Universiti Teknologi MARA

Solving the Travelling Salesman Problem by using Artificial Bee Colony Algorithm

Noor Ainul Hayati binti Mohd Naziri

Report submitted in fulfilment of the requirement for Bachelor of Science (Hons.) Management Mathematics Faculty of Computer and Mathematical Sciences

July 2020

STUDENT'S DECLARATION

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

……

NOOR AINUL HAYATI BINTI MOHD NAZIRI
2017796653

AUGUST 5, 2020

ABSTRACT

Travelling Salesman Problem (TSP) is defined as a list of cities that must visit all cities that start and end in the same city with the aim of finding the minimum cost of time or distance. In this study, the Artificial Bee Colony (ABC) algorithm was used to resolve the TSP. ABC algorithms is an optimisation technique that simulates the foraging behaviour of honey bees and has been successfully applied to various practical issues. ABC algorithm has three types of bees that are used by bees, onlooker bees, and scout bees. In Bavaria from Library of Traveling Salesman Problem with the distance from a city to another city has been used to find the best solution of the shortest distance. The result shows that the best solution for the shortest distance that traveller have to travel all the 29 cities in Bavaria is 3974km.

Keyword: Travelling Salesman Problem, Artificial Bee Colony Algorithm

TABLE OF CONTENTS

CHAPTER THREE: RESEARCH METHODOLOGY

CHAPTER FOUR: RESULTS AND DISCUSSIONS

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS