1. Introduction

Social media is a form of advancement in information and communication technology. Through growing of social media, it allows information to spread easily in public. Furthermore, social media has became place to communicate with each other and one of the biggest platforms of social media is Twitter. According to Statista, the online statistics portal, Indonesia was marked as the third largest active Twitter user in Asia Pacific from 2012 to 2018, in 2018 Twitter users in Indonesia was 20.9 million and in 2019 the Twitter user has been increased by the number of 22.8 million users statista. User in Twitter can posting text, image, and vidio, which is called tweet. Twitter post or tweet have been used by researchers for many things especially in the field of linguistics.

Many human behaviors can be represented through tweet, one of them is emotional analysis. Emotions are continuous states of mind, characterized by mental, physical, and behavioral symptoms [4]. Generally human emotions can be seen through their facial expressions and speech. Emotion analysis can be used for various fields. In government, emotion analysis can be utilized to see the response of society to the government new policy. Moreover, emotion analysis can be utilized for intelligent e-learning environment 3.

In recent years, word embedding was dominantly used as a feature for emotion classification [5]. Word embedding features for English emotion detection has been implemented by [2]. In [5], emotion classification was carried out using combination of several features, namely word2vec, bag-of-words (BOW), and fastText, then added with sentiments and lexicon emoticons, orthography, and POS-tag features. The results of their experiment showed that combining basic BOW features and word embedding can improve the performance. From those combination, an F1-score of 75.98% was obtained using Logistic Regression as classifier in Indonesian twitter dataset. Research [3] proposed a model of CNN integrated with grammatical features for emotion classification in English and Vietnamese. For the English dataset, [3] used ISEAR dataset. The proposed method then compared with the basic CNN and some previous studies which also used ISEAR dataset. The results showed that the method have better performance than using basic CNN or compared to UMM based lexicon [1], with F1-score 60.23%. Word embedding for tweet emotion classification also used by [6]. Using random forest as classifier, their model can achieve 91% precision for four classes of emotion in English tweet. Based on the results of previous works [5, 3, 1, 2, 6], we proposed emotion classification using CNN as the classifier and three word embedding methods, namely Glove, word2vec, and fastText. We also compared the effect of each word embedding method on emotion classification result in Indonesian twitter dataset. The main contributions of this research are analyzing the performance of three different word embedding methods, namely Glove, word2vec, and fastText that combined

with CNN as classifier to classify emotion in Indonesian twitter dataset and compared it to baseline classification method such as Logistic Regression and Support Vector Machine (SVM).