UNIVERSITY OF CALIFORNIA, MERCED

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CSE-165: Object-Oriented Programming
Lab 3

Spring 2024

Preliminary Notes

- Write separate file(s) for each exercise. Zip all your files together and submit the zip file to CatCourses.
- Your solution must be exclusively submitted via CatCourses. Email submissions will not be accepted. Pay attention to the posted deadline!

1 Counting objects (25 points)

Examine the file countingObjects.cpp. Understand what is going on in the program, and then write a class called Object (in Object.h and Object.cpp) that will work with countingObjects.cpp and produce outputs like the examples below. You are NOT allowed to modify countingObjects.cpp. Submit your **Object.h** and **Object.cpp** files.

Example Output:
Sum of a.x and b.x: 5
Generating 3 more object(s)...
Final object count: 6

Example Output:
Sum of a.x and b.x: 5
Generating 1 more object(s)...
Final object count: 4

Example Output:
Sum of a.x and b.x: 5
Generating 10 more object(s)...
Final object count: 13

2 Counting objects II (25 points)

Examine the file countingObjects2.cpp. Understand what changed in this file compared to the previous, and modify you class so that it keeps working and producing the expected outputs, as per the examples below. You are NOT allowed to modify countingObjects.cpp. Submit your updated **Object.h** and **Object.cpp** files.

Example Output:
Sum of a.x and b.x: 10
Generating 2 more object(s)...
Final object count: 5

Example Output:
Sum of a.x and b.x: 10
Generating 5 more object(s)...
Final object count: 8

Example Output:
Sum of a.x and b.x: 10
Generating 10 more object(s)...
Final object count: 13

3 Address Entry (25 points)

Create a class named Entry that stores an entry of an address book. It should have private members for first name, last name, and email address. Provide the appropriate getter and setter functions for each one of these. In addition, provide a method called print, which prints out the three fields of information in the class.

Your code should go into a file named **Entry.h** with all the member functions implemented inline. Your code will be tested using the file addressEntry.cpp.

Example Inputs:
John
Doe
jdoe@ucmerced.edu
Output:
First Name: John
Last Name: Doe
Email: jdoe@ucmerced.edu

4 Address Book (25 points)

Create a class named AddressBook that can store multiple instances of Entry objects (that you created in the previous exercise). Your code should go in a file named **AddressBook.h** and make use of your Entry class.

Member functions for AddressBook should be able to add an entry and print all the entries in the address book. Your code will be tested with the file addressBook.cpp, which reads in several entries from standard input, stores them in an AddressBook instance, and prints them all out.

Example Inputs:

```
2
Jane
Doe
jdoe@ucmerced.edu
John
Doe
jdoe2@ucmerced.edu
```

Output:

```
First Name: Jane
Last Name: Doe
Email: jdoe@ucmerced.edu
First Name: John
Last Name: Doe
Email: jdoe2@ucmerced.edu
```