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

Date	15 October 2022
Team ID	PNT2022TMID34108
Project Name	**Project – Classification of arrhythmia By Using Deep Learning With 2-D ECG Spectral Image Representation**
Maximum Marks	4 Marks

Technical Architecture:

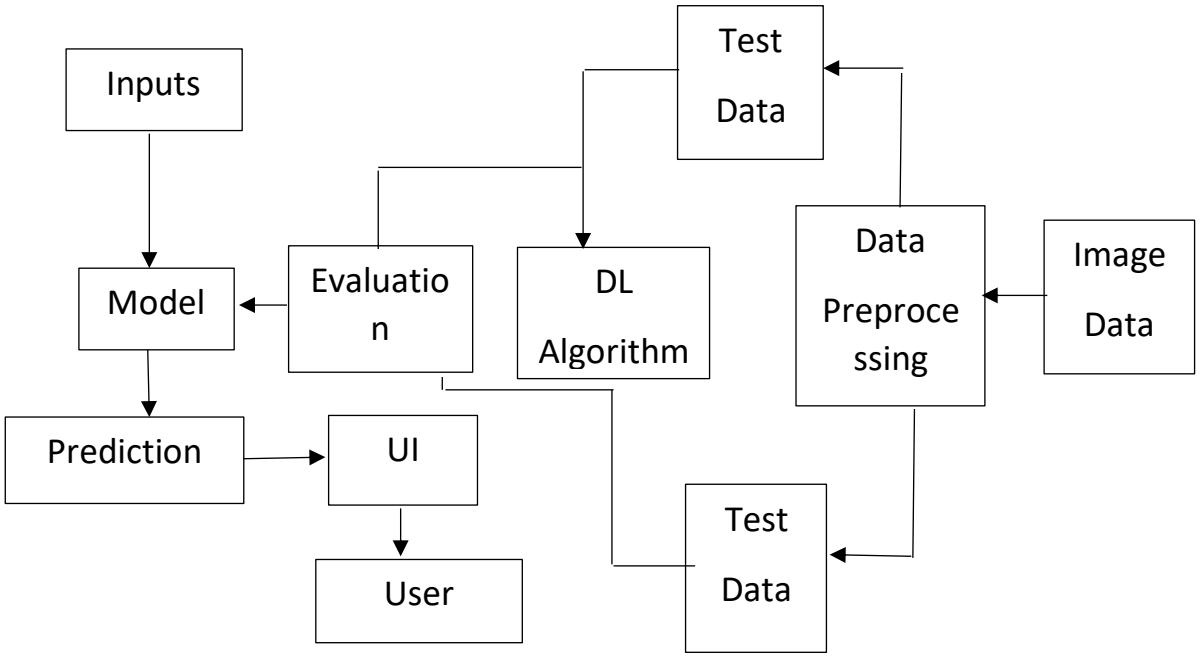

Table-1: Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	How user interacts with application.	Web UI and Mobile UI
2.	Model Analysis	Once model analyses the uploaded image, the prediction is showcased on the UI	Kaggle.com, data. Gov, UCI machine learning repository
3.	Data collection	Creating datasets	Python, IBM Cloud
4.	Data Preprocessing-1	Import the ImageDataGenerator library	Python, keras
5.	Data Preprocessing- 2	Configure ImageDataGenerator class	Python, keras
6.	Data Preprocessing- 3	Apply ImageDataGenerator functionality to Trainset and Testset	Python, keras
7.	File Storage	Where the files are stored	IBM Block Storage or IBM Cloud
8.	Model Building- 1	Import the model building libraries and Initializing The model	Python, keras
9.	Model Building- 2	Adding CNN layers and configure	Python, keras
10.	Model Building- 3	Training and testing the model, Optimize and save the model	Python, Keras, Jupyter, IBM Cloud
11.	Machine Learning Model	To differentiate between different conditions	Python
12.	Application Building	To make it easier for user to interact	HTML, CSS
13..	Train the model on IBM	CNN Development and integrate it with the flask Application	IBM Watson, Python - Flask

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Open-source software is that by which the source code or the base code is usually available for modification or enhancement.	Flask (Python)
2.	Security Implementations	By placing a filtration barrier or fire wall between the targeted server and the attacker, the WAF is able to protect against attacks like cross site forgery, cross site scripting and SQL injection	Encryptions, IAM Controls, OWASP
3.	Scalable Architecture	Does not affect the performance even though used by many users	3 – tier Architecture
4.	Availability	The data on each server can be simultaneously accessed and modified via a network	Distributed Server
5.	Performance	Increasing data retrieval performance by reducing the need to access the underlying slower storage layer	Cache