

Lab6

Due Sep 30, 2020 by 11:59pm **Points** 40 **Submitting** a website url

Available until Oct 1, 2020 at 12:05am

This assignment was locked Oct 1, 2020 at 12:05am.

Creating Classes in C++

[Total: 40 points]

READ ALL OF THE INSTRUCTIONS CAREFULLY! DO NOT SKIM THEM - THERE ARE IMPORTANT DETAILS REGARDING NETBEANS AND IMPORTING FILES INTO YOUR PROJECT.

In this lab, we will be introducing NetBean (an IDE for C++) and it is expected that you complete the assignment using NetBean. Please watch the *entire* video below as you may notice a certain style error suggests a build failure, *but the program will still compile in the IDE and you can run the executable from the terminal!*



Exercise: Using the Miami University C++ Project in NetBeans, you will need to utilize classes and OOP to implement a bank account with basic properties and methods. The properties of a bank account are:

- owner **[3 points]**

- balance [3 points]
- address [3 points]

The methods are:

- depositMoney [3 points]
- withdrawMoney [3 points]
- getBalance [3 points]
- updateAddress [3 points]
- getAddress [3 points]

Note: The owner and initial balance should be set *only* by the constructor [4 points].

The program will need to split the appropriate declarations and definitions between header [6 points] and source [6 points] files. A test file ([testBank.cpp](#)

<https://miamioh.instructure.com/courses/129645/files/17356055/download?wrap=1>)_ ↓

https://miamioh.instructure.com/courses/129645/files/17356055/download?download_frd=1)) has been provided. To add it your project, first move it into your project's folder (the folder in the NetBeansProjects director), and then import it by right-clicking the project in the "Source Files" folder in your project and clicking "Add Existing Item". Find the [testBank.cpp](#)

<https://miamioh.instructure.com/courses/129645/files/17356055/download?wrap=1>)_ ↓

https://miamioh.instructure.com/courses/129645/files/17356055/download?download_frd=1) file to add it. *If you have a default main.cpp file, you will need to delete by right-clicking it and selecting the "Remove from Project" option. If you do not do these steps in the IDE, then you will need to manually modify the build files - so do it in the IDE.*

The output should match the following:

Test 1: 6000 Alternative Street

Test 2: 31000 Miami Place

Test 3: 995.65 Peach Grove

Command line compiling:

```
g++ -std=c++14 BankAccount.cpp testBank.cpp -o BankTest
```

Submission:

Submit all files *including* the test file.

Extra Credit: Savings Account

[5 points]

Create a subclass of bank account for savings accounts that has the additional property of interest rate that is set by the constructor and it has a method to both get and update the interest rate. A test file ([testSavings.cpp](https://miamioh.instructure.com/courses/129645/files/17356054/download?wrap=1) (<https://miamioh.instructure.com/courses/129645/files/17356054/download?wrap=1>), [↓](https://miamioh.instructure.com/courses/129645/files/17356054/download?download_frd=1) (https://miamioh.instructure.com/courses/129645/files/17356054/download?download_frd=1)) has been included - you may need to follow the same steps as above and remove the [testBank.cpp](https://miamioh.instructure.com/courses/129645/files/17356055/download?wrap=1) (<https://miamioh.instructure.com/courses/129645/files/17356055/download?wrap=1>), [↓](https://miamioh.instructure.com/courses/129645/files/17356055/download?download_frd=1) (https://miamioh.instructure.com/courses/129645/files/17356055/download?download_frd=1) file. It should match the output:

```
Test 1: 7200 Main Street 5.3
Test 2: 1000 Miami Place 7.32
Test 3: 986.65 Orange Grove 2
```

Hint1: The following is an example of creating a subclass (Dog is a subclass of Animal):

Header file:

```
class Dog : public Animal {
    // info for the Dog class
}
```

Hint2: The constructor must initialize the parent class. Example:

Source file

```
Dog::Dog(int age, string type) : Animal (age), breed(type) {
}
```

(assuming Animal has a variable for age and only Dog has a variable for breed).

Command line compiling:

```
g++ -std=c++14 SavingsAccount.cpp BankAccount.cpp testSavings.cpp -o SavingsTest
```

Submission:

Submit all files including the test file.

Lab 6 Rubric

Criteria	Ratings		Pts
Bank Account Properties: owner, balance, address	9 pts Full Marks	0 pts No Marks	9 pts
Methods: depositMoney, withdrawMoney, getBalance, updateAddress, getAddress	15 pts Full Marks	0 pts No Marks	15 pts
The owner and initial balance should be set only by the constructor	4 pts Full Marks	0 pts No Marks	4 pts
Split declarations and definitions between header and source files.	12 pts Full Marks	0 pts No Marks	12 pts
Extra Credit	5 pts Full Marks	0 pts No Marks	5 pts
Total Points: 45			