

## A Dynamic Solution Approach for Heart Disease Prediction

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**Abstract :** The healthcare environment is generally perceived as being information rich yet knowledge poor. However, there is a lack of effective analysis tools to discover hidden relationships and trends in data. In fact, valuable knowledge can be discovered from application of data mining techniques in healthcare system. In this study, a proficient methodology for the extraction of significant patterns from the coronary heart disease warehouses for heart attack prediction, which unfortunately continues to be a leading cause of mortality in the whole world, has been presented. For this purpose, we propose to enumerate dynamically the optimal subsets of the reduced features of high interest by using rough sets technique associated to dynamic programming. Therefore, we propose to validate the classification using Random Forest (RF) decision tree to identify the risky heart disease cases. This work is based on a large amount of data collected from several clinical institutions based on the medical profile of patient. Moreover, the experts' knowledge in this field has been taken into consideration in order to define the disease, its risk factors, and to establish significant knowledge relationships among the medical factors. A computer-aided system is developed for this purpose based on a population of 525 adults. The performance of the proposed model is analyzed and evaluated based on set of benchmark techniques applied in this classification problem.

**Keywords :** multi-classifier decisions tree, features reduction, dynamic programming, rough sets

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