Take-Home lab

A local carpet company has asked you to write an application that calculates the cost of carpeting for rectangular rooms. To calculate the cost, you multiply the area of the floor (width by times length) by the price per square foot of carpet.

Create a class called **Room**. Here are the relevant attributes:

double lengthInFeet

double widthInFeet

Provide two constructors. The first constructor takes no parameters and sets both instance variables to the default value.

The second constructor uses the appropriate mutator (set) methods to initialize the fields. The constructor accepts parameters for both instance variables.

Provide an accessor (get) and a mutator (set) for each instance variable.

Each mutator validates the passed parameter and uses it only if it is positive.

Provide a method called calculateArea(). This method calculates **and returns** the room area in square feet.

Create another class called **CarpetCalculator**. Here are the relevant attributes:

double pricePerSquareFoot

Room room

Provide a constructor, the constructor uses the appropriate mutator (set) methods to initialize the fields. The constructor takes two parameters to initialize the instance variables, the parameters are of type double and Room.

Provide an accessor and mutator for each instance variable. The mutator of the price validates the passed parameter and uses it only if it is positive otherwise the field’s value remain unchanged. The mutator for the Room field validates the passed parameter. If the passed parameter was null a new Room object will be created using the no-args constructor of the Room class. If the passed parameter was not null it will be assigned to the instance variable.

Provide a method called **calculateTotalCost().** This method calculates **and returns** the total cost of the carpet for that room.

Provide a method to display the dimensions of the room, the price per square foot of the carpet and the total cost of the carpet for that room.

The take-home lab is due before midnight the night before the next class. Upload it to the appropriate D2L drop box. A suggested solution will be discussed in class and labs not already in the drop box will not receive any points.