

Homework 04

Due Date: Monday 17 February 2014 11:59 PM MST

Note: If you submit after the due date (but before the hard deadline), your submission score will be penalized by 20%.

Hard Deadline: Wednesday 19 February 2014 11:59 PM MST

Note: If you submit any time after the hard deadline, you will not receive credit.



Problem 01 (15 points)

Create a class that includes a data member that holds a “serial number” for each object created from the class. That is, the first object created will be numbered 1, the second 2, and so on.

To do this, you will need another data member that records a count of how many objects have been created so far. (This member should apply to the class as a whole; not to individual objects. What keyword specifies this?) Then, as each object is created, its constructor can examine this count member variable to determine the appropriate serial number for the new object.

Add a member function that permits an object to report its own serial number. Then write a main() program that creates three objects and queries each one about its serial number. They should respond I am object number 2, and so on.

Problem 02 (15 points)

Create an Account class that a bank might use to represent customers’ bank accounts. Include a data member of type double to represent the account balance.

Provide a constructor that receives an initial balance and uses it to initialize the data member. The constructor should validate the initial balance to ensure that it’s greater than or equal to 0. If not, set the balance to 0 and display an error message indicating that the initial balance was invalid.

Provide three member functions. Member function credit should add an amount to the current balance. Member function debit should withdraw money from the Account and ensure that the debit amount does not exceed the Account’s balance. If it does, the balance should be left unchanged and the function should print a message indicating "Debit amount exceeded account balance." Member function getBalance should return the current balance.

Create a program that creates two Account objects and tests the member functions of class Account.