

## Lab Exercise (Chapter 6: Part 2)

### Exercise 1:

#### Description of the Problem

Draw the class diagram and write the Java codes for the requirement below:

Create a class called **Invoice** that a hardware store might use to represent an invoice for an item sold at the store. An **Invoice** should include four pieces of information as instance variable:

- A part number (type String)
- A part description (type String)
- A quantity of the item being purchased (type int)
- A price per item (type double)

Your class should have a constructor that initializes the four instance variables. Provide a **set** and **get** method for each instance variable. In addition, provide a method named **getInvoiceAmount** that calculates the invoice amount (i.e., multiplies the quantity by the price per item), then returns the amount as a double value. If the quantity is not positive, it should be set to 0. If the price per item is not positive, it should be set to 0.0. Write a test application named **InvoiceTest** that demonstrates class **Invoice**'s capabilities.

In the InvoiceTest application, create two invoice objects with information as below:

	Part number	Part Description	Quantity	Price
Invoice1	1234	Hammer	2	14.95

	Part number	Part Description	Quantity	Price
Invoice2	5678	Paint Brush	-5	-9.99

Then print out the part number, description, quantity, price and invoice amount for both invoices.

Then, update the first invoice to information as below:

Part number	Part Description	Quantity	Price
001234	Yellow Hammer	3	19.49

And, update the second invoice quantity to 3 and price to 9.49.

Print out the part number, description, quantity, price and invoice amount.

### Exercise 2:

#### Description of the Problem

Draw the class diagram and write the Java codes for the requirement below:

Create a class called **Employee** that includes two instance variables – a name (type String) and a monthly salary (double). Provide a constructor that initializes the two instance variables. Provide a **set** and a **get** method for each instance variable, and an **increaseSalary** method. If the monthly salary is not positive, do not set its value. Write a test application named **EmployeeTest** that demonstrates class **Employee**'s capabilities. Create two **Employee** objects and display each object's yearly salary. Then give each Employee a 10% raise and display each Employee's yearly salary again. **Display the total yearly salary for all employee (by using a static variable total\_salary).**