# CSE 1206
# Java Practice Problems- Lab 3

## Exercise 1

1. Project name: Factory (main class)
2. Class Name: Product
3. Design Product class as follows:
    a. private variables: int productID, double productWeight
    b. create constructors as per your requirement
    c. getter setter methods for private variables
    d. create the overloaded methods as follows:
        i. Name of method: checkAndgenerate()
        ii. Return type: Product
        iii. Take parameters as described below

| |
|---|
| checkAndgenerate(int newProductID, double newProductWeight)<br><br>Here just assign the values of the parameter to a new product object and return the object. |
| checkAndgenerate(int newProductID)<br><br>if the newProductID is an even number then only assign it the product object. Keep the product weight a per the original weight. Then return the object.<br><br>Product p = new Product();<br>If newProductID even then do the following:<br>p.productID=newProductID;<br>p.productWeight=this.productWeight; |
| checkAndgenerate(double newProductWeight)<br><br>if the newProductWeight is greater than 50, then only assign it the product object.<br>Keep the productID as per the original productID. Then return the object. |

Product p = new Product();
If new productWeight is greater than 50 then do the following:

```
p.productID=new productWeight;
p.productWeight=this.ProductID;
```

checkAndgenerate(Product p1)

Assign the values from P1 and current object to the new Product p by adding them. Then return the object.

```
p.productID = p1.productID + this.productID;
p.productWeight = p1.productWeight + this.productWeight;
```

checkAndgenerate(int productID1, int productID2)

Do the following and then return the object.

```
if(productID1 > productID2 )
{
   p.productID=productID1 + this.productID;
   p.productWeight=this.productWeight;
}
else
{
   p.productID=productID2 + this.productID;
   p.productWeight=this.productWeight;
}
```

checkAndgenerate(double productWeight1, double productWeight2)

Do the following and then return the object.

```
if(productWeight1 > 50 )
{
   p.productID=this.productID;
   p.productWeight=productWeight1+this.productWeight;
}
else if (productWeight2 > 50 )
{
   p.productID=this.productID;
```

```
        p.productWeight=productWeight2+this.productWeight;
    }
    else if(productWeight1 > 50 && productWeight2 > 50)
    {
        p.productID=this.productID;

p.productWeight=productWeight1+productWeight2+this.productWeight;
    }
```

Finally go to the main method in the main class and call all the 6 overloaded method. Then print the product's ID and weight to see what changes have occurred.

# Exercise 2

We all know that children get characteristics from their parents. If your mom has black hair and dad has blonde hair, you might end up having brown or light brown hair. Or you might even get any one of their colors.

Let's create a Java program where we will use this idea to learn more about objects.

1) Create a project named HumanDemo inside which create a class named Human.
2) Now create some human features, that is, **variables**
   **private String skinTone;**
   **private String hair;**
3) Create constructors and getter setter methods for these variables.
4) Now we will create a method named:
   public Human produceMixedChild(Human secondHuman)

This method will take the features from the current object and the object from the parameter, combine them and return the mixed object.

For example,

```
Human baby = new Human();
Baby = this.skinTone + “ “ + secondHuman.skinTone
```