

# Foundations of Constraint Programming

## Tutorial 1 (on October 19th)

Lukas Schweizer

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### **Exercise 1.1:**

Consider the task of assigning to each node of a finite graph a color in such a way that no two adjacent nodes have the same color. Such an assignment is called a *coloring* of the graph. A coloring of the graph involving the minimal number of colors is called the *chromatic number* of the graph.

Formulate the problem of finding the chromatic number of a graph as a constrained optimization problem.

### **Exercise 1.2:**

Formulate the following problem as a constrained optimization problem: Place a minimum number of queens on the chess board so that each unoccupied field comes under attack.