

ABSTRACT

MUH. ZUBIR PRADADANG, *Implementation of Specialist Clinic Patient Scheduling in Hospitals Using the Simulated Annealing Algorithm* (Supervised by Fachrim Irhamna Rahman, S.Kom., M.T. and Lukman, S.Kom., M.T.)

This study designs and implements a specialist clinic patient scheduling system using the Simulated Annealing (SA) Algorithm to improve hospital operational efficiency. The main issues addressed include long queues, excessive waiting times, and uneven distribution of doctors' workloads. SA was chosen for its ability to avoid local suboptimal solutions through probabilistic acceptance. Simulated patient and doctor schedule data were used to test the model. The evaluation covered average waiting time, patient satisfaction, and resource utilization. Results showed a 21.3% increase in patient satisfaction, over 85% fulfillment of time preferences, more balanced doctor workload distribution, and efficient computation times for large-scale data. This system provides an adaptive and efficient scheduling solution that can be integrated into hospital environments to enhance service quality.

Keywords: Patient Scheduling, Specialist Clinic, Simulated Annealing, Optimization, Hospital.