CHAPTER 1
INTRODUCTION

1.1. Background

Heart disease (HD) is a primary cause of morbidity and mortality in present-day civilization. Medical analysis is a highly important but complex job that must be performed precisely and efficiently [1]. As technology advances, people's lifestyles also change. Heart attack is a disease with the most cases of death in Indonesia caused by an unhealthy lifestyle. Often heart attacks are caused by an unhealthy lifestyle such as smoking, lack of activity, severe stress, high cholesterol, and obesity. Age can also be a cause of this disorder due to high blood pressure or cholesterol.

For this reason, I will make predictions for detecting potential heart attacks by using two methods of Neural Network and Random Forest algorithm approaches to compare the results of the accuracy of whether the algorithm is good. This project uses a health test dataset using blood, blood pressure, ECG, and chest pain types downloaded via Kaggle website.

With this, early detection of heart attacks can be like an early warning system so that people with this disease can immediately take various preventive and treatment measures if needed.

1.2. Problem Formulation

The formulation of the problem raised in this final project are:

1. How do the prediction accuracy results compare from the Neural Network and Random Forest algorithms in the case of heart prediction?
2. How do the prediction accuracy results compare from the Neural Network and Random Forest algorithms if only a few or many amounts of training data is used?

1.3. Scope

The limitations of the problems in this final project are:

1. This project uses Neural Network and Random Forest Algorithms to compare the results between the two algorithms in predicting heart attacks
2. The dataset used in this project was assembled by combining different datasets and was available separately but had not been integrated before. In this dataset, 5 cardiac datasets combined with 11 popular features make it the best and largest heart disease datasets are now available for research purposes.

1.4. Objective

The objective of working on this project is to compare the results of the accuracy of heart attack predictions from existing data. And how do you compare the results of the prediction accuracy of the two algorithms used if the training dataset is small or when the training dataset is large.