

Computer Science Workshop (AINT101): Computer-Aided Composition (1) Practical Session

Dr Torsten Anders
Prof E R Miranda

Interdisciplinary Centre for Computer Music Research (ICCMR)
University of Plymouth

<http://cmr.soc.plymouth.ac.uk/>

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Goal of This Session: Practical Programming

- Introduction of the development platform, the Oz Programming Interface (OPI)
- Discussion and use of Mini-Oz
- First steps in constraint programming

Emacs

Meet software which is developing since 30 years: Emacs.

More information:

- <http://en.wikipedia.org/wiki/Emacs>
- <http://www.emacswiki.org/>

In Groups: Discuss Fundamental Concepts of Mini-Oz

Recapitulate the following sections from text `MiniOz.html`

- Calculations with Integers
- Variables
- Procedures

Try out the examples and discuss them with each other.
Make sure everyone in group understands these concepts.

Programming Task

Define procedure `Twice`

`{Twice X Y}` defines $Y = 2 \times X$

Define procedure `Factorial`

`{Factorial X Y}` defines $Y = X!$

e.g., `{Factorial 5 Y}` defines $Y = 1 \times 2 \times 3 \times 4 \times 5 = 120$

$$factorial(N) =: \begin{cases} 1 & \text{if } N = 0 \\ N \times factorial(N - 1) & \text{otherwise} \end{cases}$$

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Analyse Grocery Example Code

Grocery example in file `First_CSP_examples.oz`

- Run code and create solutions
- Discuss how this example works
- Create mathematical model of example: extract gist how it works in mathematical notation

Modify Grocery Example

Question

How can we find out for which other Total value this example works?

(in the example Total is fixed to GBP 7.11)

Homework for 3th December

- Finish reading MiniOz.html
- Programming task: in your groups, change the code of the Grocery example such that the program searches for possible Total values

Summary

In this session we

- Met the Emacs editor and the Oz Programming Interface (OPI)
- Discussed Fundamental Mini-Oz Concepts
 - Variables
 - Procedures
- Gained practical experience in constraint programming