ΕΡΓΑΣΤΗΡΙΟ
Encapsulation

1. Define a class whose objects are records on animal species. The class should have instance variables for the species name, population, and growth rate. The growth rate is a percentage that can be positive or negative and can exceed 100%. Include a suitable collection of constructors, mutator methods, and accessor methods.
Include a toString method and an equals method. Include a boolean valued method named endangered that returns true when the growth rate is negative and returns false otherwise. Write a test program (or programs) that tests each method in your class definition.

Sample Output:

```
Record is: Name: , current population: 0, growth rate: 0.00%
Setting name.
Record is now: Name: Unicorn, current population: 0, growth rate: 0.00%
Record is: Name: Rabbit, current population: 0, growth rate: 0.00%
Record is: Name: Horse, current population: 3000, growth rate: 0.00%
Setting growth rate.
Record is now: Name: Horse, current population: 3000, growth rate: 56.70%
Record is: Name: Dodo, current population: 0, growth rate: -33.50%
Setting population.
Record is now: Name: Dodo, current population: 2, growth rate: -33.50%
Record is: Name: German Shepherd, current population: 550, growth rate:
45.00%
Getting population of rabbits: 0
Getting growth rate of German Shepherds: 45.00%
Getting name from first record: Unicorn
The Dodo is endangered: true
The rabbit is endangered: false
Horses and Unicorns are the same: false
Making an identical object of German Shepherds.
Duplicate record is: Name: German Shepherd, current population: 550, growth
rate: 45.00%
Duplicate is same as original German Shepherd: true
```

2. 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.

Sample Output:

```
Size: Large, Cheese Toppings: 1 Pepperoni Toppings: 1 Ham Toppings: 2. Cost:
22.0
Size: Medium, Cheese Toppings: 2 Pepperoni Toppings: 0 Ham Toppings: 0. Cost:
16.0
Size: Small, Cheese Toppings: 0 Pepperoni Toppings: 2 Ham Toppings: 0. Cost:
14.0
```

3. This programming project extends the previous exercise. 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 the previous exercise. 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 Programming Project.

```
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
```