

ABSTRAK

Nareswari, Alvina Nindita 2026. Sistem Pakar Deteksi Dini Diabetes Melitus Berbasis Website Menggunakan Metode *Certainty Factor*. *Skripsi*. Program Studi Teknik Informatika, Fakultas Teknik, Universitas PGRI Madiun. Pembimbing (I) Yessi Yunitasari, S.Kom., M.Cs. (II) Muh Nur Luthfi Azis, S.Kom., M.Kom.

Penelitian ini berfokus pada perancangan dan pembangunan Sistem Pakar Deteksi Dini Diabetes Melitus berbasis Website dengan menggunakan metode *Certainty Factor* yang digunakan untuk menentukan seberapa besar tingkat keyakinan terhadap suatu diagnosis berdasarkan gejala yang dipilih pengguna. Sistem ini dibangun menggunakan metode *Extreme Programming*, yaitu meliputi tahap perencanaan (*planning*), perancangan (*designing*), penulisan kode program (*coding*) menggunakan *framework* Laravel, dan pengujian (*testing*) menggunakan metode *Black Box Testing* dan *System Usability Scale* (SUS). Fitur utama sistem mencakup proses diagnosis penyakit Diabetes Melitus, hasil diagnosis dengan tingkat keyakinan, pengelolaan basis pengetahuan, dan riwayat diagnosis. Hasil pengujian menggunakan metode *Black Box Testing* menunjukkan seluruh fungsi sistem berjalan dengan baik, mampu menampilkan hasil diagnosis Diabetes Melitus beserta tingkat keyakinannya, serta memberikan rekomendasi sesuai kondisi pengguna, adapun pengujian menggunakan metode *System Usability Scale* (SUS) mendapatkan hasil rata-rata 83,5 dari 30 responden. Sehingga dapat disimpulkan bahwa tingkatan nilai dari pengujian sistem masuk kedalam kategori *Excellent* dengan *Grade B*. Sistem ini dinilai layak digunakan sebagai alat bantu deteksi dini Diabetes Melitus karena mampu memberikan informasi yang akurat, mudah diakses, dan meningkatkan kesadaran masyarakat terhadap pentingnya deteksi dini.

Kata Kunci: Sistem Pakar, Diabetes Melitus, Deteksi Dini, *Certainty Factor*, Laravel, Website.

ABSTRACT

Nareswari, Alvina Nindita. 2026. Website-Based Expert System for Early Detection of Diabetes Mellitus Using the Certainty Factor Method. Thesis. Informatics Engineering Study Program, Faculty of Engineering, Universitas PGRI Madiun. Supervisor: (I) Yessi Yunitasari, S.Kom., M.Cs. (II) Muh Nur Luthfi Azis, S.Kom., M.Kom.

This study focuses on the design and development of a Website-Based Expert System for Early Detection of Diabetes Mellitus using the Certainty Factor method, which is utilized to determine the level of confidence in a diagnosis based on user-selected symptoms. The system was developed using the Extreme Programming methodology, comprising the stages of planning, designing, coding using the Laravel framework, and testing using Black Box Testing and the System Usability Scale (SUS). The main features of the system include the Diabetes Mellitus diagnosis process, diagnostic results with confidence levels, knowledge base management, and diagnosis history. The evaluation results using Black Box Testing indicate that all system functions operate properly, successfully displaying the Diabetes Mellitus diagnostic results along with their certainty levels, and providing recommendations according to the user's condition. Meanwhile, the usability evaluation using the System Usability Scale (SUS) yielded an average score of 83.5 from 30 respondents. Thus, it can be concluded that the system's test score falls into the Excellent category with a Grade B. This system is deemed feasible for use as a supporting tool for the early detection of Diabetes Mellitus, as it delivers accurate information, is easily accessible, and increases public awareness regarding the importance of early detection.

Keywords: Expert System, Diabetes Mellitus, Early Detection, Certainty Factor, Laravel, Website.