

HEALTH RISK PREDICTION SYSTEM

(Predicts risk for health in the next 10 years based on user health data)

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Note: Suitable links have been provided for additional information wherever necessary in RULES AND DESCRIPTION.

ABSTRACT

Health Risk Prediction system is a probabilistic inference system that assesses the probability of a patient having a heart related disease and diabetes. The system considers numerous symptoms and builds a Bayesian Network on the basis of that. The symptoms for heart diseases and diabetes are categorized into three main parts viz. less critical symptom, medium critical symptoms and very critical symptoms. The conditional probability tables of these are generated by individual root node symptoms that can be directly observed by a physician. Many of the symptoms are qualitative and it is not possible to quantify it because of which existence of a probabilistic system is highly beneficial.

The relationships between various stages can be clearly represented by the Bayesian Network. The utility nodes that describe a cost in terms of score out of 100 for picking a certain decision. For instance, if a patient with no disorder is subject to test, then the system is subject to a negative penalty.

These utility nodes assist Netica to optimize the cost of the utility network. Maximum cost is derived when no tests are to be conducted without any symptoms. In other words, that would make the patient the most satisfied. Else if the symptoms are high and the diagnostic system decides to not make the decision of asking the patient to go for a test then the system will be penalized.

USAGE MANUAL

INSTRUCTIONS:

Copy the file HealthDiagnostics_bayseian.dne in any location and open the file in Netica. Compile the network and input values by clicking on all the root node to see the changes flowing through the Bayesian Network.

There are two utility nodes that have been added:

1. cholesterol test utility
2. Coronary heart diseases test

Netica adds multiple edges automatically during compile time.

The output network is as below:

