CSC 402/502 Homework 3 (DUE DATE: 03-25-2013)

1. **(50 points)** Implement a template class *Queue* using a linked list (singly, doubly, or circular, at your choice) that supports:

- *Size* – returns the number of elements from the queue
- *IsEmpty* – test if queue is empty or not
- *Clear* – delete all elements from the queue
- *Enqueue* – add one element in the queue
- *Dequeue* – return and remove the least recently inserted element from the queue
- *Print* - prints the content of the queue
- The *Big Three*
- Any other method you consider useful for your defined class

a) Test all your methods in the main function for a queue of *int*s.

b) Implement a new type called *Date* (that contains day, month and year as attributes), and test all Queue methods in the main function using a queue of objects of type Date. The user should be able to select which operation to execute at the time via a text-menu interface. Use comments inside of the source code to make your program easier to understand.

The user must select in the main function if he/she wants to use a queue of *int*s or *date*s.

Put all your source files (.cpp and .h) in a folder labeled **HW3_yourNKUid**, and then archive this folder in a zip file (the name should be: **HW3_yourNKUid.zip**). If any additional comments are required (such as compilation options, how to test the program, etc.) write them in a file **readme.txt** and include it in the archive as well.

Blackboard is recommended for homework submission; I will also accept e-mail submissions (trutat1@nku.edu).