

ABSTRACT

Coral reef is an underwater ecosystem consisting of a group of coral animals that form a calcium carbonate structure, a kind of limestone. Coral reefs are a storehouse of biodiversity in the sea, because of the importance of coral reefs, it is hoped that the community will know what factors affect the health of coral reefs, because there has only been research on the health of coral reefs in certain locations but no one has examined the factors that affect the health of coral reefs. Therefore, in this study the authors conducted research to determine the quality of coral reef health in an area in Indonesia by taking several factors such as tourists who come, latitude, longitude, temperature, year, population, number of youth, and number of industries, and the method used is machine learning with the K-Nearest Neighbor algorithm, Support Vector Machine, and Ensemble Classifier, these three algorithms are suitable for processing data such as text, int, and float. For KNN and SVC to optimize categorization based on the centroid group which is used as a grouping for the ensemble using randomforest to take tree branches or decision features that are most relevant to the output, the existing factors will be grouped using a combination in order to find the best accuracy, with known accuracy The best of the three algorithms is expected to be a reference for areas whose coral reef conditions are still not good enough to imitate areas where the coral reef conditions are good by seeing what affects the coral reefs in that area. The final result of this research on the K-Nearest Neighbor algorithm gets an accuracy of 84%, and the Support Vector Machine algorithm gets an accuracy of 86% while the Ensemble Classifier algorithm gets an accuracy of 83%. In this case the Support Vector Machine algorithm has better performance than the K-Nearest Neighbor and Ensemble Classifier.

Keyword : Ecosystems, Ensemble Classifier, K-Nearest Neighbor, Machine Learning, Support Vector Machine