

<b>Thesis Title</b>	Development of Fuzzy Rule-Based Expert System for Clinical Diagnosis	
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### ABSTRACT

This thesis presents the design and development of a prototype expert system for clinical diagnosis by applying the fuzzy set theory to inference process and knowledge representation. The design aligns the structure and work of the diagnosis mechanism similarly to the decision-making process of a physician by dividing the diagnosis into three parts. First, the diagnosis to find a group of diseases using the fuzzy inference and the fuzzy knowledge base. The second and third are the diagnosis to find a disease and the treatment using forward chaining inference and the production knowledge base. The user interface is a menu-driven, consultation paradigm and parsing associated with canned text.

An architecture of the system is composed of seven parts: an Inference engine, knowledge bases, an user interface unit, a knowledge acquisition module, an explanation module, a knowledge query module and working memory. The system was developed by utilizing Common LISP which works on a microcomputer. The user interface and diagnosis can be in both Thai and English. The knowledge bases consist of 1122 rules and can diagnose approximately 120 diseases. The results from the tests show that the clinical diagnosis of the system is 73.82 per cent accurate for the experiment group.