Our project revolves around the Tents puzzle. In this puzzle, one is given an $n \times n$ grid with initial markings (referred to as 'trees') and is tasked with placing a different type of markings (referred to as 'tents'), under several rules.

We tackle the problem with two main approaches:

1. SAT – We define a CNF expression for an instance of the problem, whose solution describes a legal solution to the instance, and solve it using the SAT4J solver.

2. ILP – We construct a system of linear integer inequalities describing the constraints of an instance, whose solution yields a legal solution for the instance, and solve it using Java ILP solver.

Additionally, we built a generator which constructs solvable maps in polynomial time, by generating a solved legal instance, with as many trees as possible, and returning an unsolved instance for which this solution is appropriate. This, in turn, enabled us to perform statistical analysis of tree coverage in generated maps.