Bugfixing using valid examples

Software Verification course team project
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Abstract

We have been tasked with creating a program which will compare two given code snippets - one of which will be used as a specification whereas the other one will semantically differ from the specification - and synthesize a new code snippet which will use the "invalid" snippet as a base, but edited to fit the specification. Since it has already been proven that semantical code comparison problem is indecisive (Halting problem), there is no way to successfully give an answer for all code snippets. However, some subsets of the code snipper space can be tested and even though in some cases we cannot say for certain if what we have found is a bug or not we can provide a false-positive warning. The algorithm we use to compare the two For the task of matching code elements we are using GumTree API and as for the AST part we decided to use the JDT Core DOM API which unfortunately limits us to only Java code snippets.

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1 Uvod

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References

[1] Jean-Rémy Falleri, Floréal Morandat, Xavier Blanc, Matias Martinez, and Martin Monperrus. Fine-grained and accurate source code differencing. In *ACM/IEEE International Conference on Automated Software Engineering, ASE '14, Vasteras, Sweden - September 15 - 19, 2014*, pages 313–324, 2014.