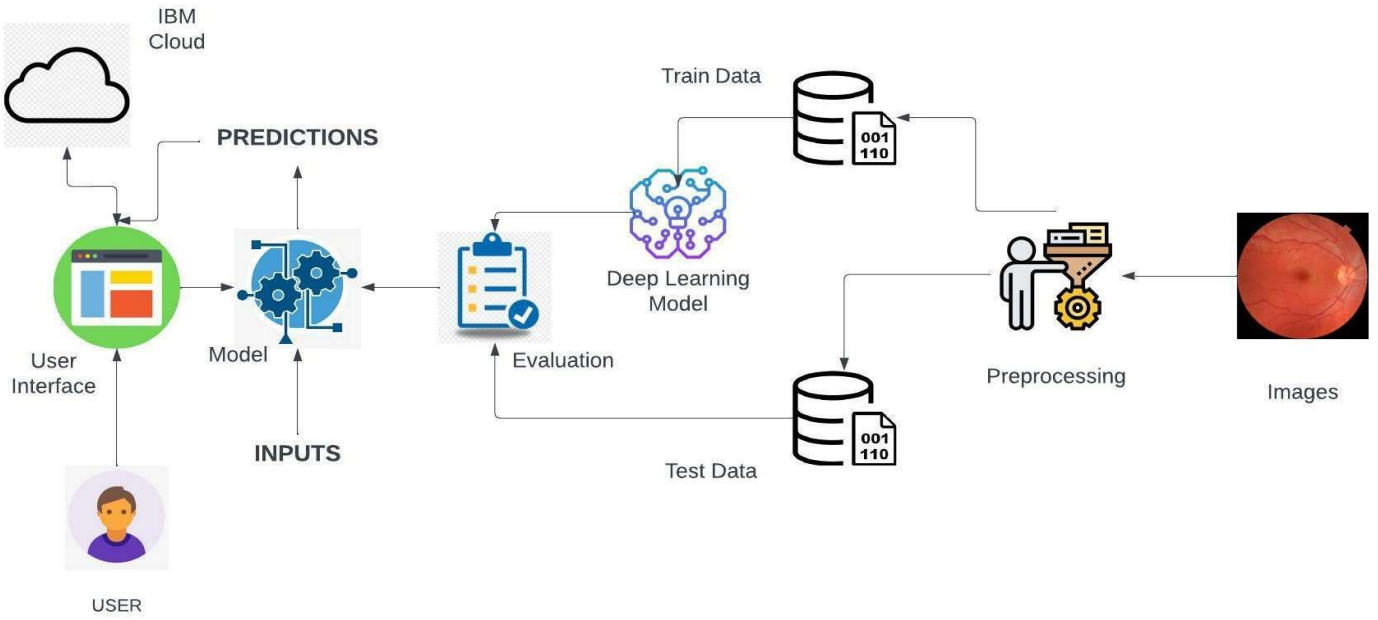

Table-1 : Components & Technologies

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript, Bootstrap, React JS.
2.	Application Logics	Logic for each and every process in the application	Python, JavaScript.
3.	Cloud database	Used for integrating components while using python flask	IBM Cloudant.
4.	API	Used to call the functions in order to access the execution in another framework	Python Flask , NodeJS (if needed).
5.	Deep Learning Model	The model is developed to predict the rainfall using ML algorithms	Sklearn, DL Algorithms.
6.	Data Pre-processing and Analysis	The available data is formatted or converted into the format which will be suitable for the ML model	Matplotlib,Tensorflow,opencv.
7.	External API	API to fetch FUNDUS Image from Kaggle	Google's Kaggle API

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Backend Framework, Non-structured Database, CSS Framework.	Python Flask / NodeJS, IBM Cloudant, CSS-3.
2.	Security Implementations	Email Verification and authentication, Authentication and authorisation using JSON object by comparing the data exists in database	Encryptions, Direct verification using Backend Framework.
3.	Scalable Architecture	To ensure that enough resource is allocated on the hosting platform to keep up with demand	IBM Cloud Kubernetes Service.
4.	Availability	The website will be made available by hosting it in cloud hosting platforms	IBM cloud hosting.
5.	Performance	Multiple prediction requests should be handled simultaneously without affecting the speed and accuracy of prediction	Load Balancers and Distributed servers.