

## ABSTRAK

# IMPLEMENTASI ALGORITMA CART (CLASSIFICATION AND REGRESSION TREES) UNTUK MEMPREDIKSI PENYAKIT PNEUMONIA

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Pneumonia merupakan peradangan ataupun infeksi kronis pada jaringan paru yang disebabkan oleh bermacam mikroorganisme, diantaranya parasite, virus, bakteri, serta kerusakan pada fisik paru serta pajanan bahan kimia. Metode yang digunakan untuk menghitung prediksi menggunakan algoritma CART (*Classification and Regression Trees*) dengan menggunakan Bahasa pemrograman Python. Model kemudian diimplementasikan kedalam sistem prediksi berbasis *website*. Tujuan dari penelitian ini adalah untuk mengetahui bagaimana implementasi algoritma CART (*Classification and Regression Trees*) dalam memprediksi penyakit pneumonia dan mengetahui akurasi dari algoritma CART (*Classification and Regression Trees*) dalam memprediksi penyakit pneumonia. Akurasi rata-rata dari hasil penelitian ini memunculkan nilai akurasi yaitu sebesar 94%, *r-square* 87%, *precision* 95%, *recall* 94%, *f-1 score* 94% dari total dataset sebanyak 283. Hasil penelitian ini mendapatkan *r-square* terbaik pada pengujian ke 5 dengan akurasi 85%.

**Kata Kunci:** CART (*Classification and Regression Trees*), Pneumonia.

## ABSTRACT

# IMPLEMENTATION OF CART (CLASSIFICATION AND REGRESSION TREES) ALGORITHM FOR PREDICTING PNEUMONIA

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Pneumonia is an inflammation or chronic infection of lung tissue caused by various microorganisms, including parasites, viruses, bacteria, as well as physical damage to the lungs and exposure to chemicals. The method used to calculate predictions uses the CART (Classification and Regression Trees) algorithm using the Python programming language. The model is then implemented into a website based prediction system. The purpose of this study was to determine how the implementation of the CART (Classification and Regression Trees) algorithm in predicting pneumonia disease and to determine the accuracy of the CART (Classification and Regression Trees) algorithm in predicting pneumonia. The average accuracy of the results of this study led to an accuracy value of 94%, r-square 87%, precision 95%, recall 94%, f-1 score 94% of the total dataset of 283. The results of this study get the best r-square on the 5th test with an accuracy of 85%.

**Keywords:** CART (Classification and Regression Trees), Pneumonia.