Object Oriented Programming Lab

Lab 10 **Marks 10**

Instructions

Work on this lab individually. You can use your books, notes, handouts etc. but you are not allowed to borrow anything from your peer student. *You are strictly **NOT ALLOWED** to include any additional data-members/functions/constructors* in your class.

Marking Criteria

Show your work to the instructor before leaving the lab to get some or full credit.

What you must do

Program the following task in your C++ compiler and then compile and execute them. *Write the **main** function first and keep testing the functionality of each function once created.*

Carpet Calculator

The **Nayyer Carpet Company** has asked you to write an application that **calculates the price of carpeting for rectangular rooms**. To calculate the price,

- Multiply the area of the floor *(width times length)* by the price per square foot of carpet

For example, the area of floor that is,

- **12 feet long** and **10 feet wide** is **120 square feet**.

To cover that floor with carpet that costs **Rs. 80 per square foot** would cost **Rs. 9600**. (12 * 10 * 80 = 9600.)

ADT: RoomDimenstion

Create a class named **RoomDimension** with following functionalities

The class should have following **two private data members**

1. A **FeetInches** object named **length** that holds the **length of the room.**
2. A **FeetInches** object named **width** that holds the **width of the room**

***FeetInches.cpp** class is provided with this Lab.*

Provide the implementation of following **functions**

1. Provide the implementation of **mutators** for all the data members *(length and width)* of the class.
2. Provide the implementation of **accessors** for all the data members *(length and width)* of the class.
3. The constructor should accept the **RoomDimnesion's**, **length** and **width** as arguments. These values should be assigned to the object's appropriate member variables.
4. **Member function** that **returns** the **area** of the room as a **FeetInches** object.
5. **Member function** that display the **length** and **width** of the appropriate object.

ADT: RoomCarpet

Create a class named **RoomCarpet** having following functionalities

The class should have following **two private data members**

1. A **RoomDimestion** object named **roomSize** that holds the **dimension of the room.**
2. A **float** named **costPerSquareFoot** that holds the **cost of the carpet per square foot.**

Provide the implementation of following **functions**

1. Provide the implementation of **mutators** for all the data members *(roomSize and costPerSquareFoot)* of the class.
2. Provide the implementation of **accessors** for all the data members *(roomSize and costPerSquareFoot)* of the class.
3. The constructor should accept the **RoomCarpet's**, **roomSize** and **costPerSquareFoot** as arguments. These values should be assigned to the object's appropriate member variables.
4. The class should have a **member function** that **returns** the **total cost of the carpet**.
5. **Member function** that display the **roomSize** and **costPerSquareFoot** of the appropriate object.

Once you have written these classes, use them in an application that asks the user to enter the **dimensions of a room** and the **price per square foot** of the desired carpeting. The application should display the **total cost of the carpet**.

☺ ☺ ☺ **BEST OF LUCK** ☺ ☺ ☺