**Authors:** Yevgeniya Chekh, Jan Kohout, David Löffler, Kryštof Sýkora, Marek Szeles, Ho Minh Thanh, Miroslav Rudišin

# Project CASA: Requirements

*Last update: May 3 2017*

## 1. Requirements

### A. Initial Requirements

These requirements were formulated at project start, after about three days of analyzing the general assignment.

1. Write new program in Java with same functionality as CASA.
    1.1. Create covering array with test cases created by pairwise testing method.
    1.2. Using constraints that affects calculation of covering array.
    1.3. Set the seed value for the random number generator.
    1.4. Set the initial number of iterations allowed at each array size.
    1.5. Set the number of retries allowed at the same array size.
    1.6. Set the weight of the upper bound in the binary search partition.
    1.7. Set the initial temperature.
    1.8. Set the temperature multiplier applied each iteration.
    1.9. Let the covering array be no smaller than the given size.
    1.10. Let the covering array be no larger than the given size.
    1.11. Lock the covering array at the given size.
2. Keep the CASA runtime speed in comparison to original in C++.

### B. Revised Requirements

1. Write new program in Java with same functionality as CASA.
    1.1. Create covering array with test cases created by pairwise testing method.
    1.2. Using constraints that affects calculation of covering array.

### C. Operational project requirements

1. Find SAT and minisat module in Java.
2. Find a way to use code in C language from Java.
3. Compare Choco solver with SAT solver in Java.

**Authors:** Yevgeniya Chekh, Jan Kohout, David Löffler, Kryštof Sýkora, Marek Szeles, Ho Minh Thanh, Miroslav Rudišin

# 2. Use cases

## Generate test cases

The general use case of the program is to generate covering array of test cases. There are few parameters.

- (Required) Model file with
    - strength of testing
    - number of options
    - number of values in each option
- (Optional) Constraint file with
    - Number of disjunctive clauses
    - Number of terms in each disjunctive clause
    - Terms itself from each clause
- (Optional) Name of the Output file