Sebastian Wittor

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Abstrakt

IT security can be a decisive reason for the use of software. In this thesis, we developed a way for an automated classification of security issues in an issue tracking system to measure the impact of it security in open source project development. Based on issue tracking messages from SourceForge, we use patternbased refinement as a way to get a selection of bug tracker messages for a manual classification of security issues. We identify inhomogeneity as a main issue for machine learning. Bug tracker messages have different language and content quality and are additionally impured with spam and error messages and code segments. Thus, we used filter methods to clean them up. Based on another machine learning, we were able to classify these code segments and error messages. We optimized the results of our machine learning to classify security issue by stacking machine learning results to get an accuracy of 99.99%. The validation identifies two main problems with our machine learning method, new type of bug tracking messages and messages with just a few sentences. An statistical study based on the recognized security issues examined the number of relative security issues in a previous development phase as main influence of the number of security issues in the subsequently development phase. The influence of the software type and success of the software phase couldn't be confirmed

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