

ABSTRAK

PERBANDINGAN ALGORITMA LINEAR CONGRUENTIAL GENERATOR, NAIVE SHUFFLE, DAN FISHER YATES SHUFFLE PADA GAME EDUKASI ASMA'UL HUSNA BERBASIS ANDROID

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Game Edukasi Asmaul Husna adalah *game* berbentuk kuis yang menampilkan soal – soal Asmaul Husna secara acak. Algoritma yang biasa digunakan untuk melakukan fungsi pengacakan soal diantaranya yaitu, algoritma *Linear Congruential Generator*, *Naive Shuffle*, dan *Fisher Yates Shuffle*. Namun belum banyak diketahui diantara ketiga algoritma tersebut mana yang memiliki kinerja dan waktu akses yang lebih baik. *Game* ini dibangun sebagai media untuk membandingkan kinerja dari ketiga algoritma tersebut dan mengetahui waktu akses algoritma mana yang lebih baik dan efisien dalam mengacak soal. Pengujian dengan metode *blackbox* dilakukan untuk melihat kelayakan *Game* Edukasi Asmaul Husna. Pengujian pada masing – masing algoritma dilakukan dengan mengulang pengacakan sebanyak 20 kali dan membandingkan waktu akses yang diperlukan setiap algoritma. Mengacu pada hasil pengujian masing – masing algoritma dapat disimpulkan bahwa Algoritma *Linear Congruential Generator* memiliki rata – rata waktu akses lebih cepat dibandingkan algoritma *Naive Shuffle* dan *Fisher Yates Shuffle*, dengan selisih waktu akses rata – rata yaitu 00,008638 detik dan 00,009471 detik.

Kata Kunci : Algoritma *Linear Congruential Generator*, Algoritma *Naive Shuffle*, Algoritma *Fisher Yates Shuffle*, *Game*, Asmaul Husna

ABSTRACT

COMPARISON OF LINEAR CONGRUENTIAL GENERATOR, NAIVE SHUFFLE, AND FISHER YATES SHUFFLE ALGORITHM IN THE ANDROID-BASED ASMA'UL HUSNA EDUCATIONAL GAME

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The Asmaul Husna Educational Game is a game in the form of a quiz that displays random Asmaul Husna questions. Algorithms commonly used to perform the randomization function include the Linear Congruential Generator, Naive Shuffle, and Fisher Yates Shuffle algorithms. However, it is not yet widely known which of the three algorithms has better performance and access time. This game was built as a medium to compare the performance of the three algorithms and find out which algorithm's access time is better and more efficient in randomizing questions. Testing using the black box method was carried out to see the feasibility of the Asmaul Husna Educational Game. Testing for each algorithm was carried out by repeating the randomization 20 times and comparing the access time required for each algorithm. Referring to the test results of each algorithm, it can be concluded that the Linear Congruential Generator algorithm has an average access time that is faster than the Naive Shuffle and Fisher Yates Shuffle algorithms, with the difference in average access time being 00.008638 seconds and 00.009471 seconds.

Keywords: Linear Congruential Generator Algorithm, Naive Shuffle Algorithm, Fisher Yates Shuffle Algorithm, Game, Asmaul Husna