CS 514 - Applied Artificial Intelligence

Project 3

Blood sugar DIAGNOSTIC TOOL

A PROJECT TO DIAGNOSE AND DETERMINE THE EFFECTS OF DIABETES USING BAYESIAN NETWORK

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# Abstract:

The aim of the project is to provide an efficient Bayesian Network that can take various factors into account like age, triglycerides, cholesterol, stress and other medical conditions to determine if a patient is Diabetic or not and analyze the influence Diabetes has on other diseases. This Network tries to come close to that aim. The system determines the probability of a person having Hyperkalemia, Pancreatic problems, Glaucoma and kidney issues.

# Features:

1. The system requires the patient’s blood test details like the Fasting blood glucose, Post prandial blood glucose, Electrolytes and Lipid profiles.
2. The system considers the result of every biochemical component and determines the potential risks involved.
3. The system first analyses the blood glucose level before as well as after the intake of food.
4. The lipid profiles include Cholesterol, HDL Cholesterol, Triglycerides, non-HDL Cholesterol. Except, HDL Cholesterol all other Cholesterol are dangerous for health. If there is an increase in the level of these cholesterols the system determines the corresponding risks.
5. Pancreatic problems are caused by Regular medication, diabetes and high blood pressure.
6. Cholesterol, Triglyceride and age determine the cardiac problems. Alcohol, lifestyle and stress determine the weight of the person.
7. Cardiac problems along with post prandial glucose, fasting glucose, weight and family history determine diabetes.
8. Hyperkalemia is a result of Electrolytes, Triglycerides and Diabetes.
9. Kidney issues are caused by urea, high blood pressure and diabetes.
10. Glaucoma is a retinal disease caused by High blood pressure, Poor Eye sight and Diabetes.

USAGE MANUAL:

Download and place the “Diabetes\_Bayesian1.dne” file in any directory and open it through NETICA application. Compile the project and after the network is initialized, modify and set the values accordingly and see how the network adapts to the change robustly and follows the trend as correctly as possible.

