

## **Class Templates**

**1-30-2002**

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## **Opening Discussion**

- What did we talk about last class?
- Are there any questions about the first assignment?
- What are templated classes? Why would we want to use them?
- What should we use for mode in the fopen command if we want to do binary writes to a file?

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## **Minute Essay Comments**

- Binary files have nothing to do with templates.
- The name following the class keyword can be anything.
- Are templates used much outside of libraries?
- Revisit swap function and constructors.

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## Template Classes

- Just as we can template a function, we can also template a class so that the same class can be used with many types of data.
- These are denoted in code roughly the same way as well. Before the class declaration, we put `template <class name>`.

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## Generic Containers

- The most common use of template classes is to create generic containers. You will be writing a number of these over the course of the semester to serve different roles in the assignments.
- Examples of these include vector which is part of the STL. We will be doing this with linked lists and trees.

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## Binary Reads and Writes

- Once you have opened a FILE using `fopen` you can write or read to it depending on how you opened it.
- For binary reads use `fread(void *ptr, size_t size, size_t num, FILE *stream)`.
- For binary writes use `fwrite(const void *ptr, size_t size, size_t num, FILE *stream)`.
- Again the man pages can give you info.

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## Code

- Today I'm going to write code to demonstrate a template class and if time permits, some code that does a little binary file I/O.

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## Minute Essay

- Write the class declaration for a template class of an array based list. This is just the stuff that would go in a header file. Make sure to include a method or two that you would want for such a class.
- Remember that the design for assignment #1 is due next class. It should go beyond specifying what you have to do for just this assignment and help set a foundation for the whole project.

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