A Rule Based System for Anticipating Chronic and Inflammatory Ailments Based on Symptoms

Tashin Hossain

Department of Computer Science & Engineering, University of Chittagong.

Motivation

Medicine and healthcare are some of the most crucial parts of the economy and human life. There is a tremendous amount of change in the world we are living in now and the world that existed a few weeks back. Everything has turned gruesome and divergent. In this situation, where everything has turned virtual, the doctors and nurses are putting up maximum efforts to save people's lives even if they have to danger their own. There are also some remote villages which lack medical facilities. Virtual doctors are board-certified doctors who choose to practice online via video and phone appointments, rather than in-person appointments but this is not possible in the case of emergency. Machines are always considered better than humans as, without any human error, they can perform tasks more efficiently and with a consistent level of accuracy. A disease predictor can be called a virtual doctor, which can predict the disease of any Patient without any human error.

That's where "**A Rule Based System for Anticipating Chronic and Inflammatory Ailments Based on Symptoms**" comes up to the scheme and helping the users knowing whether they have any chronic and inflammatory conditions or not, staying at home.

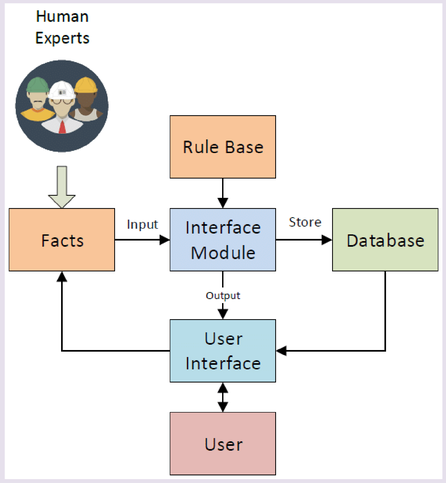
Aims and Objectives

The goals of my project are to:

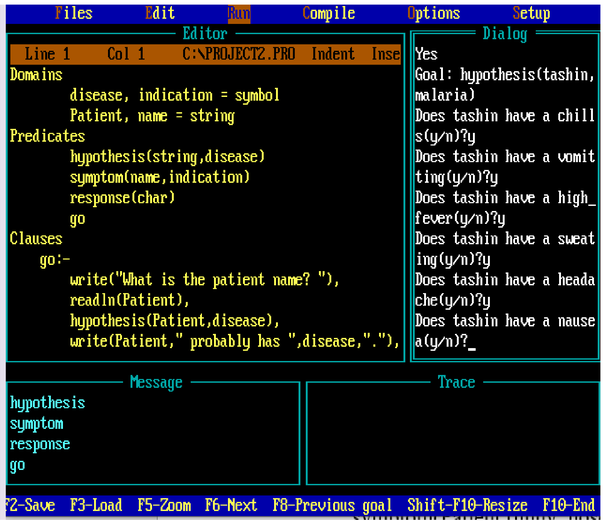
- Assist users in determining whether they have chronic and inflammatory conditions while they are at home.
- Sharing knowledge with a large population of individuals, whether or not the users have a sickness that is comparable to theirs.
- Promoting knowledge of the inflammatory and chronic illness.
- Developing an approachable rule-based framework.

Architecture

"Rule Based Architecture" is the foundation of the system. It detects input from the surrounding world and communicates with the user via a user interface. It utilizes knowledge base rules and information from the database to deduce an answer. The user is then presented with the response.

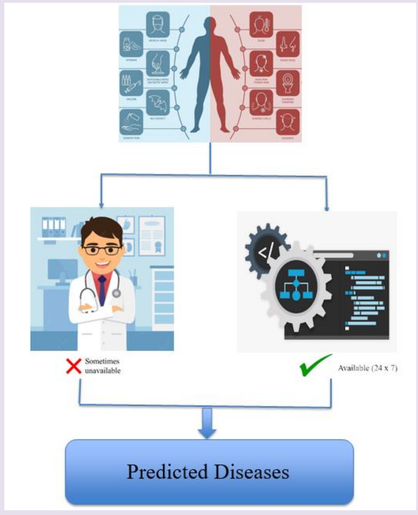


Test Case and Result



Methodology

We used 20 distinct illnesses having 64 different symptoms to train our algorithm for disease prediction.



Conclusion

The expert system then searches its knowledge base for the most likely response, which in this case is the types of chronic and inflammatory diseases, after learning about all the symptoms the user is experiencing. It should be noted that an interference base is included with the knowledge base. As a result, the expert system is enhanced and gradually gains knowledge through experience.

Future Work

It is noted that the knowledge base is also accompanied with an inference base. Thus the expert system is more enriched and learns from experience bit by bit.

- Including recommendations for diets and medications.
- Adding more precise rules and information.