Assignment for VDS Class Project

Tobias Ludwig

1 Assignment 2

Part A: Implementation of the performance improvements The goal is to improve your implementation regarding runtime and memory efficiency.

- Read the provided paper(*BDD_Paper.pdf*) on "Efficient Implementation of a BDD Package"
- Download the source code for the benchmarking tool(*bench.zip*) and unpack it in src/bench and repeat the same for verify.zip. There is a howto_benchmarking within the folder.
- Adjust your CMakeLists.txt in order to compile the benchmark tool and the verify tool
- Verify your implementation with the provided result for c3540
- Unpack the benchmarks(*benchmarks.zip*) in VDSProject/benchmarks. Make sure the benchmarks and benchmarking results are not added to your git repository. In order to do that, edit your .gitignore accordingly. You are free to run any of the provided benchmarks with your tool.
- Your task is to implement the computed table and hashing functions presented in the paper, also with PDD.

Part B: Reachable states The existing implementation is extended by a practical application of BDD. With BDD it is possible to symbolically represent a state-space. This representation allows to check quickly, whether a specific state is within the reachable state space or not. This part starts after the presentation of *Symbolic traversal* in the lecture.

- Read the provided howto_reachable, it explains by a simple example how BDDs are used to compute the reachable state space.
- Download the source code with the interface for the extension (*reachable.zip*)
- Find the description of the methods in the interface
- Implement the methods with the help of the provided tests
- Continue developing the missing features with TDD
- The implementation is done, when our tests hold on the design