ABSTRACK

The Gedung Dakwah Muhammadiyah Cabang Dukun (GDMCD) is a facility that supports various activities related to dakwah, education, and social events. Currently, the scheduling of room usage at GDMCD is carried out through two methods: direct submission to the administration office or via official WhatsApp messages. This process requires the administrative staff to check room availability by recording it in a notebook and on a bulletin board. Although this system has been in place, issues still arise in terms of inconsistent record-keeping and the potential for schedule conflicts due to a lack of structured management. This research aims to optimize room scheduling by applying the Genetic Algorithm method, which is effective in solving scheduling optimization problems by considering factors such as time, type of activity, number of participants, and the identity of the user organization. The results show that the Genetic Algorithm can generate an optimal schedule, reducing schedule conflicts. Testing with small (5 data), medium (10 data), and large (15 data) datasets shows an increase in execution time as the data size grows, but still provides an optimal solution for scheduling.

Keywords: Scheduling, Gedung Dakwah Muhammadiyah Cabang Dukun, Genetic Algorithm, Optimization, Scheduling System