

# **Visualizing and Predicting Heart Diseases with an Interactive Dash Board**

SUBMITTED BY

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S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To create and visualize an interactive dashboard to predict heart disease and to also give any health recommendation or suggestion for the predicted output.
2.	Idea / Solution description	<p>There are several methods to predict heart disease, like the machine learning algorithms like the support vector machine. Decision tree, Naive Bayes, Random Forest, K-Nearest Neighbour and Deep learning Algorithm like Artificial Neural Network and Deep Neural Network. Among which Deep Neural Network has the highest accuracy. We will collect the Dataset from the UIC which includes the age indicating the age of the patient, sex demonstrates the sex of the patient, trestbp demonstrates the resting blood weight, cp demonstrates the chest torment, fbs indicates the fasting blood sugar, chol demonstrates cholesterol, etc. Before training the model, we will split the dataset into two sets training set and testing set. We are going to use the Deep neural network and genetic algorithm; a deep neural network (DNN) is an artificial neural network (ANN) with numerous layers between the input and yield layers. We will test our model on testing data and we will evaluate the performance of our model using evaluation metrics like accuracy, precision, etc.</p>
3.	Novelty / Uniqueness	<p>We use the Deep Learning Algorithm where it gives the highest accuracy. where instead of using a single hidden layer stacking it up with 2 or 3 Hidden Layer will yield good accuracy. Synthetic Minority Oversampling Technique (SMOTE) increased and balanced the number of cases in the imbalanced dataset, which contained disproportionate cases of healthy and unhealthy cases. Mean imputation replaced the missing data, and the datasets were divided into a training set (70%) and testing set (30%) containing equal proportions of healthy and unhealthy cases.</p>

4.	Social Impact / Customer Satisfaction	The diagnosis of diseases is a vital and intricate job in medicine. The recognition of heart disease from diverse features or signs is a multi-layered problem that is not free from false assumptions and is frequently accompanied by impulsive effects. The health care industry collects huge amount of health care data which unfortunately are "not mined" to discover hidden info for effective decision making. Therefore, making use of these datasets by creating an interactive dashboard can save millions of lives and commercializing it in hospitals will improve the diagnosis of heart disease more effectively.
5.	Business Model (Revenue Model)	As said earlier commercializing it in hospitals and using it in hospitals will generate great amount of revenue and also by using the technology widely will also helps to find the flaws easily and can improve the technology more efficiently
6.	Scalability of the Solution	Here, only the dataset varies, it is very easy to add datasets to the dashboard and it will improve the output.