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. The inability to integrate and process real-time information could impact the system's ability to provide timely and accurate predictions.

3 Synthesis

This research emphasizes the critical importance of early detection. While innovative frameworks integrating data mining and machine learning show promise in accurately predicting risk levels, they face challenges such as tool dependency, limited generalizability, and interpretability issues. Despite these limitations, these approaches represent valuable strides toward improving healthcare outcomes. Future applications lie in refining models for broader patient demographics, enhancing real-time data integration, and addressing interpretability concerns, ultimately contributing to more effective and widespread implementation of predictive systems in clinical settings. The potential impact on future healthcare practices includes enhanced diagnostics, timely interventions, and improved patient outcomes.