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

Date	18 October 2022
Team ID	PNT2022TMID38553
Project Name	Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation
Maximum Marks	4 Marks

Technical Architecture:

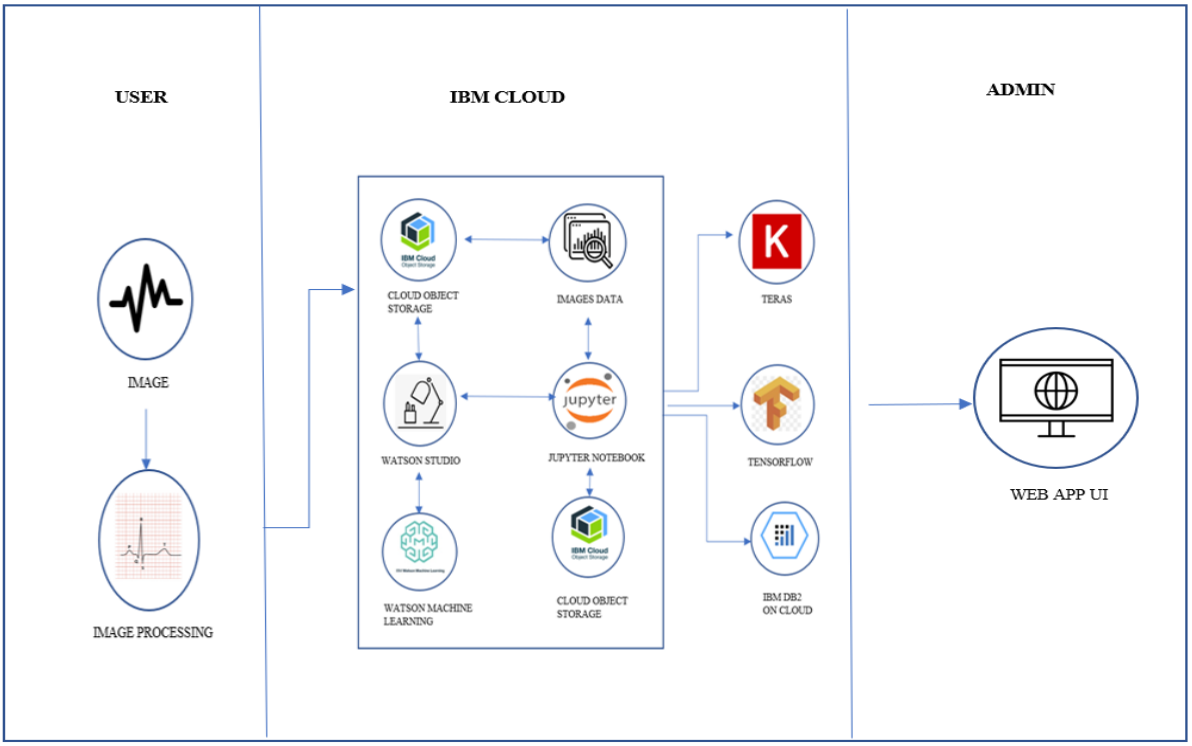

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	A web application using Flask.	HTML, CSS, JavaScript
2.	Image augmentation	Creating training examples from the existing ones.	Python

3.	Building the model	Building the model by adding various layers and training the model	IBM Watson Cloud storage,IBM cloud Pak Data
4.	Testing the model	Testing the model	IBM Watson Machine Learning
5.	Database	Database contains the ECG signals of various arrythemia patients	IBM cloud storage
6.	Cloud Database	Database Service on Cloud	IBM DB2.
7.	File Storage	File storage requirements	IBM Block Storage
8.	Anaconda Navigator	The web application is deployed and run on the local host with the help of anaconda navigator.	Anaconda Navigator
9.	Tensorflow	For numerical computation that makes machine learning and developing neural networks	Tensorflow library, Jupyter Notebook
10.	Keras	To make high level neural network API	Keras library, Jupyter Notebook
10.	Machine Learning Model	To classify the type of arrythemia with Images uploaded by the users.	Image Classification Model
11.	Infrastructure (Server)	Application Deployment on Local System	Local

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask, Jupyter Notebook	Flask, Jupyter Notebook
2.	Security Implementations	use of API key	IAM Controls,wml control(API Key)
3.	Scalable Architecture	Micro-services	API gateway
4.	Availability	Based on availability zones	IBM Watson studio
5.	Performance	Using CDNs.	IBM Content Delivery Network.