

Lab 04 - Building Classes

Instructions:

- The lab requires completing a few tasks.
- Your submissions must be submitted to the GitHub repository in the Lab04 directory.
- Cheating of any kind is prohibited and will not be tolerated.
- Violating and failing to follow any of the rules will result in an automatic zero (0) for the lab.

TO ACKNOWLEDGE THAT YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS ABOVE, AT THE BEGINNING OF YOUR SUBMISSION(S), ADD A COMMENT THAT CONSISTS OF YOUR NAME AND THE DATE.

Grading

| Task | Maximum Points | Points Earned |
|--------------|----------------|---------------|
| 1 | 2.5 | |
| 2 | 2.5 | |
| Total | 5 | |

Note: solutions will be provided for tasks colored blue only.

Your objective is to create a class named *Account* that must contain

- A private class field named *acc_num_gen* initialized to 162410010000.
- A private field named *balance*.
- A private field named *accountnumber*.
- A public default constructor that initializes *balance* and *accountnumber* to 0 and *acc_num_gen*, respectively, and increments *acc_num_gen* by 1.
- A public overloaded constructor that takes a float parameter that initializes *balance* and *accountnumber* to the parameter and *acc_num_gen*, respectively, and increments *acc_num_gen* by 1. If the parameter is less than 0, *balance* is initialized to 0.
- A public Boolean method named `deposit()` that takes a float parameter. It adds the parameter to *balance* and returns true if the parameter is not negative; otherwise, it returns false.
- A public Boolean method named `withdraw()` that takes a float parameter. It subtracts the parameter from *balance* and returns true if the parameter is not negative and *balance* minus the parameter is not negative; otherwise, it returns false.
- A public getter method for *balance* named `balance()`.
- A public getter method for *accountnumber* named `account()`.
- A public toString method that takes no parameters or friend ostream operator if applicable, that displays the string

`"x:\n$ y"`

where *x* and *y* are the values of *accountnumber* and *balance*, respectively.

Task 1

Write the above program in C++.

Task 2

Write the above program in Ruby.

Extra Credit

Modify the *Account* class to keep track of the number of accounts created. It must have a class method that returns the number of accounts.