A Novel Approach Towards Tamper Detection of Digital Holy Quran Generation

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Abstract Quran phrases are found in many Arabic websites. Lamentably, many mistakes and typos appear on most of the websites embedded with Quran texts. Therefore, it becomes very difficult to recognize the legal document of the religious book, whether the online document is tampered or not. Hence, verifying the Quran expression has become a crucial issue for most of the online users who read the digital copy. We propose a novel approach for the tamper detection of a digital document of the Holy Quran. We have implemented a desktop application, having modified UI that utilizes Jaro-Winkler distance and Difflib function as String Edit distance algorithm to highlight the words in the Holy Quran for the verification purpose. A reliable and trustworthy Quran database was taken for testing. The results obtained from the application show higher performance. The system achieved the detection accuracy of 95.9% and 95% by Jaro-Winkler and Difflib, respectively along with the precision of 93.29% and 96% in the case of diacritics. Additionally, F-score is 93.22% and 96.41% obtained by Jaro-Winkler and Difflib, respectively in the case of no diacritics.

Keywords Quran expression · Quran verification · Quran words · String matching edit distance algorithm · Jaro-Winkler distance

1 Introduction

With the revolution of modern technology in very recent years, the number of internet users as well as the digital contents on the internet, has increased dramatically. This causes copyright violations which raise the problem of the genuineness of digital text, integrity and data vulnerability [1]. A very recent statistics from Pew Research Center [2], there are about 1.8 billion Muslims in the world which is approximately

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