

Earlier Detection And Predication Of Heart Disease Prediction Using Linear Regression Algorithm

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Abstract

Heart disease is one of the complex diseases and globally many people suffered from this disease. On time and efficient identification of heart disease plays a key role in healthcare, particularly in the field of cardiology. Proposed an efficient and accurate system to diagnosis heart disease and the system is based on machine learning techniques. The system is developed based on classification algorithms includes Support vector machine, Logistic regression Proposed novel fast conditional mutual information feature selection algorithm to solve feature selection problem.

Keywords : heart disease; heart disease diagnosis; heart disease prediction; machine learning; machine learning techniques.

1.Introduction

Heart disease (HD) is the critical health issue and numerous people have been suffered by this disease around the world. The HD occurs with common symptoms of breath shortness, physical body weakness and, feet are swollen. Researchers try to come across an efficient technique for the detection of heart disease, as the current diagnosis techniques of heart disease are not much effective in early time identification due to several reasons, such as accuracy and execution time. The diagnosis and treatment of heart disease is extremely difficult when modern technology and medical experts are not available. The effective diagnosis and proper treatment can save the lives of many people. According to the European Society of Cardiology, 26 million approximately people of HD were diagnosed and diagnosed 3.6 million annually. Most of the people in the United States are suffering from heart disease.

1.1Motivation

Heart disease prediction system is implemented using strong Machine Learning algorithm which is the Random Forest algorithm. Which read patient record data set in the form of CSV file. After accessing dataset the operation is performed and effective heart attack level is produced. Predicting the occurrence of disease at early stages is a major challenge nowadays. Machine learning when implemented in health care is capable of early and accurate detection of disease. In this work, the arising situations of Heart Disease illness are calculated. Datasets used have attributes of medical parameters.

1.2Existing System

HD classification system by using machine learning classification techniques and the performance of the system was 77% in terms of accuracy. Cleveland dataset was utilized with the method of global evolutionary and with features selection method. In another study Gudadhe et al. [22] developed a diagnosis system using multi-layer Perceptron and support vector machine (SVM) algorithms for HD classification and achieved accuracy 80.41%.

Limitations of Existing System

In the existing work, the system is poor performance in which the low performance LOCAL LEARNING BASED FEATURES SELECTION ALGORITHM is used.

This system is less performance due to Lack of Heart disease classification Techniques.

1.3 Proposed System

The system is proposed a machine learning based diagnosis method for the identification of HD in this research work. Machine learning predictive models include ANN, LR, K-NN, SVM, DT, and NB are used for the identification of HD. The standard state of the art features selection algorithms, such as Relief, mRMR, LASSO and Local-learning-based features- selection (LLBFS) have been used to select the features. The system is fast and reliable due to presence of feature selection algorithm(FCFIM). The system is more effective due to STANDARD STATE OF ART FEATURES SELECTION ALGORITHMS.

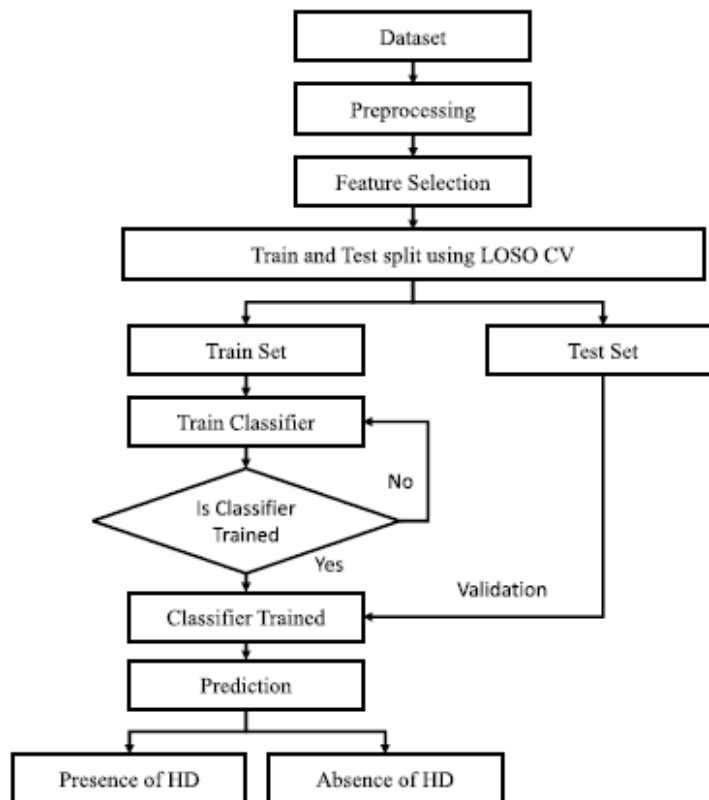


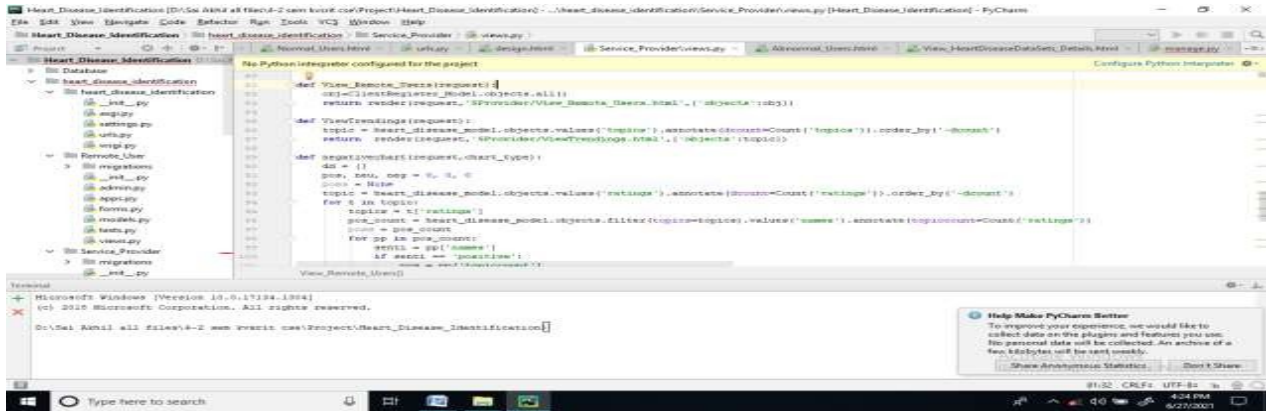
FIG: Methodology For Working Process Model

Product Functions

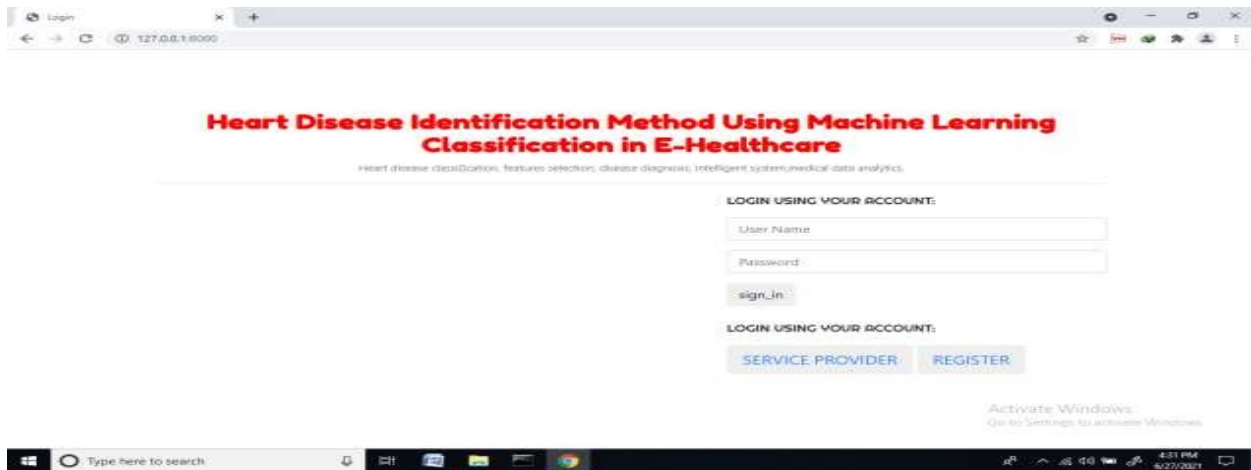
- Service Provider
- View and Authorize Users
- Remote User
- Greedy Algorithm(GA),and optimization methods,such as Anty Conley Optimization(ACO),fruity Optimization(FFO)etc.

2. Sample Screens

Screen 1: Program on pycharm and user login in web browser



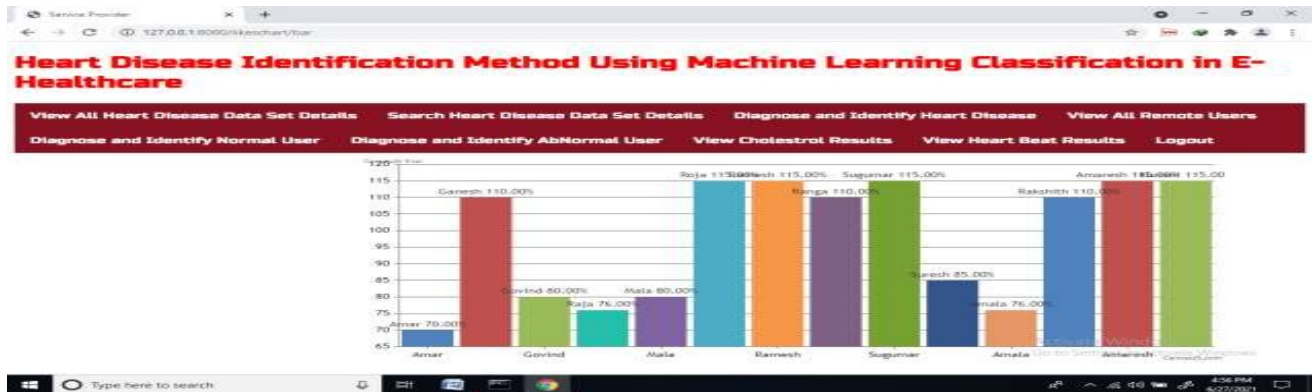
Screen 2: Login Screen for UserScreen



3: Registration Screen for User



Screen 4: Bar Chart Showing all Patient Heart Condition



Screen 5: Form Showing To Upload Heart Data Set

System Name	Age	Sex	Chest Pain	Resting Blood Pressure(mmHg)	Cholesterol(mg/dl)	Resting ECG	Resting ECG	Max Heart Rate(b/min)	Exercise Induced Angina	Depression Induced by Exercise	Fluoroscopy	Thrombosis Scan
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3. Conclusion

In this study, an efficient machine learning based diagnosis system has been developed for the diagnosis of heart disease. Machine learning classifiers include LR, K-NN, ANN, SVM, NB, and DT are used in the designing of the system. Four standard feature selection algorithms including Relief, MRMR, LASSO, LLBFS, and proposed a novel feature selection algorithm FCMIM used to solve feature selection problem. LOSO cross-validation method is used in the system for the best hyper parameters selection. The system is tested on Cleveland heart disease dataset. Furthermore, performance evaluation metrics are used to check the performance of the identification system.

References

- [1] K. Graves, Ceh: Official certified ethical hacker review guide: Exam 312-50. John Wiley & Sons, 2007.
- [2] R. Christopher, “Port scanning techniques and the defense against them,” SANS Institute, 2001.



[3] M. Baykara, R. Das, and I. Karadoğ an, “Bilgi g üvenli ğ i sistemlerinde kullanılan araç ların incelenmesi,” in 1st International Symposium on Digital Forensics and Security (ISDFS13), 2013, pp. 231–239.

[4] Rashmi T V. “Predicting the System Failures Using Machine Learning Algorithms”. International Journal of Advanced Scientific Innovation, vol. 1, no. 1, Dec. 2020, doi:10.5281/zenodo.4641686.