Tutorial 2 – Java OOP #1

Exercise 1

- Create a class named Pizza that stores information about a single pizza. It should contain the following:
- Private instance variables to store the size of the pizza (either small, medium, or large), the number of cheese toppings, the number of pepperoni toppings, and the number of ham toppings.
- Constructor(s) that set all of the instance variables.
- Public methods to get and set the instance variables.
- A public method named calcCost() that returns a double that is the cost of the pizza.

  Pizza cost is determined by:

  Small: $10 + $2 per topping
  Medium: $12 + $2 per topping
  Large: $14 + $2 per topping
- A public method named getDescription() that returns a String containing the pizza size, quantity of each topping, and the pizza cost as calculated by calcCost().Write test code to create several pizzas and output their descriptions. For example, a large pizza with one cheese, one pepperoni and two ham toppings should cost a total of $22.

Write PizzaDemo class which contains test code for the Pizza class. This test code should create several pizzas and output their descriptions. For example, a large pizza with one cheese, one pepperoni and two ham toppings should cost a total of $22.

Put all Java classes that you create in the package tutes.oop1.

Exercise 2

This programming project extends Exercise 1. Create a PizzaOrder class that allows up to three pizzas to be saved in an order. Each pizza saved should be a Pizza object as described in Exercise 1. In addition to appropriate instance variables and constructors, add the following methods:

- public void setNumPizzas(int numPizzas) — sets the number of pizzas in the order. numPizzas must be between 1 and 3.
- public void setPizza1(Pizza pizza1) — sets the first pizza in the order.
- public void setPizza2(Pizza pizza2) — sets the second pizza in the order.
- public void setPizza3(Pizza pizza3) — sets the third pizza in the order.
- public double calcTotal() — returns the total cost of the order.

Write a main method to test the class. The setPizza2 and setPizza3 methods will be used only if there are two or three pizzas in the order, respectively. Sample code illustrating the methods is shown below. Note that first three lines are incomplete. You must complete them as part of the exercise.

```
Pizza pizza1 = // Code to create a large pizza, 1 cheese, 1 ham
Pizza pizza2 = // Code to create a medium pizza, 2 cheese, 2 pepperoni
PizzaOrder order = // Code to create an order
order.setNumPizzas(2); // 2 pizzas in the order
order.setPizza1(pizza1); // Set first pizza
```

```
order.setPizza2(pizza2); // Set second pizza
double total = order.calcTotal(); // Should be 18+20 = 38
```

Put this `PizzaOrder` class in the package `tutes.oop1`.