Automate software requirements validation using machine learning algorithms

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Abstract

Validation of software requirements is a crucial step in the requirements engineering process, as it verifies that requirements match the target system and the acquirer's intended needs. Its goal is to find and repair mistakes in the provided criteria. Despite the fact that there are several ways to requirements validation, certain software may fail due to inadequate or poor requirements validation methodologies and inaccurate requirements quality characteristics. A machine learning tool based on entering requirements and judging their validity in terms of consistency,completeness,correctness and ambiguity has been presented.

The goal of this study is to automate the process of requirements validation using machine learning algorithms, as well as to quantify and explain the impact and weight of machine learning methods on the area of software requirements and the job of requirements validation. This study employs a feature extraction technique (BoW vs. TF-IDF) that is effective for legitimate Software Requirements in terms of completeness, accuracy,

consistency, ambiguity, and other factors. This research also employs SVM and Multinomial Nave-Bayes automate the automated requirements validation process and determine which algorithm is best for the job.