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INTRODUCTION

1.1 Background

The problem of crime in Indonesia has become an urgent issue, with 276,507 crime cases recorded in 2022, an increase of 7.3% from the previous year which recorded 257,743 cases [1]. The fact that a crime occurs every two minutes, or about 31 crimes per hour, emphasizes the urgency in addressing this problem. Community security is a top priority, because this not only impacts individual safety, but also involves social stability, economic development and a better standard of living.

It is also linked to social issues such as unemployment, inequality and impaired mental wellbeing which can push individuals towards criminal behavior. In addition, geographic and environmental factors, such as lack of street lighting, lack of surveillance, and poor accessibility, can also increase the risk of crime in an area. Recent studies in Indonesia reveal that limited resources, lack of educational facilities and skills training for young people, as well as high unemployment rates, especially among young people, play a role in the growth of crime rates in several regions [2][3]. In criminology, crime analysis is an important component for identifying behavioral patterns and anticipating potential crime incidents. However, the complexity of the types of crime, motives and methods of handling them is a challenge in crime prevention efforts. Therefore, crime prediction using Artificial Intelligence (AI) and Machine Learning (ML) technology is a promising solution to overcome this challenge.

As a solution to the problem of crime rates, several previous studies have proposed the use of Artificial Intelligence and Machine Learning technology in predicting and preventing crime. Research has been conducted in Vancouver analyzing crime data for the last 15 years. By using Artificial Intelligence techniques such as "K-nearest neighbors," we have succeeded in predicting

"hotspot" areas that have a high potential for experiencing crime [4]. In various cities around the world, Artificial Intelligence technology is also used to analyze crime data, identify crime patterns, and optimize the allocation of law enforcement resources. Some examples include the use of crime prediction algorithms in Chicago which has been successful in reducing crime rates, as well as the use of similar technology in London to prevent crime more effectively [5][6]. This area of research continues to develop, and there is potential to improve the accuracy and effectiveness of crime prediction with more sophisticated approaches.

In an effort to overcome the problem of crime rates, the use of Artificial Intelligence (AI) technology has proven itself to be an effective solution. The use of AI in the analysis of crime-related data, such as police data, demographic data and environmental data, enables the identification of complex crime patterns and predictions of crime-prone areas. The use of AI software has helped law enforcement allocate resources more efficiently, direct patrols to areas that require more attention, and take more appropriate preventative actions. Apart from that, AI also helps in dealing with organized crime by analyzing communication data, financial transactions and suspicious online behavior. This has increased crime exposure, reduced crime rates, and created a safer environment for society [7].

This research proposes a literature review approach that will focus on the use of Artificial Intelligence technology in the context of crime prediction. This method aims to identify and analyze the latest knowledge regarding the use of AI in overcoming crime issues. Therefore, finding effective solutions to reduce crime rates is very important. This research will explore literature that uses the keywords AI and crime to understand how AI works in analyzing crime data, identifying complex patterns, and providing accurate predictions. By compiling relevant literature and research, we hope to explore the potential of AI as an innovative solution in reducing crime rates and creating a safer environment for people in Indonesia.

1.2 Problem Formulation

Based on the problems above, the formulation of this research problem is:

1. Crime rates remain a significant societal challenge in Indonesia, necessitating effective strategies for reduction and prevention.
2. AI technology has demonstrated potential in crime prediction by analyzing diverse data sets and identifying intricate crime patterns.
3. The intricate nature of crime patterns requires advanced analytical tools for accurate prediction and intervention.

1.3 Scope of Problem

The problem limitations of this research are:

1. The scope will encompass the evaluation of AI algorithms, machine learning, and deep learning techniques specifically applied to crime prediction.
2. Data sources encompass crime-related datasets, including police records, demographic information, environmental factors, and potentially other pertinent sources utilized in AI-based crime analysis.
3. The research will consider historical data to predict future crime patterns using AI-based models.
4. The focus will be on enhancing predictive accuracy to foresee and prevent potential criminal activities.
5. A review of existing literature utilizing AI in crime prediction globally will be considered for comparative analysis and insights.

1.4 Research Purpose

The aim of this research is to propose a literature review approach that will focus on the use of artificial intelligence technology in the context of crime prediction.

1.5 Research Benefits

The benefits obtained from this research are:

1. Insights gained from the research may aid in the development of proactive crime prevention initiatives based on predictive analyses
2. Comparative analysis with global literature on AI-based crime prediction might offer insights into best practices and global trends applicable to the Indonesian context.