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Application of the Naïve Bayes Algorithm and Simple Exponential Smoothing for Food Commodity Prices Forecasting

Muhammad Lutfi¹, Hidayatul Muttaqien², Aulia Apriliani³, Hazriani Zainuddin⁴, Yuyun⁵
^{1,2,3,4,5}Department of Computer System, Faculty of Engineering, Sekolah Tinggi Manajemen Informatika dan Komputer Handayani, Indonesia, 90321

{sainteclutfi@handayani.ac.id¹, hidayatul@student.handayani.ac.id²,
auliaapriliani@student.handayani.ac.id³, hazriani@handayani.ac.id⁴, yuyunwabula@handayani.ac.id⁵}

Abstract. Inconstancy of the market prices can affect society's purchasing power. One effort to anticipate the price uncertainty is by conducting commodity price forecasting. In the concept of forecasting, the commodity prices can be predicted by studying sales data in the previous period. This study aims to implement a decision support system in predicting food commodity prices trend. In data collection, the authors used list of food commodities provided by Industry and Trade Service of Gowa Regency. For data analysis, we use Naive Bayes algorithm to predict the food commodity prices in the future and Simple Exponential Smoothing to find out the price trend in a certain period. As a result, both methods can predict commodity prices and market tendency in a given time completely.

Keywords: *Forecasting, Commodity, Price.*

1 Introduction

A market is a place where buyers and sellers together to make transaction of good and service. Besides that, the market is an important part of life to guarantee the fulfillment of needs. However, food commodity becomes difficult if the price stability is uncertain. In general, prices are formed due to the interaction between supply and demand. If tender is high and demand is low, then price will go down. Conversely, if supply is low while demand is high, then price will rise [1]. This also applies to food commodity prices. Food commodities are one of the government's main priorities to ensure the availability of stock in the future. From the economic aspect, food prices are an important sector to control price stabilization in order to maintain people's purchasing power. Lack of information on commodity prices causes fluctuation which is feared to affect economic stability.

There are many ways to anticipate fluctuations of commodity prices, one of which is prediction method. The purpose of prediction is to estimate the food commodity cost that occurs in the future. In addition, predictions also provide an overview of the cost situation for a certain period [2]. The need for forecasting to facilitate the stakeholders involved in decision maker related to cost stability and availability stock. The main objective of this research is to predict food commodity prices. This study uses the Naïve Bayes algorithm and Simple Exponential Smoothing to forecast food commodity prices and price trends on a particular period.

Various works have been studied to understand the application of Naïve Bayes algorithm. In this section, the authors explain how Naive Bayes algorithm can be used to predict

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