INTRODUCTION

Tourism is one of the highest foreign exchange contributing sectors in Indonesia and has experienced rapid development [1]. This growth has led to challenges in determining travel destinations. Many people find it difficult to choose tourism destinations that match their preferences [2]. Due to the rapid development of social media, people can utilize these platforms to obtain detailed information about travel destinations that interest them.

One social media platform with many users is X (Twitter) [3]. Twitter facilitates user communication with one another, covering all sorts of topics, including travel destinations. Information about travel destinations can be easily obtained on Twitter, and this information is very useful in deciding on travel destinations. However, people often feel dissatisfied with the information obtained and require additional assistance, particularly in the form of travel destination recommendations [4]. Travel destination recommendations can be obtained through the results of a recommendation system.

A recommendation system is a filtering system that suggests or recommends a digital product to users [5]. One popular method used in recommendation systems is Content-Based Filtering (CBF) [6]. CBF works by providing users with objects or items similar to those they have previously selected or desired [7]. By applying this method, the recommendations generated can be customized to the individual user's preferences. However, CBF relies on user profiles to obtain these preferences. For new users with insufficient data, CBF faces challenges in providing reliable recommendations, a limitation known as the Cold Start Problem [8]. To overcome these limitation, implementing a Gated Recurrent Unit (GRU) model can be an excellent solution.

GRU is a kind of Recurrent Neural Network (RNN). GRU effectively retains important data and the relationships of input sequences while discarding irrelevant data [9]. With these characteristics, GRU has an advantage in processing sequential data, such as in recommendation systems. During training time, GRU requires less time compared to Long Short-Term Memory (LSTM), another type of RNN [10]. This faster training time provides an additional advantage in research using GRU. However, the effectiveness of the model also depends on the optimization of its training process. Therefore, in order to support and enhance this process, the Root Mean Squared Propagation (RMSProp) optimization approach will be implemented.

This research's primary contribution is to integrate the CBF method with GRU designed to develop a tourism destination recommendation system for the city of Bandung. Before building the recommendation system, feature extraction using Term Frequency-Inverse Document Frequency (TF-IDF) and Cosine Similarity calculations are applied to assist the CBF process in providing recommendations. After the model is built, the RMSProp optimization algorithm is applied to the model to enhance the performance of GRU. Additionally, the SMOTE method is employed to balance the classes. As the final step in the development of the tourism destination recommendation system, the performance results will be analyzed using the Confusion Matrix performance measurement method.

This paper is divided into various sections: Section II provides the findings from related research; Section III describes the model architecture and the procedures that were employed;

Section IV provides the findings and a discussion; and Section V offers the research's conclusions.