

CHAPTER 1

INTRODUCTION

1.1 Background

Understanding of Heap Sort algorithm is still quite lacking, especially among students of the computer science Department of Soegijapranata University. The reason why Heap Sort algorithm is hard to understand because there are many steps of processing the data.

Ordering data can be categorized as part of the processing data from the information. The collected data often must be ordered starting from the greatest number value or begin with the letter alphabet. There are quite a lot sorting algorithm used, as well as Heap Sort.

Heap Sort is a sorting method of data utilizing the nature of the heap data structure¹. Heap is an elementary data structure often used in applications concerned with priority queues and ordering [Hwang, (1997)]². Heap Sort algorithm is sorting algorithms with the most optimal time complexity. Thus, it created a visualization of data sorting using Heap Sort algorithm with multiple heaps which will make the students understanding Heap Sort's work process. This project using binary tree as the data structure. Binary tree is used to sort the data.

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- 1 Dasar Algoritma dan Struktur Data Dengan Bahasa Java, Ramadhani Cipta, S.T., M.Eng
 - 2 Heapsort using Multiple Heaps, D. Leventeas , C. Zaroliagis

1.2 Scope

This heap sort visualization program created using Java programming language. And will be done using data structure such as array and binary tree.

The program have several features:

1. Is the program able to run the data sorting ascendingly?
2. Is the program able to use multiple heaps as its data structure?
3. Is the the program able to colouring every nodes in different colours?

1.3 Objective

The heap sort visualization program have several objectives as mention below:

1. This program must simulate how the Heap Sort works using multiple heaps.
2. The program display every step of the Heap Sort algorithm to make heap sort can be easily to understand by students.
3. This program display every nodes in different colours to make sure students can see every changing nodes.