

CHAPTER 1

INTRODUCTION

1.1 Background

In today's modern era, the development of technology and science is very rapid, so there are many conveniences offered in dealing with everyday problems. Home is one of the basic human needs. Having a very good home is everyone's dream. To realize it can be done in various ways. In making a dream house there are many factors that can affect the quality of the house. One of them is a house pipe. Installation of water pipes that are inefficient will cause cost overruns. With the present technology, the installation of water pipes will be more efficient and optimal so as to reduce the cost of installing pipes. So that the right arrangement is needed so that it can be applied efficiently to solve problems.

Graph theory can solve this problem. The installed pipeline network can be implemented into a weighted, connected, and directed graph. The length of the pipe installed can be minimized by using the Kruskal algorithm. Each step in this algorithm will be formed as a minimum range tree, which in the end the purpose of this algorithm is to determine the smallest cost of the minimum range tree.

With the explanation of the case above, this project creates an application that is able to determine the optimization of the length of the water pipe in the design of pipelines in the house.

1.2 Scope

Based on the description in the background, the main issues to be discussed include:

1. How to use the kruskal algorithm to calculate house pipes based on the existing plan.
2. How to insert floor plans into the Kruskal algorithm to calculate the comparison.

1.3 Objective

The aim to be achieved in this research is to make an application by applying the kruskal algorithm as a comparison of the existing plan with the results of the kruskal algorithm application.

