

DIAGNOSIS PENYAKIT DEMAM BERDARAH DENGUE DI KABUPATEN KLUNGKUNG DENGAN MENERAPKAN ALGORITMA *K-NEAREST NEIGHBOR*

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ABSTRAK

Demam berdarah dengue merupakan penyakit menular yang menjadi permasalahan kesehatan serius di wilayah tropis Indonesia, termasuk Kabupaten Klungkung. Diagnosis dini sangat penting untuk mencegah komplikasi yang berpotensi fatal. Penelitian ini bertujuan untuk mendiagnosis penyakit demam berdarah dengue menggunakan algoritma *K-Nearest Neighbor* serta mengevaluasi performa model yang dibangun. Data yang digunakan berupa data historis pasien Rumah Sakit Umum Daerah Kabupaten Klungkung tahun 2021–2023 sebanyak 312 data. Variabel input meliputi usia, jenis kelamin, durasi demam, suhu tubuh, sakit kepala, mual dan muntah, nyeri otot dan persendian, hasil uji tourniquet, jumlah trombosit, leukosit, dan hematokrit. Tahapan *preprocessing* data dilakukan melalui pembersihan, seleksi, dan transformasi data. Pembagian data menggunakan metode *Aggregated Hold-Out* sebanyak tiga iterasi dengan rasio 80% data latih dan 20% data uji. Hasil penelitian menunjukkan bahwa nilai K terbaik adalah 15 dengan akurasi sebesar 0,9894, sensitivitas 0,9915, dan spesifisitas 0,9861. Model *K-Nearest Neighbor* kemudian diimplementasikan ke dalam aplikasi berbasis website yang menghasilkan output diagnosis berupa diagnosis pasien positif atau negatif demam berdarah dengue, sehingga dapat membantu tenaga medis dalam proses diagnosis dan pencatatan data pasien.

Kata kunci: Diagnosis, Demam Berdarah Dengue, *K-Nearest Neighbor*, Penambangan Data

DIAGNOSIS OF DENGUE HEMORRHAGIC FEVER IN KLUNGKUNG REGENCY USING THE K-NEAREST NEIGHBOR ALGORITHM

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ABSTRACT

Dengue Hemorrhagic Fever is an infectious disease that constitutes a serious public health problem in tropical regions of Indonesia, including Klungkung Regency. Early diagnosis is essential to prevent potentially fatal complications. This study aims to diagnose Dengue Hemorrhagic Fever using the K-Nearest Neighbor algorithm and to evaluate the performance of the developed model. The dataset used in this study consisted of 312 historical patient records obtained from the Regional General Hospital of Klungkung Regency for the period 2021–2023. The input variables included age, gender, duration of fever, body temperature, headache, nausea and vomiting, muscle and joint pain, tourniquet test results, platelet count, leukocyte count, and hematocrit level. Data preprocessing was conducted through data cleaning, selection, and transformation. The dataset was divided using the Aggregated Hold-Out method with three iterations, applying a ratio of 80% training data and 20% testing data. The results indicate that the optimal value of K is 15, achieving an accuracy of 0.9894, sensitivity of 0.9915, and specificity of 0.9861. The K-Nearest Neighbor model was subsequently implemented into a web-based application that provides diagnostic outputs indicating whether a patient is positive or negative for Dengue Hemorrhagic Fever, thereby assisting medical personnel in the diagnostic process and patient data management.

Keywords: Diagnosis, Dengue Hemorrhagic Fever, K-Nearest Neighbor, Data Mining