Evaluasi Fungsi, Kinerja dan Usability Dengan Nielsen Metrics Pada Aplikasi Tugas Akhir (TGA) Universitas Malikussaleh

ABSTRAK

Aplikasi Tugas Akhir (TGA) Universitas Malikussaleh merupakan sistem berbasis web yang dikembangkan untuk mendukung proses administrasi tugas akhir secara terintegrasi, mulai dari pengajuan judul, bimbingan, pendaftaran seminar, hingga penilaian. Sebagai sistem yang relatif baru, diperlukan evaluasi untuk mengetahui kualitas aplikasi dari aspek fungsionalitas, kinerja, efisiensi penggunaan bandwidth, dan *usability*. Penelitian ini bertujuan mengevaluasi kualitas Aplikasi TGA menggunakan pendekatan kuantitatif. Pengumpulan data dilakukan melalui pengujian fungsional menggunakan Katalon Studio, pengujian kinerja menggunakan Google Lighthouse, pengujian bandwidth menggunakan *Network Throttling* pada Chrome DevTools, serta *usability testing* menggunakan *Nielsen Metrics* dan *System Usability Scale* (SUS) dengan melibatkan 20 mahasiswa dan 10 dosen sebagai responden. Hasil penelitian menunjukkan bahwa dari 13 skenario pengujian fungsional, 9 fitur berstatus *Passed* dan 4 fitur berstatus *Failed*. Evaluasi kinerja memperoleh rata-rata skor *Performance* 70,40, *Accessibility* 80,34, *Best Practices* 92,50, dan *SEO* 100. Pengujian bandwidth menghasilkan *Transfer Size* sebesar 1,5–2,1 MB, *Requests* sebanyak 43–55, serta *Load Time* berkisar 1,95–13,80 detik pada berbagai kondisi jaringan. Evaluasi *usability* menunjukkan bahwa mahasiswa memperoleh nilai *Learnability* 93%, *Efficiency* 96,54%, *Memorability* 93,5%, *Error* 34%, *Satisfaction* 71,25%, dengan *Usability Score* sebesar 77,66%, sedangkan dosen memperoleh nilai *Learnability* 91,67%, *Efficiency* 78,79%, *Memorability* 90%, *Error* 33,33%, *Satisfaction* 79,5%, dengan *Usability Score* sebesar 74,66%. Berdasarkan hasil tersebut, Aplikasi TGA dinilai layak digunakan, namun masih memerlukan penyempurnaan pada aspek fungsionalitas, performa, efisiensi bandwidth, dan antarmuka pengguna.

Kata Kunci: Aplikasi Tugas Akhir, Katalon Studio, Google Lighthouse, Network Throttling, Nielsen Metrics.

Evaluation Of Functionality, Performance, And Usability Using Nielsen Metrics On The Final Project Application (TGA) At Malikussaleh University

ABSTRACT

The Final Project Application (TGA) of Malikussaleh University is a web-based information system developed to support the administration of final projects, including title submission, supervision, seminar registration, and assessment. As a newly implemented system, its quality must be evaluated in terms of functionality, performance, bandwidth efficiency, and usability. This study aims to evaluate the quality of the TGA application using a quantitative approach. Data were collected through functional testing using Katalon Studio, performance evaluation using Google Lighthouse, bandwidth testing using Network Throttling in Chrome DevTools, and usability testing using Nielsen Metrics and the System Usability Scale (SUS), involving 20 students and 10 lecturers. The results showed that, of the 13 functional test scenarios, 9 features passed and 4 features failed. The average performance scores were 70.40 for Performance, 80.34 for Accessibility, 92.50 for Best Practices, and 100 for SEO. Bandwidth testing recorded a Transfer Size of 1.5–2.1 MB, 43–55 requests, and a Load Time of 1.95–13.80 seconds. Students achieved Learnability, Efficiency, Memorability, Errors, and Satisfaction scores of 93%, 96.54%, 93.5%, 34%, and 71.25%, respectively, with a Usability Score of 77.66%. Lecturers obtained corresponding scores of 91,67%, 78,79%, 90%, 33,33%, and 79.5%, resulting in a Usability Score of 74.66%. Overall, the TGA application is suitable for use but requires improvements in functionality, performance, bandwidth efficiency, and user interface design.

Keywords: *Final Project Application, Katalon Studio, Google Lighthouse, Network Throttling, Nielsen Metrics.*