Severity prediction of software bugs

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Abstract:

We target the problem of identifying the severity of a bug report. Our main aim is to develop an intelligent system that is capable of predicting the severity of a newly submitted bug report through a bug tracking system. For this purpose, we build a dataset consisting of 59 features characterizing 163 instances that belong to two classes: severe and non-severe. We combine the proposed feature set with strong classification algorithms to assist in predicting the severity of bugs. Moreover, the proposed algorithms are integrated within a boosting algorithm for an enhanced performance. Our results show that the proposed technique has proved successful with a classification performance accuracy of more than 76% with the AdaBoost algorithm and cross validation test. Moreover, boosting has been effective in enhancing the performance of its base classifiers with improvements of up to 4.9%.

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