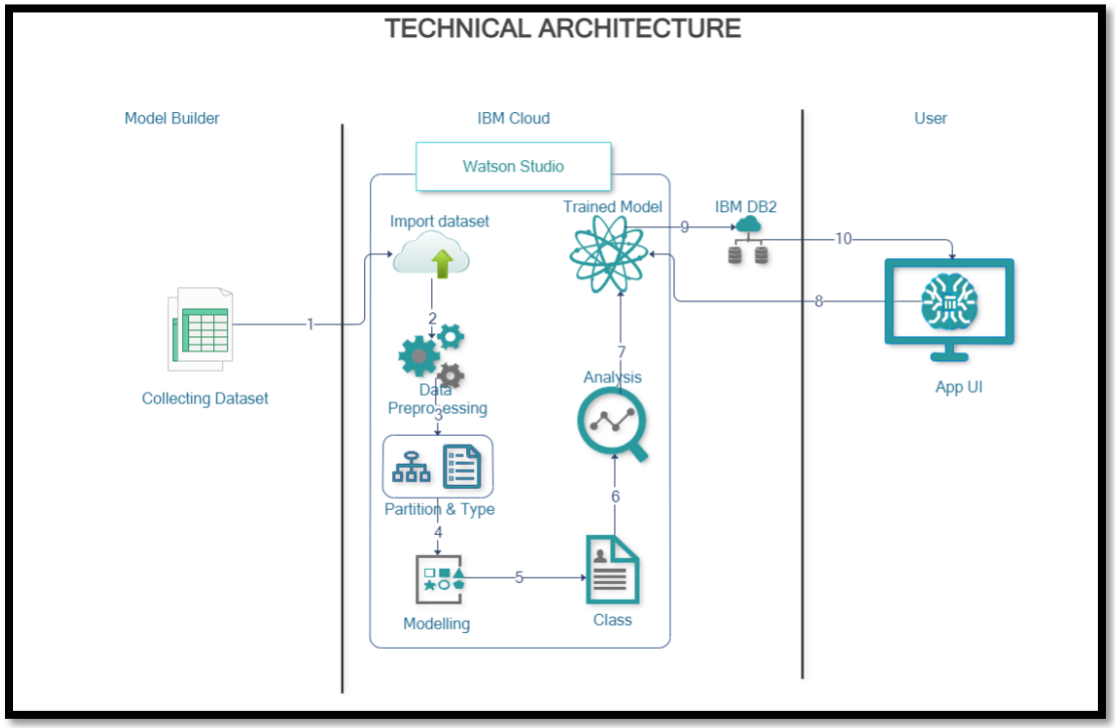
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	15 October 2022
Team ID	PNT2022TMID04221
Project Name	Project – Statistical Machine learning approaches to liver disease prediction.
Maximum Marks	4 Marks

Technical Architecture:



1. Import the collected dataset into the Watson studio.
2. Process the datasets as per the requirements.
3. Data pre-processing can be done by partitioning and Type
   Partitioning—splits data into separate subsets for training, testing and validation stages of model building
   Type—Specify field metadata and properties that are invaluable for modelling.
4. Build the model by splitting the sample based on the field that gives maximum information gain.
5. A class of data is derived from the dataset with maximum information gain.
6. Evaluate the ability of a model to generate accurate predictions.
7. Final model is developed based on evaluation.
8. User giving their data into the app.
9. Predict the results and store it into IBM DB2 cloud database.
10. Display the results to the user in the application.

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User interacts with the system through the developed Web Application	HTML, CSS, Js, 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	SVM Algorithm, 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.	Scalable Architecture	When we scale up the hardware capacity, the app can be able to handle the workload to scale up to the same degree.	IBM Cloud
4.	Availability	Available for all data size	IBM Cloud Services
5.	Performance	Can extend the storage according to our needs	Python, IBM Cloud