University Timetabling System using Genetic Algorithm

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Setting up the timetable has been a real burden to the lecturers and a distraction to lecturers' core responsibility of teaching in almost all universities of the country. This project, "University Timetabling System using Genetic Algorithm" aims to review the current manual timetabling system of the Division of Computer Science & Technology (DSCT) and develop a web based timetabling system using genetic algorithm. Data gathering for the system was done through interviewing relevant stakeholders and from the literature review. Gathered data were analyzed as input to the proposed DCST system.

The literature review was carried out to search the best approach that can help to solve the problem in the timetabling system including the heuristic approach, integer programming approach, graph coloring approach, network streaming approach, logical constraints arithmetic approach, knowledge based approach, tabu searching, annealing simulation and genetic algorithm. It is evident from the literature that, Genetic Algorithm can introduce very high level of autonomy and accuracy to produce a feasible timetabling system.

The improved DCST timetabling system was implemented using PHP programming and Visual Studio C++. Three modules have been developed; namely: Administrator Module, Lecturer Module and Student Module. The lecturer module will set the master timetable for all the lectures in the DCST. Similarly through the student module, students can view their own timetable for the whole semester. In the Administrator Module, the administrator can manage the student registration, lecture and subject registration by adding or deleting lectures or subjects. Genetic Algorithm has been used due to the ability of producing optimum solution to generate a feasible timetabling system. It is hoped that the proposed timetabling system will help lecturers to concentrate in their core activities of teaching and research rather than spending more time on administrative work such as preparing timetables.

Key words: PHP Programming, visual studio C++, genetic algorithm, timetabling