PERFORMANCE ANALYSIS OF FORWARD CHAINING METHOD FOR DIAGNOSIS OF GASTRIC DISEASE

Puji Hastuti, ST., M.Eng. *as a supervisor*

Putri Anggun Martha Camelia

Off-Main Campus Study Program
Informatics Engineering Kab. Nganjuk
Majoring in Information Technology

ABSTRACT

Gastric ulcer disease (commonly known as "maag") is one of the most common digestive disorders in society, often caused by irregular eating habits and an unhealthy lifestyle. The medical diagnostic process typically requires direct consultation with a physician, which can be time-consuming, costly, and not always accessible to all segments of the population. To address this issue, this study analyzes the performance of the Forward Chaining method in an expert system for diagnosing gastric ulcer disease as an alternative for early self diagnosis. The Forward Chaining method was chosen for its ability to trace knowledge from facts to conclusions using if-then rules in the knowledge base. The research was conducted through literature reviews, expert interviews, and system testing using real case data. The system's performance was evaluated using a Confusion Matrix to measure accuracy, precision, recall, and F1-score. The results showed that the expert system utilizing the Forward Chaining method demonstrated strong performance, with an accuracy of 90%, precision of 95%, recall of 92%, and an F1-score of 94%. These findings indicate that the method is effective in supporting the early and accurate diagnosis of gastric ulcer disease. The Forward Chaining-based expert system holds significant potential for further development as a tool to assist in early diagnosis and may help reduce the public's tendency toward inaccurate self diagnosis.

Keywords: *gastric ulcer, expert system, Forward Chaining, diagnosis, performance analysis.*