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

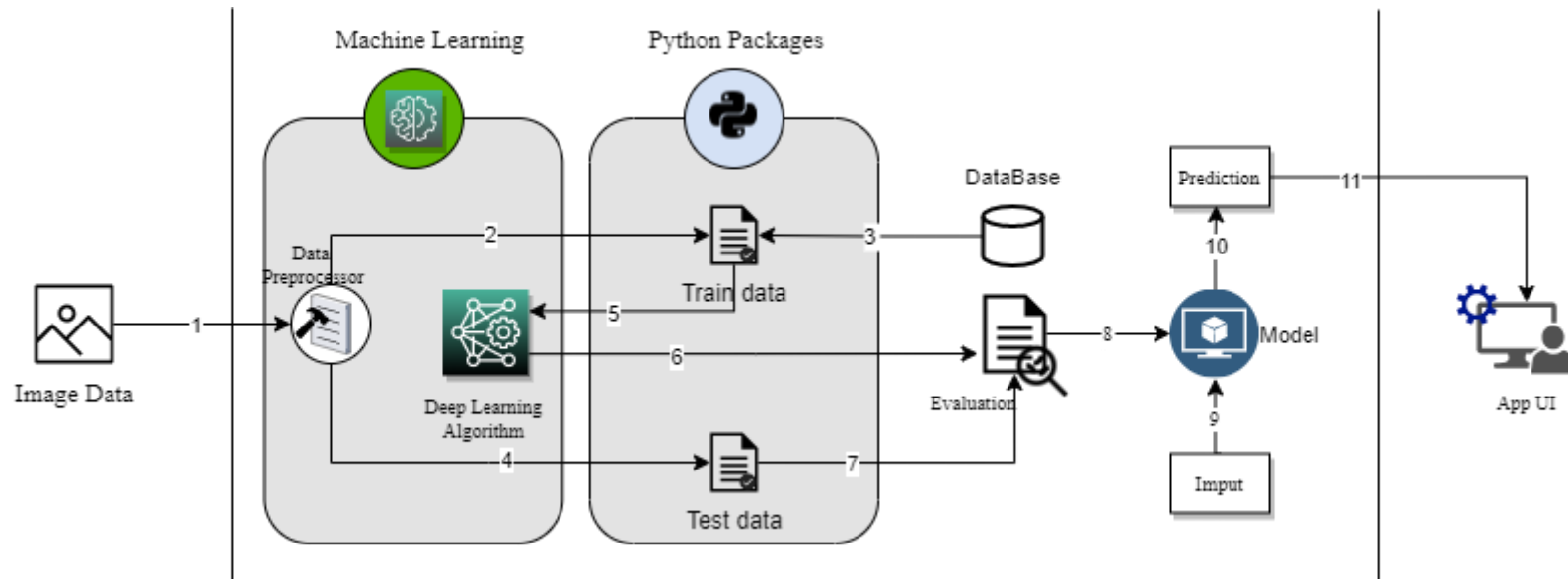| Date	20 October 2022
Team ID	PNT2022TMID34032
Project Name	Classification of Arrhythmia by using Deep Learning with 2-D ECG Spectral Image Representation
Maximum Marks	4 Marks

Technical Architecture:

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React etc.
2.	Data Preprocessor	Data preprocessing is required tasks for cleaning the data and making it suitable for a machine learning model which also increases the accuracy and efficiency of a machine learning model.	Numpy,Pandas packages
3.	Train and Test Data	Data sets are prepared for model training by performing signal extraction, data normalization, and data balancing. The ECG signals have been split throughout the training, validation, and testing phases.	Keras python package
4.	Deep Learning	A Convolutional Neural Network is a Deep Learning algorithm which can take in an input image, assign importance (learnable weights and biases) to various aspects/objects in the image and be able to differentiate one from the other.	Convolutional Neural Network
5.	Evaluation	The test data and the convolution output are evaluated	CNN,Pandas,Numpy
6.	Database	The dataset is collected from MIT Arrhythmia Database for	Python packages(Pandas,Numpy,Pickle)
7.	Machine Learning Model	Machine learning model is used to extract useful information from the image during data pre-processing and differentiate one image from another.	Convolutional Neural Network

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Open source is source code that is made freely available for possible modification and redistribution.	Anaconda