Application of *K- Nearest Neighbor* (K-NN) Algorithm for Classification of ISPA Diseases at Sukorambi Health Center Jember

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ABSTRACT

Acute Respiratory Tract Infection (ARI) is a respiratory tract infection caused by a virus or bacteria, which can attack organs ranging from the nose to the alveoli including adnexus tissues such as the pleura, middle ear cavity and sinuses. In the reporting of the top 10 outpatient diseases at the Sukorambi Health Center, it is known that ISPA disease ranks 1st with a total of 1,469 cases. This study aims to classify ISPA diseases using the K-Nearest *Neighbor* (K-NN) Algorithm at the USkorambi Jember Health Center. This type of research is quantitative which is processed using the RapidMiner tool with the K-NN Algorithm method. Sampling used *a purposive sampling* technique with a sample of 650 files with 10 variables consisting of cough, nasal congestion, sore throat, fever, shortness of breath, headache, hoarseness, runny nose, decreased appetite, and nausea/vomiting. The results showed that using K=7 the ratio of *training* data and data testing 60:40 had an accuracy value of 75.77%; *Precision* class *acute pharyngitis* 72.41%, *acute upper respiratory infection unspecified 76.09%,* pneumonia 100%; and *recall class acute pharyngitis 43.75%, acute upper respiratory infection unspecified 97.77%,* pneumonia 3.03%.

Keywords : K-NN *Algorithm*, *Confusion Matrix*, ISPA, *Classification*