

## **Abstract**

This Final Project, Forward Chaining and Inexact Reasoning in Rule Based Expert System (Case Study: Diet Guidance), is analysis of inference engine with forward chaining and inexact reasoning method used at knowledge system based on rule. Forward chaining is searching strategy which initials searching process from data or fact collection. Inexact Reasoning is logical method which considers certainty and uncertainty values.

Conviction and unconviction level toward fact given by expert when turn in the knowledge, and user non expert when doing consultation. Conviction and unconviction level used to search factor of certainty. Factor of certainty which from expert to keep it as rules certainty factor. Indication data collection in working memory will be matched toward the rule in knowledge based until get the hypothesis. If in one hypothesis has more than one rule, then pararel combination computation will be done. This pararel combination will count the level of rule priority. This level priority will seem by deferentiation of certainty factor of rules toward hypothesis. Investigation and computation toward factor certainty will be done until get diet hypothesis.

Combination of forward chaining and inexact reasoning which has different certainty factor value, can solve redundancy, subsumtion, and contradiction problems, and result in more than one conclusion. In accordance with diet guidance case study, in this Final Project there will be more than one conclusion of diet variance which is suitable with patient character, then menu choosing will be done in accordance with certainty factor level.

**Keywords:**

rule based expert system, forward chaining, inexact reasoning, inference engine.