**Directions**: Create a Python module named csp1-4-1a.py. Add the following code to the module. Do not forget to test!!!

***Java Directions****: If you are doing this as a Java exercise, you will need to create a class file for each class and test it in a main method. Sample Java main method follows:*

*Public static void main(String[] args) {*

*}*

**Contact Class**

1. Define a class called Contact containing the following attributes:
   1. Attributes:
      1. name
      2. gender
      3. dateOfBirth
      4. phoneNumber
   2. Place some realistic values in the above attributes.

**Dog Class**

1. Define a class called Dog containing the following attributes:
   1. Attributes:
      1. age
      2. species
      3. numberOfLegs
   2. Place some realistic values in the above attributes.

**Creature Class**

1. Define a class called Creature with the following attributes:
   1. Attributes:
      1. isWarmBlooded
      2. weight
      3. age
      4. gender
   2. Place some realistic values in the above attributes.
   3. Define a breathe method that returns the following string:
      1. “The creature breathes”

***Continued on Next Page***

**Enemy Class**

1. Create a class called Enemy with the following attributes:
   1. Attributes:
      1. Name = “Goblin”
      2. health = 10
   2. Create a method called decreaseHealth() that takes in a parameter amount and decreases the health by that much. Inside that method, print that the “enemy died” if health goes below zero.

**Testing**

1. Instantiate an object from each the above classes.
2. Modify one variable of each of the objects instantiated in the previous step.
3. Print the variables changed in the step above.
4. Call the breathe method of the Creature object instance and print the returned value.
5. Call the decreaseHealth()method of the Enemy object instance:
   * 1. Print the value of the health attribute.
     2. Call decreaseHealth() to modify the health attribute.
     3. Print the value of the health attribute again.

**Conclusion Questions (CSP Only)**

1. Think of an example from your daily life where you use abstraction. Describe some of the details you discard and some of the generality you gain by using the abstraction.
2. What is the difference between procedural abstraction and data abstraction?
3. The GUI was first developed in 1961 by Ivan Sutherland for his Ph.D. at M.I.T. You might watch a 1964 video produced by MIT, especially the demo of Sutherland's work starting at 3:20, at [**http://www.youtube.com/watch?v=USyoT\_Ha\_bA**  (Links to an external site.)](http://www.youtube.com/watch?v=USyoT_Ha_bA).

Bill Gates at Microsoft got inspiration for Windows from Apple's Steve Jobs.

Steve Jobs at Apple got inspiration for Macintosh from Xerox's Alan Kay.

Alan Kay at Xerox got inspiration for Star from Trygve Reenskaug.

Trygve Reenskaug created the program Autokon with a graphical user interface in 1963 to design ships.

Trygve Reenskaug got inspiration for Autokon from M.I.T.'s Ivan Sutherland.

All along the way, GUI programming, object-oriented programming, and abstraction have been intertwined. Why do you think GUIs, objects, and abstraction have been connected like this in the history of computer science?