

SUPERVISOR'S APPROVAL

ENHANCEMENT OF INFORMATION RETRIEVAL SYSTEM OF UITM STUDENT PORTAL USING GENETIC ALGORITHM

By

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ABSTRACT

Genetic Algorithm (GA) has been the topic of discussion after John Holland first described GA in 1960, before it is being further developed in late 1960s and early 1970s. GA is an adaptive heuristic search algorithm premised on the evolutionary ideas of natural selection and genetics. The basic concept of GA is designed to simulate processes in natural systems necessary for evolution. The implementation of GA can be seen in various fields, including timetable, scheduling, routing and information retrieval. This paper focuses on implementing GA in Information Retrieval System (IRS) to increase the efficiency of retrieving relevant documents. Neglecting implementation of Genetic Algorithm in Information Retrieval System for UiTM Student Portal has caused difficulties to students to retrieve relevant information. In order to implement the GA, the algorithm will be customized from any existing algorithm to match the need of the IRS for UiTM Student Portal. This project research seeks to give benefits to the field of Information System Engineering (ISE).

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CHAPTER 1

INTRODUCTION

This chapter introduces the research background, problem statement for this research project, project aim, project objective to accomplish project aim, project scope as well as project significance.

1.1 Research Background

Genetic Algorithms (GAs) are adaptive heuristic search algorithm that is based on the evolutionary ideas of natural selection and genetic. The basic concept of GAs is designed to imitate the processes in natural system necessary for evolution, specifically those that follow the principles first laid down by Charles Darwin. As such they represent an intelligent model of a random search function within a closed search space to help solve problems.

GAs has been studied, experimented and tested in many applications. John Holland defined GAs as “Computer programs that evolve in ways that resemble natural selection can solve complex problems even their creators do not fully understand”. Not only does GAs provide an alternative method to solving problem; it also outperforms any other traditional algorithm in most of the problems.

Most of the real world problems involved finding optimal solution, which might prove difficult for traditional methods but is an ideal situation for GAs. However, because of its amazing performance in optimization, GAs has been always regarded as a functional optimization tools. In fact, there are many ways to view genetic algorithms.

The Information Retrieval System of UiTM Student Portal currently is using the traditional method to retrieve the information. This will results in inconsistent and inefficient search results. The traditional search method only search for the title or the content which contains the keywords that the user entered. It does not take into consideration whether the information retrieved is relevant or not. Figure 1.1 shows the search function for UiTM Student Portal.

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 [Campus News](#)



Advance Search.

Search : examination

Where to Search?

Search in Content

Options : Any words ☒ All words

Search

 |

Cancel

Figure 1.1 the search function for UiTM Student Portal

GAs has been proven that it is one of the leading algorithms in optimizing the information retrieval search space. Study in figure 1.2 shown that the efficiency of GAs is still above the other evolutionary approach, such as Particle Swarm Optimization (PSO) and Harmonic Search (HS).