

# CHAPTER 1

## INTRODUCTION

### 1.1 Background

At this time there are so many coffee shops that serve a variety of food menus. Because of this, of course, potential visitors will be more selective because of the increasing number of cafe choices. Each cafe itself certainly has a variety of menu choices that will be served to visitors. But from the variety of existing menus, a problem arises that is closely related to the recommendation system. The existing recommendations are deemed ineffective because they only look at the number of menus that are sold the most without paying attention to the age and gender background of the customer. Whereas in a cafe, it must be considered whether the menu ordered is suitable to be enjoyed by a certain age and gender range.

To solve the problem, the menu recommendation system should be further developed. The existing recommendation system should reclassify based on a certain age range and gender. Of course, this aims to simplify the service process when ordering a menu.

This final project will use two classification algorithms, namely decision tree C4.5 and k-Nearest Neighbor. From the two algorithms, a comparison will be made to determine which algorithm is more accurate or has the smallest error rate. From the results of this comparison, the results of a menu recommendation will be determined based on a certain age range and gender. In the comparison process, a test method called cross validation will be used for the KNN algorithm and the accuracy results will also be determined using a confusion matrix.

### 1.2 Problem Formulation

In this project there are some questions to be proved in this project :

1. How to do data classification using decision tree C4.5 and kNN?
2. How to determine the most accurate classification between the two algorithms?
3. How to use confusion matrix?

#### 4. What is the best Algorithm to do classification?

Scope membahas tentang ruang lingkup dari project yang Anda selesaikan (Batasan masalah). Berikan Batasan-batasan ataupun asumsi terkait dengan penelitian anda.

### 1.3 Scope

In this project there are few limitation on certain things:

1. This project will compared only two algorithm.
2. Total data training is 400 data.

And also there are hypotheses that are made in this project:

1. Menu rekomendasi can be classified in the wrong category if using to much K variable in knn and not tomuch data in decision tree.
2. The differences of data type could affected the classification result and will make it as false result.

### 1.4 Objective

The purpose of this project is to compare beetwen two algorithm and find the best alghorithm to classify menu recommendation based on age, gender, and menu. The result of this project can be used to make job easier. Furthermore this project can help customer to choose menu where is matched with age and gender.