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Tibyan Automated Arabic Correction Using Machine-Learning in Detecting Syntactical Mistakes

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Abstract : The Arabic language is one of the most important languages. Learning it is so important for many people around the world because of its religious and economic importance and the real challenge lies in practicing it without grammatical or syntactical mistakes. This research focused on detecting and correcting the syntactic mistakes of Arabic syntax according to their position in the sentence and focused on two of the main syntactical rules in Arabic: Dual and Plural. It analyzes each sentence in the text, using Stanford CoreNLP morphological analyzer and machine-learning approach in order to detect the syntactical mistakes and then correct it. A prototype of the proposed system was implemented and evaluated. It uses support vector machine (SVM) algorithm to detect Arabic grammatical errors and correct them using the rule-based approach. The prototype system has a far accuracy 81%. In general, it shows a set of useful grammatical suggestions that the user may forget about while writing due to lack of familiarity with grammar or as a result of the speed of writing such as alerting the user when using a plural term to indicate one person.
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