AIN503: Constraint Programming
Practical Session 2

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3 December 2008
Goal of This Session

Practical programming in the following areas

- Higher-order programming
- Parameterised constraint problems
- Using and defining distribution strategies
- Discussion of the Assignment
Discussion of Homework: Generalised Grocery CSP

In groups, present your solutions to each other and discuss them.
Generalised Grocery CSP: Solution

Grocery example with Total as a variable

```grocery
proc {Grocery Solution}
    Total A B C D
    MaxTotal = 1000
    AllVars = Total#A#B#C#D

    Solution = unit(total:Total vars:A#B#C#D)
    AllVars ::: 0#MaxTotal
    Total >: 0
    A+B+C+D =: Total
    A*B*C*D =: Total*100*100*100
    A =<: B
    B =<: C
    C =<: D

    %% search strategy
    {FD.distribute generic(value:splitMax) AllVars}
```

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Computer-Aided Composition (1)
Task (in pairs)

Read tutorial section on higher-order programming and try out the examples.

Task (in pairs)

Using the higher-order function Map, apply the previously defined fun Twice to every member in a list of integers. Browse the collected resulting list.
Higher-Order Programming I

Task (in pairs)
Read tutorial section on higher-order programming and try out the examples.

Task (in pairs)
Using the higher-order function Map, apply the previously defined fun Twice to every member in a list of integers. Browse the collected resulting list.
Task (in pairs)

Define the higher-order function Map.

Extra task (in pairs)

Define the higher-order function ForAll.
Higher-Order Programming II

Task (in pairs)
Define the higher-order function Map.

Extra task (in pairs)
Define the higher-order function ForAll.
Extra Task

Read Oz tutorial on concurrency http://www.mozart-oz.org/documentation/tutorial/node8.html
Summary

- Higher-order programming
- Parameterised constraint problems
- Using and defining distribution strategies
Assignment

See file 0-Assignment.html