Lab 4 – Interest Rates

# Lab 4a

Write a program to ask the user for the starting balance of their savings account, what interest rate they are earning, and how many years they are planning to keep the account open. To calculate the new balance, including compounded interest: use a **for loop** to loop through the ***number of years*** the user specifies (1, 2, 3, 4, … years) and each time through the loop update the account balance using the following formula:

balance = balance \* (1 + interest rate / 100.0) // this adds one year’s interest to the account  
 ~~balance = initialBalance \* (1 + interest rate / 100.0)~~  // this will only calculate one year’s interest no matter how  
 many times you repeat it.

# Lab 4b

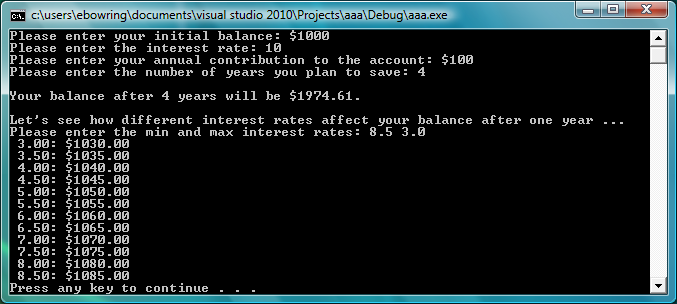
Now write the code to show the user how much money they would have after ONE year, depending on the different interest rates. Ask the user for a minimum and maximum interest rate (e.g. 3.0 and 8.5 … note you may need to swap the values if the user enters them out of order). Use a **for loop** to loop through the ***possible interest rates*** at 0.5 increments (3.0, 3.5, 4.0, 4.5, … 8.5) and each time through the loop calculate the user’s account balance after one year at the specified interest rate:

balance = initialBalance \* (1 + interest rate / 100.0) // this time you want the initial balance

# Lab 4c

If you have time, use formatted printing techniques to make the output line up nicely. To use the following code snippets, you will need to #include <iomanip> at the top of your program.

* Printing a fixed number of digits after the decimal point (useful for displaying dollar amounts):  
  cout.setf(ios::fixed);  
  cout.precision(2);  
  cout << “$” << cost << endl;
* Printing fixed width items (useful for lining items up):  
  cout << setw(3) << x << endl;

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