Assignment 4

Due date – 21st October 2022 11:59pm

Festive season is right around the corner, and you want to send some gifts / cards! You want to send these gifts / cards from the local shipping agency. They will come to your house and pickup your packages for you, but you need to validate that they can ship the gift, by checking its size and weight. So, you must enter your packages weight and size to check if they are eligible. Let's write a Java program for this.

Requirements:
If the following applies, your gift is eligible for delivery –
1. The shipping weight must be less than 25lbs.
2. The dimensions of the gift must be less than – 15x18x20 inches.
   Note: The gifts are three dimensional, so the order that you enter the dimensions in **MUST** be **irrelevant** and your code must be able to handle all combinations as the cubic gifts can be arranged in any way. For example, 15x25x20 is the same as 20x15x25.

- Create a java file named LastnameFirstnameA4.java. It should include two classes. One is a public class with the same name as the file. The other one is a class named Gift.
- The "Gift" class should include:

   1. Four private double fields – length, height, width, and weight storing dimensions (in inches) and weight (in pounds) of a gift.
   2. A constructor with the 3 dimensions as the parameters.
   3. A constructor with only length and width of the gift as the parameters. (The height or thickness of this gift (think of a card) is so small that can be ignored)
   4. Four getters to get gifts dimensions and weight.
   5. A setter for gifts weight.

- The class LastnameFirstnameA4 should have:

   1. Two private fields – a field storing the Gift instance and a String storing the receiver's name.
   2. A constructor with the Gift and receiver's name as the parameters and get the gifts weight from user input. If the user input is not a number, it should print a message **"Weight should be one number. Please enter again: "**and try to get the Gifts weight from user input again **until success**.

      Hint: This is where you will ask for the weight and "set" the weight of the new instance of LastnameFirstnameA4.java.

   3. A private method validateGift() – validates the gift with respect to the shipping companies rules and returns the value. It checks for following 4 conditions:

      a. Package is too large and too heavy
      b. Package is too large
      c. Package is too heavy
      d. Package is acceptable

4. A public method deliver() – displays if the gift is acceptable or not and also displays necessary details of the Gift as sample cases show below.

You can pass arguments in the above functions wherever necessary.

In the main method of LastnameFirstnameA4.java, you should create **HARD CODED 6 new** instances of LastnameFirstnameA4.java.

Hint: Create them using the LastnameFirstnameA4.java <mark>constructor</mark> highlighted above in step 2.

	Name of the receiver	Gift Dimensions
1	Prof.Ghiassi	10x10x10
2	Elyse	15x20x15
3	Pratik	15x18x21
4	Leavey	15x25x9
5	Lucas	10x10
6	Benson	30x20

Note: Do not change the names, or the order of dimensions.

Hint: After creating each instance, use the deliver() method to display if the Gift is acceptable or not.
For example – you created an instance Gift1 of LastnameFirstnameA4.java with Name "Prof.Ghiassi" and dimensions 10x10x10, then you can say –

Gift1.deliver();

This is what your output should look like. (Next page)

```
Enter the weight of your gift to Prof.Ghiassi: 24
Congratulations! The gift to Prof.Ghiassi is eligible for delivery.

Enter the weight of your gift to Elyse: abc
Weight should be one number. Please enter again: Thirty
Weight should be one number. Please enter again: 30
The gift to Elyse is too heavy for delivery.
Try sending a lighter gift.

Enter the weight of your gift to Pratik: 42.5
The gift to Pratik is too large and too heavy for delivery.
Try sending a smaller and lighter gift.

Enter the weight of your gift to Leavey: 12
The gift to Leavey is too large for delivery.
Try sending a smaller gift.

Enter the weight of your gift to Lucas: 0.1
Congratulations! The gift to Lucas is eligible for delivery.

Enter the weight of your gift to Benson: 0.1
The gift to Benson is too large for delivery.
Try sending a smaller gift.

Program Completed.
```

Notes:

1. The program should always print '**Program Completed.**' before exiting.
2. Pay careful attention to formatting and punctuation. Points can be deducted if this is wrong.
3. Check if your program works properly by giving different arguments.
4. Give comments to increase code readability.
5. Mention the sources used to complete the assignment.
6. Save the file as LastnameFirstnameA4.java
7. **Submit .java file only.**