

# CHAPTER I

## INTRODUCTION

### 1.1. Background of Study

Based on the Indonesian Banking Regulation No. 10 in 1998, the definition of credit is an activity for supplying money or resources based on the agreement from the borrower (customer / client) and the supplier that require the borrower to repay the money and the amount of interest to the supplier in a period of time. Previously, bank is the most common party that people usually use to apply any credit transaction. However, in this era there are a lot of relevant parties that are concerned to the credit activity.

One of relevant parties that concerned in credit activity is a financing company. Finance company is a financial institution that provides the supply of credit to the customer for the purchase of goods and services by granting loans directly to the customer with a contract period [1]. PT. Multindo Auto Finance is one example of financial company that works based on credit system in automotive field. Each year, PT. Multindo Auto Finance gets a lot of credit proposal from the applicants to applying a credit loans. It may be a good condition for the company, but it also might be not because of the economic instability condition that know happen in Indonesia.

With the demand of the credit applicants, PT. Multindo Auto Finance has a credit scoring model to determine which applicants who will get the loan. Credit scoring is used to categorize the applicant's credit weather it will be accepted or rejected by the applicants' characteristics [2]. Whether credit scoring is very helpful for the company, the use of credit scoring evaluation model in PT. Multindo Auto Finance is not quite effective. Moreover, PT. Multindo Auto Finance prefers to do a real and direct survey to the credit applicants.

Although the real survey has been conducted, the credit risks will always be possible. An example of problems that frequently occur in the credit activity is loss credit. The applicants who have received the loans can become unpredictable. It will happen during the period of time on the credit repayment. This situation also occurs in PT. Multindo Auto Finance. That is why classification for the customers is required to determine the customer's credit status and help the company to take action on the customer.

Currently, the data mining approach is commonly used for data processing in data analysis activity. Data mining refers to a method in processing large amounts of data to find hidden patterns and new knowledge or useful information [3]. Data mining has several methods used to process data in the data analysis activity. One of the data mining method is Classification. Classification is a supervised learning approach to find rules and divide the data into specific groups [3]. By using data mining classification approach, it would be possible to overcome the problems that occurs in credit transaction activities such as loss credit.

Many research have been conducted in the field of credit activity especially in the use of methods to overcome credit problems. In some research, researchers focused on the application of credit scoring and improving classification technique used in credit scoring system. Henny Leidiyana [4] determined motorcycle credit risk using k-NN algorithm to classify the customer status. The cross validation method, confusion matrix, and ROC curve are used to perform algorithm performance. The result of cross validation reach 81.46% of accuracy.

Other research have been conducted by Cheng-Lung Huang, Mu-Chen Chen, and Chieh-Jen Wang about credit scoring [2]. The research used three strategies to construct the hybrid SVM-based credit scoring models to evaluate the applicant's credit score based on applicant's input feature. Moreover, the research provides an experimental result that SVM is promising data mining method. Both of the research examples above examine the credit data using data mining method. The method is classification. However, the research examples above use different algorithm. In this study, the author chooses Naïve Bayes Classification Algorithm to be performed.

Naïve Bayes Classification is statistical classification to predict the probability of grouping class. Naïve Bayes Classification is identical with other classification algorithms e.g. Decision Tree and Neural Network. Naïve Bayes Classification is used in this study because it has good accuracy and high speed data processing in database [5]. Besides that, Bayes classifier has a strong independence assumption and is particularly suited when the dimensionality of the input is high [6]. Moreover, CRISP-DM design is also used in this study to follow the standard data mining technique on business field.

## **1.2. Problem Statement**

Based on the background of study described above, the problem statement is the need of customer classification in PT. Multindo Auto Finance based on customer credit transaction to provide information about customer credit status. Naïve Bayes algorithm is used in this study.

## **1.3. Scope of Study**

The scope of this study are:

1. The use of customer data that were taken from PT. Multindo Auto Finance in 2015.
2. Implementation of data mining technique i.e. Naïve Bayes algorithm.
3. Implementation of CRISP-DM in data mining process for business.

#### **1.4. Objective**

The objective of this study is the classification model development for customer's credit status classification using Naïve Bayes Algorithm. It will help the company to control their customers.

#### **1.5. Benefits of The Study**

The benefits by doing this study are:

1. For the Author

The author will get more understanding and experience in implementing data mining approach in the real industrial problem.

2. For the University

This study can be used as an additional reference in the university library, especially for research / study on the topic of data mining.

3. For the Company

PT. Multindo Auto Finance is easier to control their customers based on the customer's credit status that is provided in this study. Moreover, it may help as decision support information to take action to customers.