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# CPT 233—C++ PROGRAMMING II

Program #1 (Summer Semester)

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PROGRAM DESCRIPTION**

Your first C++ solution will be based on Program 2-4 in the Bronson text. Start out with the zipped solution, “Bronson 2.4 Solution.zip”, which you should have found with these program directions. (You can also find it in the Student Handouts section of the Content area.) The primary goals of this project are to develop the planning document and to write a new method for the RoomType class to calculate and display the room’s total volume.

**SPECIFIC DIRECTIONS**

Although you are starting out with a working solution, you will still need to accomplish and turn in a complete Class Description for the project. (Remember that you can see an example class description in the Coding Standards.) So, you may as well get that completed first. While you are working on it, prepare to add one more method to the class.

You need to modify the class as follows. We are going to add a third dimension to the room’s data: its ceiling height. First, add one more private variable in the data declaration section. Call it ceilingHeight, and make it an int. Inside the method RoomType::RoomType, the constructor, initialize the variable ceilingHeight to 9. That is, the ceiling will be 9 feet above the floor.

Next, develop and implement a completely new method in the RoomType class. Call this method “displayVolumeOfRoom”. This method, when called, will calculate and display the total volume of the rectangular room…not too tough! You’ll of course need to include the method in the methods declaration section, and write the actual method in the methods implementation section. (No inline methods will be allowed in this class.) Then, call this method from main right after the calls to calculateRoomArea (two times). That way, each time the program displays the floor area, it will also display the total volume.

For purposes of maintaining the integrity of the solution, I won’t expect you to rename either the solution or the project before you zip it up for submission. Of course, you’ll want to personalize the header and restate the real purpose of the program itself. Later projects will be created with your name as part of the solution name.

**TURN IN**

A complete Class Description and a zipped copy of the complete solution directory. Submit everything at the Dropbox for this assignment.

## **EXTRA CREDIT (5 PTS)**

Revise the solution to place the entire class definition and implementation for RoomType in a separate header file. Call the header file “RoomType.h”. The program should work exactly as before.