COMPUTER REPAIR DIAGNOSTIC TOOL

Codename: the_alchemist
Domain: Computer Repair Diagnostics

ABSTRACT:

The aim of the project is to develop a mechanism which would give the user a comprehensive idea of the steps to take in case a computer fails to run properly. This project covers the hardware diagnostic steps rather than software or network. It is a common practice to reboot the device in case it doesn't work. However, that is more of wishful thinking rather and seldom works. This Bayesian network gives a step by step analysis regarding to the current situation of faults and recommends steps which can be taken to repair the system.

FEATURES:

1. The network is interlinked with each other such that every node has a range of values for YES or NO depending on the symptoms.
2. The user would arrange the values in a probabilistic manner for all the symptoms such that the end user can evaluate which actions to take.
3. The belief nodes that shows the possible action steps are displayed as a 'METER' so that it would be more convenient for the user to understand which actions would impact the repair most.
4. The network primarily consists of 3 main sections: Power Supply Failure, Motherboard Failure and Video System Failure.
5. These 3 sections are interlinked to each other such that every error in one system affects the recommendations for repair all throughout the 3 systems.
6. Although user has the freedom of articulating what diagnostic test to run from amongst the multiple tests shown, it is recommended that the test with the meter inclining towards YES the most should be executed first.

USAGE MANUAL:

Download and place the "the_alchemist.neta" file and place it in any folder on your workstation. Open the file in NETICA software. Make changes to the belief networks to see the change in the recommendations in dynamic environment. Make sure that inconsistency errors would be avoided while modifying the different probabilities throughout the network.

These errors appear mostly when one or multiple nodes are given 100% probability as it disturbs the balance of the supporting systems.

A snapshot of a small network of Bayesian network showing some diagnostic probabilities with the recommendations in terms of the meter nodes.