**PROBLEM STATEMENT**

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

Healthcare industries generate enormous amount of data, so called big data that accommodates hidden knowledge or pattern for decision making. The huge volume of data is used to make decision which is more accurate than intuition. Exploratory Data Analysis (EDA) detects mistakes, finds appropriate data, checks assumptions and determines the correlation among the explanatory variables. In the context, EDA is considered as analysing data that excludes inferences and statistical modeling. Analytics is an essential technique for any profession as it forecast the future and hidden pattern. Data analytics is considered as a cost effective technology in the recent past and it plays an essential role in healthcare which includes new research findings, emergency situations and outbreaks of disease. The use of analytics in healthcare improves care by facilitating preventive care and EDA is a vital step while analysing data. In this paper, the risk factors that causes heart disease is considered and predicted using K-means algorithm and the analysis is carried out using a publicly available data for heart disease. The dataset holds 209 records with 8 attributes such as age, chest pain type, blood pressure, blood glucose level, ECG in rest, heart rate and four types of chest pain. To predict the heart disease, K-means clustering algorithm is used along with data analytics and visualization tool. The paper discusses the pre-processing methods, classifier performances and evaluation metrics. In the result section, the visualized data shows that the prediction is accurate. In this article, we will be closely working with the heart disease prediction and for that, we will be looking into the heart disease dataset from that dataset we will derive various insights that help us know the weightage of each feature and how they are interrelated to each other but this time our sole aim is to detect the probability of person that will be affected by a savior heart problem or not. Heart is the most important organ of a human body. It circulates oxygen and other vital nutrients through blood to different parts of the body and helps in the metabolic activities. Apart from this it also helps in removal of the metabolic wastes. Thus, even minor problems in heart can affect the whole organism. Researchers are diverting a lot of data analysis work for assisting the doctors to predict the heart problem. So, an analysis of the data related to different health problems and its functioning can help in predicting with a certain probability for the wellness of this organ. In this paper we have analysed the different prescribed data of 1094 patients from different parts of India. Using this data, we have built a model which gets trained using this data and tries to predict whether a new out-of-sample data has a probability of having any heart attack or not. This model can help in decision making along with the doctor to treat the patient well and creating a transparency between the doctor and the patient. In the validation set of the data, it's not only the accuracy that the model has to take care, rather the True Positive Rate and False-Negative Rate along with the AUC-ROC helps in building/fixing the algorithm inside the model.