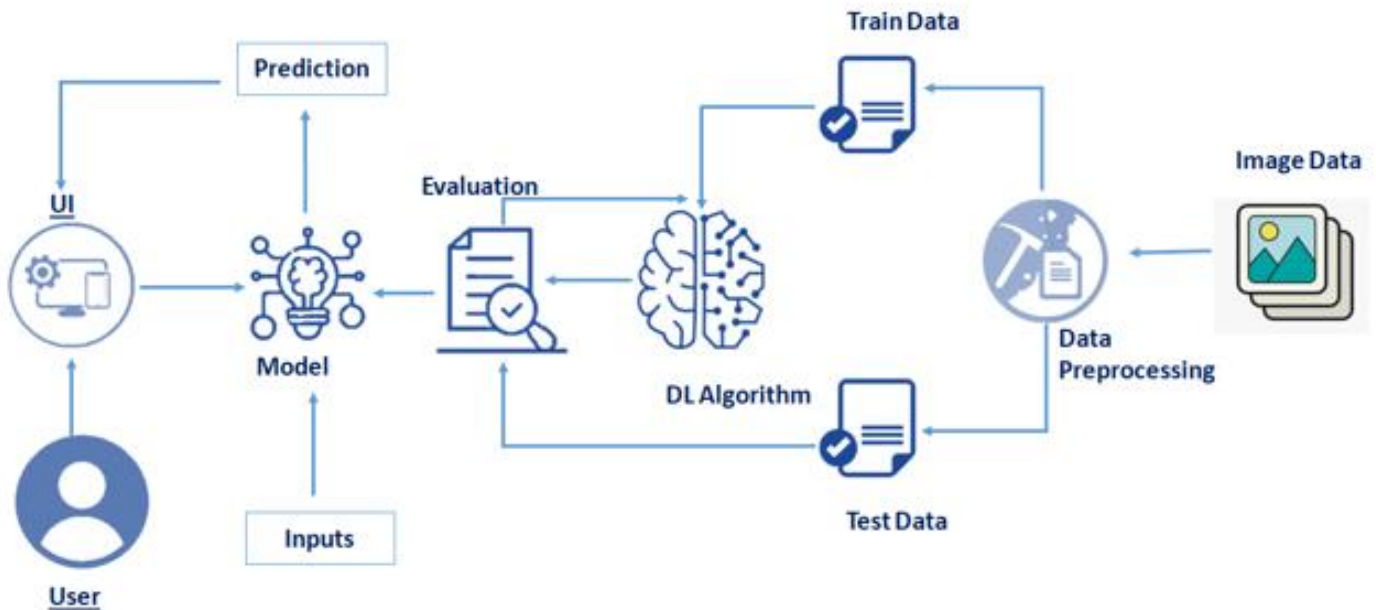


## Project Design Phase-II Technology Stack (Architecture & Stack)

Date	15 October 2022
Team ID	PNT2022TMID42525
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, <u>Jinja2</u> , 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 <u>Jinja2</u> templating Unicode based	Werkzeug, <u>Jinja2</u> , Sinatra Ruby framework
5.	Performance	ORM-agnostic, web framework, WSGI 1.0 compliant, HTTP request handling functionality High Flexibility	<u>SQLAlchemy</u> , extensions, Werkzeug, <u>Jinja2</u> , Sinatra Ruby framework.