ECOR 1606 Practice Lab Midterm (Lab #6)

A person who is about to retire has *X* dollars in the bank and expects to live for *N* years. If savings earn interest at *I* %, the person's annual retirement income can be calculated using the formula below:

$$income = X\left(\frac{i(1+i)^{N-1}}{(1+i)^{N}-1}\right)$$

where $i = I / 100$

Write a program that repeatedly reads in values for *X*, *N*, and *I* until -1 -1 -1 is entered. (Note that all three values are *double*s, not *int*s.) For each set of values entered your program should either:
i) output an error message (if the input values are unreasonable: see next paragraph) or
ii) compute and output the annual retirement income.

The value of *X* must be greater than or equal to zero, *N* must be greater than or equal to 5, and *I* must be between 0% (exclusive) and 10% (inclusive).

When -1 -1 -1 is entered your program should output:
i) the average annual income
ii) the greatest annual income and the corresponding values for *X*, *N*, and *I*. In the event of a tie either set of values may be output.

Note:

- See supplied file "*1606.labfinal.cribsheet.pdf*" for a list of available C-- / C++ functions.

If you think any of the above is unclear, run the sample executable provided. We will **not** clarify or explain the question during the actual lab test. You may wish to refer to supplied file "*1606f14.labmidtermmarking.pdf*" for further details on the lab midterm test.

You may write your program using C-- or C++. If you choose C++, use supplied file "*framework.cpp*" as your starting point and call your program "*lab6.cpp*". If you choose C--, call your program "*lab6.cmm*" and when you are finished select "Create a C++ Program" from the File menu to save it as a C++ program called "*lab6.cpp*".

Submit "*lab6.cpp*" using the **lab test** version of the submit program by the end of your lab period.