I. INTRODUCTION

Digitalization has significantly encouraged the development of information technology to obtain information and answer problems in various aspects. One of these aspects is elec- tronic commerce or e-commerce. E-commerce can realize the sharing of information and business transactions through the internet telecommunications network [1]. One of the leading e-commerce companies engaged in hotel reservation services through a website platform is Agoda. The Agoda website was once the most extensive online hotel reservation website, especially in Asia-Pacific [2]. Agoda is a company founded in 2005 that provides more than 2 million accommodation properties, including apartments, villas, houses, and hotels, supported by more than 15 million reviews from travelers [3]. These reviews are generated from consumers' experiences after using accommodation services which consist of textual information. The reviews generated by these consumers help potential consumers choose the products or services that best suit their needs [4]. Reviews given by consumers have a more substantial impact on ordering decisions than the information provided by the company [5]. However, sometimes potential customers are pretty difficult to judge the hotel from the overall reviews. For this reason, technology is needed in processing and assessing existing reviews [6].

Sentiment Analysis is a technology that can process review data to show user attitudes in hotel reviews. Sentiment Analysis, also called opinion mining, is a field of study that can analyze people's opinions, sentiments, evaluations, judgments, attitudes, and emotions [7]. Research [8] conducted sentiment analysis using the KNN algorithm with the Word2Vec extraction feature. The KNN algorithm can produce 76% accuracy performance, 77% precision, 76% recall, and 0.87 AUC value. Research on hotel reviews has been carried out using the Word2Vec extraction feature [9]. This research compares two architectural models of Word2Vec, namely, Skip-gram and CBOW. The Skip-gram model architecture can produce an accuracy of 92.377% and has a better value performance than the CBOW model. Research on sentiment analysis by [10] also uses the extraction feature of Word2Vec with Skip-gram model architecture. The algorithm method used is Random Forest. The average performance value of the model accuracy ranged from 90.1% to 91%. From this research, it can be concluded that the number of epoch values and window size in the Skip- gram model architecture greatly affect the accuracy value. The higher the epoch value and the window size, the higher the model accuracy value will be. The KNN algorithm was also used in research [12] by looking at the effect of the K value on the accuracy obtained. The K values used ranged from 1, 3, 5, 7, 9, 11, 13, 15,17, 19. The performance results managed to get the highest accuracy value of 94.4%. Precision, recall, and F1-score both obtained a performance value of 94%.

Based on the research results above, this study aims to build a sentiment analysis model that can distinguish between positive and negative sentiments. The data is taken from the Ibis Trans Studio Bandung hotel reviews on the Agoda website. The extraction feature used is Word2Vec with the KNN algorithm method applied in this study to classify the results of hotel reviews on the Agoda website. The topics that will be discussed in this study are:

1) The effect of using stemming.

2) Number of dimensions impact from the vector architecture of the Skip-gram Word2Vec model.

3) The comparison of K values on KNN performance results.

The limitation of this study is that the dataset used is obtained from the effects of reviews of the Ibis Trans Studio Bandung hotel in English, with a total of 2556 data divided into two positive and

negative labels from the Agoda website. The researcher chose to review the Ibis Trans Studio Bandung hotel because the hotel is the largest Ibis hotel in Southeast Asia [11].