ABSTRACT

The rapid development of communications technology in the era of globalization has encouraged the development of technology and the need for telecommunications in other fields. One of those needs is in data storage. Therefore, it has developed algorithms to compress the data (data compression). Compression is the process of converting an input data stream (stream source, or the original raw data) into other data stream (bit stream results, or stream that has been compressed) smaller. There are two types of compression, which is lossless or lossy compression. In lossless compression, the original text can be reconstituted from the compressed data. Shannon-Fano algorithm 2 Gram and Lempel Ziv Welch algorithm can be used in lossless compression. Hadith is a word (the word), acts, statutes and approval of the Prophet Muhammad were used as the basis of Islamic law. There are six collections of hadith, one of which is the hadith of Sahih Muslim, consisting of 56 books. This paper implements compression of text data from Sahih Muslim hadith translation using Shannon-Fano algorithm 2 Gram and Lempel Ziv Welch algorithm. Several books of varying sizes have been as test data for compression. Based on test results and analysis concluded that on average , Lempel Ziv Welch algorithm produces better file ratio of about $\pm$ 45.72 % compared with the Shannon $-$ Fano 2 Gram algorithm which produces only $\pm$ 58.50 % .

Keywords*: Data compression, Shannon-Fano 2 Gram algorithm, Lempel Ziv Welch Algorithm, Shahih Muslim Hadith, lossless*