Deep learning approach analysis model prediction and classification poverty status

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Article Info	ABSTRACT
	The problem of poverty is a scourge for every developing country coupled with the economic crisis that occurred during the coronavirus disease (COVID-19) pandemic. The impact of these problems is felt directly by the people in Indonesia, especially in the Province of West Sumatra. This study aims to predict and classify the level of poverty status by developing an analytical model based on the deep learning (DL) approach. The methods used in this study include the K-means method, artificial neural network (ANN), and support vector machine (SVM). The analytical model will be optimized using the pearson correlation (PC) method to measure the accuracy of the analysis. The variable indicator uses the parameters of population (X_1), poverty rate (X_2), income (X_3), and poverty percentage (X_4). The results of the study present prediction and classification output with a validity level of accuracy of 99.8%. Based on these results, it can be concluded that the proposed DL analysis model can present an updated analytical model that is quite effective in carrying out the prediction and classification process. The research findings also contribute to the initial handling of the problem of poverty.

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1. INTRODUCTION

The level of poverty status during the coronavirus disease (COVID-19) pandemic has increased in line with the decline in the global economy [1]. This also has a major impact on several developing countries [2]. Indonesia is also one of the countries that have had the impact of the pandemic, which has caused a high movement in the poverty rate in recent times [3]. The impact is explained that the movement of the poverty rate can be seen by the population density and the level of community economic income [4]. To overcome these problems, several studies have been carried out in an effort to overcome the problem of poverty. One form of application for handling and controlling poverty cases can be seen in the classification process. This process is carried out to be used as recommendations as well as control and monitoring for the government in managing the community's economy.

The classification process has developed by producing a model to be used as a solution to solving a problem. Artificial intelligence (AI) is a concept that is widely used in the classification process. AI is a multidisciplinary prospective study of a branch of science that has many opportunities in research and provides results as an impetus for the development of knowledge [5]. The development of AI also has a major impact on the economy so it has the potential to increase productivity growth [6]. AI can also be applied in financial analysis in the form of an algorithm developed [7].