

***Classification of Primary Hypertension Using the Gaussian Naïve Bayes
Algorithm: A Case Study at the Sobo Health Center Banyuwangi***
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ABSTRACT

Hypertension is a non-communicable disease (NCD) characterized by persistently elevated blood pressure, with systolic blood pressure ≥ 140 mmHg and diastolic blood pressure ≥ 90 mmHg. The high prevalence of hypertension underscores the need to utilize technology to support rapid and accurate disease classification. This study aims to classify primary hypertension using the Gaussian Naïve Bayes algorithm and to implement the classification model into a Google Apps Script-based system. This is a quantitative study using 866 medical records of outpatients at the Sobo Banyuwangi Health Center from October to December 2024, consisting of 453 cases of primary hypertension and 413 cases of diabetes mellitus. The attributes used include gender, age, systolic blood pressure, diastolic blood pressure, body mass index, waist circumference, heart rate, and history of hypertension. Before the classification process was carried out, the data underwent a pre-processing stage that included data selection, handling missing values, removing duplicate data, and data transformation. The classification process was conducted by comparing linear sampling, shuffled sampling, and stratified sampling techniques. The results of the study show that the best model was obtained using stratified sampling with a 90:10 ratio, which yielded an accuracy of 90.00% and achieved better precision and recall values for most classes. The model was then implemented into a Google Apps Script-based system integrated with Google Spreadsheets. System testing results showed an accuracy of 90.00%, indicating that the developed system successfully implemented the classification model and can be utilized as a tool to assist in the classification of primary hypertension.

Keywords: Primary Hypertension, Gaussian Naïve Bayes, Google Apps Script