Paper Title: Survey of Heart Disease Prediction and Identification using Machine Learning Approaches

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1 Summary

1.1 Motivation: Heart disease is a steering cause of death, and the difficulty in its spotting due to narrow medical knowledge. Using expansive healthcare data, the study aims to improve early discovery and prevention by applying efficient data mining ways, associating both Machine Learning(ML) and Data Mining(DM) approaches extensively recognized in the medical field.

1.2 Contribution: By researching threat parameters in heart disease, linking and assessing many predictive ways, and managing subsisting limits. Placing Data Mining methodologies, the study proposes Convolutional Neural Networks(CNN) and Long Short- Term Memory(LSTM) for enhanced heart disease identification. The way includes dataset handling, model training, symptom collection, secure data transmission via AES, and effects presented in PDF format.

1.3 Methodology: Systematic risk parameter analysis, comprehensive review of existing research, and the proposal of CNN and LSTM with Data Mining techniques for heart disease prediction. Stages include dataset handling, model training/testing, symptom collection, secure data transmission using AES, and results in PDF format. Comparative performance analysis with medical datasets is conducted against other Machine Learning approaches.

1.4 Conclusion: This research addresses the critical need for early heart disease detection. The proposed methodology, integrating CNN and LSTM with Data Mining techniques, offers promising results and contributes to advancing predictive methodologies. By overcoming drawbacks in existing approaches, this research enhances our understanding of effective heart disease prediction, potentially improving healthcare outcomes and reducing associated life-saving costs.

2 Limitations

2.1 First Limitation : SEM and FCM, may face challenges in generalizing their results across diverse patient populations. The models developed and tested on specific datasets may not perform as effectively when applied to a broader and more varied patient demographic, potentially reducing the reliability of predictions in real-world scenarios.

2.2 Second Limitation. Handling real-time data and the effectiveness of these systems in dynamic healthcare environments, where patient data is constantly updated, may be limited. Predictive precision and speed may suffer from the system's ability to incorporate and handle real-time data.

3 Synthesis

Important early detection is necessary. While modern models combining data mining and machine learning may be able to accurately predict risk levels, they suffer from a number of issues such as tool dependency, clarity issues, and limited generalizability. their tactics represent significant developments in the improvement of medical results, despite their drawbacks. Further uses will include enhancing the integration of real-time data, resolving understanding concerns, and optimizing models for more diverse patient populations. Predictive systems will eventually be used in healthcare settings more widely and successfully as a result of these initiatives. Improved diagnosis, shorter recovery times, and better patient outcomes are a few ways that technology might impact healthcare procedures in the future.