Outline

1. On lecture homework
2. Assignment topics
3. Assignment timing and format
4. Plagiarism notice
5. Summary
Outline

1. On lecture homework
2. Assignment topics
3. Assignment timing and format
4. Plagiarism notice
5. Summary
Quadtree example?

Video by Handkor
http://handkor.googlepages.com/
Early test sequence for “Hippocrates’s Dilemma”
Octree example

Video by Handkor
http://handkor.googlepages.com/
Collision test — 256 marbles & gravity
The aims of the homework exercises set in lectures include:

- To review lecture material
- To give some context for understanding the lectures
- To provide other sources and views on the lecture topic
- To help with learning by exploring the subject

Crucially, these effects arise from doing the exercises. They are not assessed, nor would this necessarily be useful: they are intended to be self-validating (i.e. you can tell when you have succeeded)

Although your coursework reports will be assessed, most of this also applies there: the purpose is for you to find out and learn new things.
Memory annotations in Deputy

The *Deputy* project at Berkeley is developing a C compiler that can prevent a number of common programming errors.

In particular, Deputy provides type annotations with which programmers can describe the intended behaviour of pointers. The compiler will then apply suitable static and run-time checks to make sure these intentions are satisfied.
Regular expression types and patterns in CDuce

The CDuce programming language is designed for processing XML. It is an ML-style functional language, with special features for reading, transforming, and creating XML trees.

Notably, it uses regular expressions in both types and patterns to describe code that queries and manipulates XML trees, allowing the compiler to statically check that programs only ever generate valid XML.
Software Transactional Memory in Haskell

The STM library for the Glasgow Haskell Compiler (GHC) provides high-level language support for coordinating concurrent computation, where multiple threads act simultaneously on shared datastructures.

Remarkably, STM does this without using locks. Instead, it uses efficient and optimistic software transactions, giving freedom from deadlock and promoting non-interfering concurrency. These transactions are modular and composable: small transactions can be glued together to make larger ones. Moreover, implementing this within the Haskell type system gives static guarantees that transactions are used correctly.
Futures and promises in Alice ML

The Alice ML language is based on Standard ML, with several extensions to support distributed concurrent programming.

In particular it provides futures and promises for lightweight concurrency: a future represents the result of a computation that may not yet be available, and a promise is a handle to build your own future.
Information flow in Jif

The Jif compiler extends the Java language with annotations for static analysis of security properties relating to the flow of information.

These annotations describe restrictions on how information is to be used: which principals control which information, and what they trust other principals to do with it. This gives increased assurance that trusted and untrusted information is used only according to explicit security policies.
Outline

1. On lecture homework
2. Assignment topics
3. Assignment timing and format
4. Plagiarism notice
5. Summary
Dates and submission

Week 3 Monday 21 January: Topic announcement

Week 4 Friday 1 February: Choose topic
Submit a file choice.txt containing the following:
  - Which topic you have chosen
  - Three suitable references

One reference must be to a published paper; the other two may be too, but could also be white papers, web tutorials, manuals, or similar. In all cases provide enough information for someone else to obtain the document.

Week 9 Friday 7 March: Report due
Submit a file apl.pdf containing your report in PDF. The recommended method for creating this is pdflatex with the article document class.

In addition, OpenOffice is freely available for Windows and Linux, installed on Informatics machines, and can write PDF. Mac OS X natively creates PDF. Microsoft provide PDF output as a plugin for Word 2007.
Salt: the example must in some way concern travel or transport (e.g. bicycle shop bills, tracking trucks, ...)

For notable resources used (article, tutorial, manual), give a summary in your own words of what it contains

Other approaches to the problem

What ⟨topic⟩ does, good and bad points

Full references for all resources used

Total 8–10 A4 pages. See course web pages for further details.
1 On lecture homework
2 Assignment topics
3 Assignment timing and format
4 Plagiarism notice
5 Summary
Regulation 14
14.1 Plagiarism is the act of copying or including in one’s own work, without adequate acknowledgement, intentionally or unintentionally, the work of another.

http://www.acaffairs.ed.ac.uk/Regulations/Assessment/07-08/UG.htm#Reg14

See also:
- University guidance
  http://www.aaps.ed.ac.uk/regulations/Plagiarism/Intro.htm
- Informatics policy
  http://www.inf.ed.ac.uk/teaching/plagiarism.html
Suitable working practices

Working practices

- Start with a blank document; all the words must be yours.
- Do not cut and paste from other documents.
  - Except for direct quotations, which must have source declared.
- Do not let others read your text; nor read theirs.

Aims of this coursework

- To learn about the chosen topic
- To improve researching and learning skills
- To demonstrate said knowledge and skills

The tangible outcome is a document, composed and written by you, demonstrating what you have learnt.
Outline

1. On lecture homework
2. Assignment topics
3. Assignment timing and format
4. Plagiarism notice
5. Summary
Summary

Topic choices

- Memory annotations in Deputy
- Regular expression types and patterns in CDuce
- Software Transactional Memory in Haskell
- Futures and promises in Alice ML
- Information flow in Jif

Coursework and learning

- Lecture exercises are there to be done
- Note the essay plan
- All your own work
- The aims of the coursework are to support learning