Constraint Processing

- Constraint Satisfaction: algorithms *Research+CSCE421/821*
- Constraint Languages: $\begin{cases} \text{functional} \\ \text{logic} \\ \text{object-oriented} \end{cases}$ *Visitor*

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Constraint Logic Programming (CLP)

A merger of

$\surd$ Constraint solving

$\longrightarrow$ Logic Programming, mostly Horn clauses (*e.g.*, Prolog)

Building blocks

- Constraint: primitives *but also user-defined*
  - cumulative/capacity (linear ineq), MUTEX, cycle, *etc.*
  - domain: Booleans, natural/rational/real numbers, finite
- Rules (declarative): a statement is a conjunction of constraints and is tested for satisfiability before execution proceeds further
- Mechanisms: satisfiability, entailment, delaying constraints