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

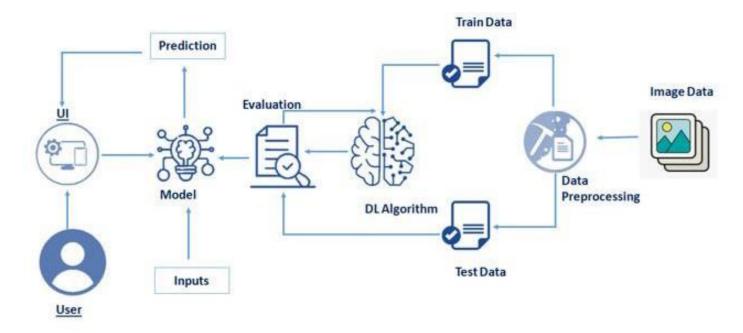| Date	27 October 2022
Team ID	PNT2022TMID14992
Project Name	Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation

Technical Architecture :

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web UI	HTML, CSS, JS, Python.
2.	Application Logic-1	Data Preprocessing	Keras, Tensorflow, Numpy - (Importing Essentisl Libraries)
3.	Application Logic-2	CNN Model Creating	Keras, Tensorflow, Numpy - (Importing Essentisl Libraries)
4.	Application Logic-2	Web Application (UI)	Flask
5.	Database	Images (Jpeg, PNG, Jpg, etc..)	Uploads Folder !
6.	File Storage	File storage requirements (only if necessary)	IBM Block Storage / Google Drive (Depends On Preference)
7.	External API	Keras	Image Processing API.
8.	Deep Learning Model	Electrocardiogram (ECG) arrhythmia classification	2D Image ECG Spectral Image Representation Model.
9.	Infrastructure (Server / Cloud)	Application Deployment on Webserver	Flask—a Python WSGI HTTP server.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask	Werkzeug, Jinja2, Sinatra Ruby framework
2.	Security Implementations	CSRF protection, secure flag for cookies	Flask-WTF, SESSION_COOKIE_SECURE
3.	Scalable Architecture	Micro Services	Micro web application framework by Flask.
4.	Availability	-built-in development server and fast debugger -integrated support for unit testing -RESTful request dispatching Jinja2 templating Unicode based	Werkzeug, Jinja2, Sinatra Ruby framework
5.	Performance	ORM-agnostic, web framework, WSGI 1.0 compliant, HTTP request handling functionality High Flexibility	SQLAlchemy, extensions, Werkzeug, Jinja2, Sinatra Ruby framework.