Institut for Matematik og Datalogi   December 13, 2010

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Programmering B
6th Weekly Note (E10, Week 50)

Support for 2nd Part of Project

The primary forum for discussing questions about the project and asking for help is the discussion board of the course in Blackboard ("Discussion Board", "Project Part 2"). In this way, everyone can profit from each question and each answer.

I will answer questions each Monday and Thursday from 12–14. Outside of these times, I will answer as my time permits. In the meanwhile, you are free (and actually cordially invited) to discuss questions in between each other. In this way, you can help each other with this project. Please discuss any topic you like. Just do not post larger snippets (> 3-4 lines of code).

Reading for Week 50

"Tutorial on Hashing": `http://research.cs.vt.edu/AVresearch/hashing/`

In "Jave Software Solutions":

- Inheritance and abstract classes: Sections 8.1 – 8.5.
- Overloading: Section 6.8.
- Polymorphism: Sections 9.1 – 9.3.
- Generics: Section 12.5.

In "The Java Tutorials":

- Generics: `http://java.sun.com/docs/books/tutorial/java/generics/`

Lecture: Tuesday, December 14, 10-12 (U140)

First, we introduce the ADT Map and consider a linked list-based and a hashtable-based implementation. Then we consider hashing in more detail.

In the second half of the lecture, we introduce the concepts of inheritance and overloading.

Lecture: Thursday, December 16, 8-10 (U140)

We introduce abstract classes and explore the concept of inheritance further. Then we introduce polymorphism and Generics.

Discussion: see schedule for time and room

Perform the following tasks on hash tables:

- Draw a hash table with 11 cells and show how the 11 keys 12, 44, 13, 88, 23, 94, 11, 39, 20, 16, and 5 are inserted in the table when using the hash function $h(i) = (2i + 5)mod11$ and collisions are handled by chaining.

- Repeat the previous task using linear probing.

- What is the largest number of probes that has to be made for inserting n elements into an empty map implemented as a linked list?

- What is the largest and what is the smallest number of probes that has to be made for inserting n elements into an empty hash-table when collision are handled by chaining?