

Hybrid Approach to University Time Table Management

L. J. Ekanayake*, S. R. Kodituwakku

*Department of Statistics and Computer Science, Faculty of Science, University of
Peradeniya, Peradeniya 20400, Sri Lanka*

**ekanayakelahiru@gmail.com*

University timetable management is a complex task due to the availability of a large number of constraints. Allocation of lecture theaters and laboratories are carried out by considering the availability of lecturers, seating capacity of venues and subject combinations of students. These factors are difficult to handle with genetic algorithms to provide efficient and effective timetable management. Also, in addition, the genetic algorithm and NP Problem gives a solution for the data provided regardless of the user preference. Because of these reasons, this paper introduces a hybrid mechanism: partially automated and partially manual, in order to overcome the limitations of genetic algorithms and other techniques. The research objective is to develop a user-friendly, flexible and innovative timetable management system. Microsoft C# is used to implement the system. A panel matrix of $n * m$ will be populated dynamically based on user choice. Where n is the number of days and m is the number of slots available for a day. The person who is responsible for generating timetable can drag and drop listed courses into the timetable interface. A heuristic algorithm is used to resolve the conflicts by providing different levels of priorities to each factor. C# collections and lambda expressions are utilized to filter the lecture venues, combinations, and courses based on the given priorities. The system compatibility was tested with data obtained from the student handbook, all venues, lecture theaters, and laboratories, available in the university. According to the system compatibility results, this system is capable of managing all aspects of timetable management, identify conflicts and suggest available time slots for new courses. Therefore, users may have a more sophisticated system compared to other systems. This system is a standalone solution and opens for extension.

Key words: Optimization, Allocations, Time Table, Heuristic, Object Oriented