

ABSTRAK

Application Programming Interface (API) merupakan komponen penting yang berperan dalam proses pertukaran data antara *frontend* dan *backend* pada sebuah *website*. Performa API yang kurang optimal dapat menyebabkan meningkatnya waktu *respons*, menurunnya kemampuan sistem dalam memproses permintaan, serta memengaruhi kualitas layanan yang diterima pengguna. Penelitian ini bertujuan untuk menganalisis performa API pada *website* Greenly menggunakan metode *load testing*. Pengujian dilakukan terhadap delapan *endpoint* utama, yaitu Login, Register, All User, Logout, Report Rubbish, History Report, Update Status Report, dan Articles menggunakan Apache JMeter dengan empat skenario pengujian, yaitu 10, 50, 100, dan 200 *virtual user*. Parameter yang dianalisis meliputi *response time*, *throughput*, dan *error request*. Hasil penelitian menunjukkan bahwa nilai *response time* cenderung meningkat seiring bertambahnya jumlah *virtual user*, sedangkan *throughput* tetap mampu dipertahankan sesuai dengan karakteristik masing-masing *endpoint*. Selain itu, seluruh pengujian menghasilkan *error request* sebesar 0,00%, yang menunjukkan bahwa seluruh permintaan berhasil diproses tanpa kegagalan. Berdasarkan hasil tersebut, dapat disimpulkan bahwa API *website* Greenly memiliki performa yang baik dan andal dalam menangani beban akses hingga 200 *virtual user* pada skenario pengujian yang diterapkan, sehingga tujuan penelitian untuk menganalisis performa API berdasarkan parameter *response time*, *throughput*, dan *error request* telah berhasil dicapai.

Kata kunci: API, *load testing*, Apache JMeter, performa API, *response time*.

ABSTRACT

The Application Programming Interface (API) is an essential component that enables data exchange between the frontend and backend of a website. Poor API performance may lead to increased response time, reduced request-processing capability, and decreased service quality. This study aims to analyze the performance of the Greenly website API using the load testing method. The testing was conducted on eight main API endpoints, namely Login, Register, All User, Logout, Report Rubbish, History Report, Update Status Report, and Articles, using Apache JMeter under four testing scenarios with 10, 50, 100, and 200 virtual users. The performance evaluation was based on three parameters: response time, throughput, and error request. The results indicate that the response time generally increased as the number of virtual users grew, while the throughput remained stable according to the characteristics of each endpoint. In addition, all testing scenarios produced an error request rate of 0.00%, indicating that every request was successfully processed without failure. Therefore, it can be concluded that the Greenly website API demonstrates good and reliable performance in handling workloads of up to 200 virtual users under the applied testing scenarios, and the research objective of analyzing API performance based on response time, throughput, and error request has been successfully achieved.

Keywords: API, load testing, Apache JMeter, API performance, response time