Title: UTBot Java at the SBST2022 Tool Competition

Doi: <https://doi.org/10.1145/3526072.3527529>

Team-members: Jaclina-Iana Bulat, Ovidiu Calota, Leonardo Ciurcau

931

1. Approach and motivation
   1. The approach consists of a tool developed by Huawei trying to cover as many branches as possible using program bytecode. It analyzes the paths in the control flow graph of a given method, construct constraints for them and tries to find satisfying input values using SMT-solver to cover branches.
   2. The motivation is to automatize white-box test generation for C/C++ and Java programs.
2. Aim of the tool and novelty
   1. One of the goals is to prevent situations when some method does not have any generated test cases for it.
   2. The automatization and the wrapper are novelties, but also the UTBot-mocks has improvements over the UTBot-concrete one which makes it an innovative solution for the industry.
3. How the tool was validated
   1. They tested in a competition UTBot-concrete and UTBot-mocks and UTBot got 3rd place, where the latter got 6th. The reason for the latter is that it had many classes that were marked as uncompilable because of no MMockito-inline framework in the classpath and they discovered the issue too late, and also had dependencies issues with the first one. They hit many issues such as time, bugs in concrete execution, JVM crashed and compilation errors that will help improve the project further. Here are the results of their tests:

A table with numbers and text

Description automatically generated