IDEATION PHASE
LITERATURE SURVEY

Date	3 September 2022
Team ID	PNT2022TMID21213
Project Name	Visualizing and Predicting Heart Diseases with an Interactive Dashboard
Maximum Marks	4 Marks

Now-a-days, Cardiovascular Diseases are the main reason for huge number of deaths in the world in the last few decades and has emerged as the most life-threatening disease, not only in India but in the whole world. Approximately one person dies per minute due to heart disease. So, there is a need of reliable, accurate and feasible system to diagnose such diseases in time for proper treatment. Machine Learning algorithms and techniques have been applied to various medical datasets to automate the analysis of large and complex data. Many researchers, in recent times, have been using several machine learning techniques to help the health care industry and the professionals in the diagnosis of heart related. A brief survey of that is presented here.

Firstly, A journal named "Cardiovascular Disease Prediction using Classification Algorithms of Machine Learning ", was released On May 5,2020 by *Yash Jayesh Chauhan which was submitted in "International Journal of Science and Research (IJSR)" ISSN: 2319-7064.* In this research, they proposed a model which is based on a combination of standard machine learning algorithms such as Logistic Regression, Random Forest, K-Nearest Neighbors (KNN), support vector machine (SVM) and Decision Tree to predict whether the patient is having a Cardiovascular disease or not.

Secondly, In the other journal named "*Fusion based Feature Extraction Analysis of ECG Signal Interpretation – A Systematic Approach*" was released by *Vijay Kumar T, Vinoth kanna B on March 11,2021 which was submitted in "Journal of Artificial Intelligence and Capsule Networks (2021)" Vol.03/ No.01.* they have used Electro Cardio Gram (ECG) to record the electrical signal of the heart from the body surface of humans using supervised and unsupervised algorithms and then based on the classification of more amount of heartbeat for different category of normal, abnormal, irregular heartbeats to detect cardiovascular diseases. In this research article, they made a comparison of various methods to classify the dataset with a fusion-based feature extraction method and achieved a minimum computation time and 96.5% accuracy.
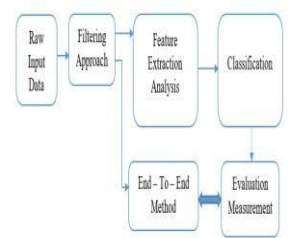
In the previous Journals, we have seen the models with prediction of heart diseases using various machine learning algorithms such as classification, supervised and unsupervised learning. But in this journal named "The Prediction of Diseases Using Rough Set Theory with Recurrent Neural Network in Big Data Analytics*" by Vamsidhar Talasila1* Kotakonda Madhubabu1 Meghana Chakravarthy Mahadasyam1 Naga Jyothi Atchala1 Lakshmi Sowjanya Kande1 on January 17, 2020 submitted in "International journal of Intelligent Engineering and systems".* But in this research work, they have used RST-RNN algorithms in Big Data Analytics to predict heart diseases which is slightly different from above journals. Rough Set Theory (RST) technique is used to select the most relevant features, which helps to provide the efficient classification of medical data and disease detection. The selected features are given as input to the Recurrent Neural Network (RNN) technique for disease prediction. The results showed that the RST-RNN method achieved accuracy of 98.57%, where the existing Support Vector Machine (SVM) achieved 90.57% accuracy and Naive Bayes (NB) achieved 97.36% accuracy for heart disease dataset.

Finally, In an article named "Dashboard and a Model of Predictive Analysis for Cerebrovascular Diseases in Primary Health Care" by Jades Fernando Hammes, Grace Sasso, Federal University of Santa Catarina. On August 2019, DOI:10.3233/SHTI190542 in which they have created an interactive dashboard for visualizing the cerebrovascular disease reports of the users by it making user friendly and easily understandable to all the users.

But there is no such interactive dashboard for visualizing and predicting the heart disease prediction. In our project, we are going to create an interactive dashboard for visualization and prediction of heart diseases.

Summary of the above Literature survey:

S.NO	Author	Title	Name of the Journal/Conference	Volume/ Issue/Year	Algorithm/Method
1.	Yash Jayesh Chauhan	Cardiovascular Disease Prediction using Classification Algorithms of	*"International Journal of Science and Research (IJSR)*	*ISSN: 2319-7064* *Vol 9, issue 5,*	they proposed a model which is based on a combination of standard machine learning algorithms such as Logistic

		Machine Learning		*May 2020*	Regression, Random Forest, K-Nearest Neighbors (KNN), support vector machine (SVM) and Decision Tree to predict whether the patient is having a Cardiovascular disease or not.
2.	Vijay Kumar T, Vinoth kanna B	Fusion based Feature Extraction Analysis of ECG Signal Interpretation – A Systematic Approach	*Journal of Artificial Intelligence and Capsule Networks (2021)*	*Vol.03/ No.01.* *March 11,2021*	Supervised and Unsupervised ML algorithms. Figure 2 Block diagram of overview of proposed architecture constructio
3.	Vamsidhar Talasila1Kotakonda Madhubabu1 Meghana Chakravarthy Mahadasyam1 Naga Jyothi Atchala1 Lakshmi Sowjanya Kande1	The Prediction of Diseases Using Rough Set Theory with Recurrent Neural Network in Big Data Analytics	*International journal of Intelligent Engineering and systems.*	*January 17, 2020*	Rough Set Theory (RST) technique is used to select the most relevant features, which helps to provide the efficient classification of medical data and disease detection. The selected features are given as input to the Recurrent Neural Network (RNN) technique for disease prediction.