

ABSTRACT

In scheduling lecturers manually, the possibility of clashes between schedules is very likely to occur, causing scheduling not to be optimal in terms of time and human resources. Due to the large number of courses, study programs, and lecturers, there is a problem when scheduling. Moreover, if there is a change in the schedule involving courses, lecturers, and study programs, readjustment will take a long time.

To overcome this, we need a reliable system that can manage the lecture schedule at Telkom University. The system to be designed is based on a web with a UI as needed. In addition, this system also uses a genetic algorithm coupled with a scheduling algorithm. The way this algorithm works is by imitating / simulating natural selection and this algorithm is known for solving complex problems.

Lecturer Scheduling System Testing is done in two ways. The first way is to use the whitebox testing method. In this test, a flowgraph diagram is made which will be the benchmark for measuring cyclomatic complexity. The measurement results show that there are 6 regions which are test paths. Each path tested shows valid results because the expected output is met. The second way is by testing the data to find the optimal fitness value for each generation, the best generation, the average fitness for each generation, and the required processing time. The test was carried out with 10 trials based on various input parameters according to the needs of the algorithm. The first 5 experiments were carried out continuously and the second 5 experiments were carried out gradually by refreshing and clearing the cache before moving on to the next experiment. The test results in the form of the optimal fitness value are in the 8th experiment with a value of 0.0004323.

Keywords: *Genetic Algorithm, Extraordinary Lecturer, Scheduling, Whitebox.*