HOMEWORK #3:

The ArrayList Upgrade

Due Date: Wednesday, February the 24th, 11:59:59 pm

For this assignment, you need to submit a file called '`arraylist.hpp`'.
Remember to put your **name** and **section** at the top of your program file.

Problem:

Emperor Lrrr, of the planet Omicron Persei 8, is impressed that a mere human was able to fulfill the stringent requirements of the Omicronian IT services, and has decided to commission to you a more sophisticated software product: the **ASM** (ArrayList Software Module). This very important module consists of two files:

1. '`arraylist.h`' : a specification of a templated ArrayList class.
2. '`arraylist.hpp`' : the implementation of the ArrayList class.

The Omicronian IT services has provided you with the '`arraylist.h`' file and wants you to create the corresponding '`arraylist.hpp`' file.

Waiting for an excuse to invade Earth, for the 4th time.

Your Job:

Use your incredible coding skills and improve the reputation of "*Planet Express Softworks*" by creating the '`arraylist.hpp`' file from your knowledge of Data Structures and the

documentation contained inside the ‘`arraylist.h`’ file.

Testing:

The Omicronian IT services has provided you with sample programs that make use of the ArrayList class and their corresponding outputs. You can use them to check if your implementation is working correctly. As long as your ArrayList class behaves just like the sample programs, the Omicronian IT services will be satisfied.

- For example, the program ‘`smalltester.cpp`’ uses the ArrayList class and is supposed to produce the output ‘`smalloutput.txt`’.

Useful Hints

1. Carefully read the comments of each member function.
2. Write down an algorithm for the function before you start coding it.
3. Develop your member functions one at a time, starting from the simplest ones.
   Move to the next function only after the previous one has been tested.
   Trying to code the whole class and then remove the bugs may prove to be too big a task.
4. Use the provided friend function ‘`operator<<`’ to observe the status of your lists.
5. When a function that needs to return something encounters an error, return the ‘`m_errobj`’ member.
6. The default constructor and function ‘`max()`‘ are **INLINE**d on the class definition. You do not need to implement them.

NOTE: The ArrayList is a templated class, so instead of being split in the usual `.h/.cpp` file pair, it is split into a `.h/.hpp` file pair, where the `.h` file `#include`s the `.hpp` file at the end, therefore, **DO NOT** `#include "arraylist.h"` in your `.hpp` file.