**Directions**: Create a Python module named csp1-4-1c.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) {*

*}*

**The classes you create in this exercise**

*Class names are bold, instance variables are the not bold*

Look here [**for help on creating sub classes whose superclass have variables**](http://interactivepython.org/runestone/static/JavaReview/OOBasics/ooInheritanceAndConstructors.html)

**Animal Class**

1. Define a class named Animal. This class should have one attribute *(instance variable)* and one method:
   1. gender
   2. A getGender() method that returns the value of gender.
2. Create a constructor for the Animal class that:
   1. Accepts the value gender as a parameter and sets the gender attribute.
   2. Prints the value of the gender attribute using the getGender() meth0d.
3. Create an instance of the Animal class passing gender value into it.

***Continued on Reverse***

**Mammal Class *(Subclass of Animal)***

1. Define a class named Mammal. This class must be a subclass of the Animal class.
   1. Attributes:
      1. age
      2. weight
   2. Methods:
      1. getAge()
      2. setAge()
      3. getWeight()
      4. setWeight()
      5. move() - Just print “*Mammal Moves*” in this method.
      6. makeNoise() - Just print “*Mammal Makes a Noise*” in this method.
2. Create a constructor for the Mammal class that:
   1. Accepts the values gender, age, and weight as parameters and sets the appropriate attributes.
   2. Prints the values of gender, age, and weight using the appropriate “get” methods.

**Feline class *(Subclass of Mammal)***

1. Define a class named Feline. This class must be a subclass of the Mammal class.
   1. Attributes:
      1. breed
      2. isDangerous
   2. Methods:
      1. Getters and setters for all the attributes above.
2. Create a constructor for the Feline class that:
   1. Accepts the values gender, age, weight, breed, and isDangerous as parameters and sets the appropriate attributes.
   2. Prints the values of age, breed, and isDangerous, using the appropriate “get” methods.
3. Create the makeNoise() method that:
   1. Prints “Feline says purr”
   2. Calls the makeNoise() method of the superclass.

**Canine Class *(Subclass of Mammal)***

1. Define a class named Canine. This class must be a subclass of the Mammal class.
   1. Attributes:
      1. breed
      2. isDangerous
   2. Methods:
      1. Getters and setters for all the attributes above.
2. Create a constructor for the Canine class that:
   1. Accepts the values gender, age, weight, breed, and isDangerous as parameters and sets the appropriate attributes.
   2. Prints the values of age, breed, and isDangerous, using the appropriate “get” methods.
3. Create the makeNoise() method that:
   1. Prints “Canine says howl”
   2. Calls the makeNoise() method of the superclass.

**Test your Classes**

It is a good idea to test as you go, but now we want to test the entire set of classes.

1. Create an instance of Animal class using “female” as the gender
2. Create an instance of the Mammal class that is 10 years old and weighs 110 pounds.
   1. Set the value of the gender attribute using the setGender() method.
   2. Print the gender of your mammal using the getGender() method.
3. Create an instance of the Feline class that is two years old, female Tiger, is dangerous and weighs 970.5 lbs.
   1. Set the value of the gender attribute using the setGender() method.
   2. Print the gender of your mammal using the getGender() method.
   3. Set the values of isDangerous and the weight using the appropriate setter methods.
   4. Print the value of isDangerous and the weight using the appropriate getter methods.
   5. Print the values of the gender, age, type, weight, and isDangerous attributes using the appropriate getter methods.
4. Create an instance of the Canine class that is two years old, male Labrador, that weighs 48.7 lbs, and is not dangerous.
   1. Set the value of the gender attribute using the setGender() method.
   2. Print the gender of your mammal using the getGender() method.
   3. Set the values of isDangerous and the weight using the appropriate setter methods.
   4. Print the value of isDangerous and the weight using the appropriate getter methods.
5. Print the values of the age, breed and isDangerous attributes using the appropriate getter methods.
6. Call the makeNoise() and move() methods for the following object instances you created above:
   1. Mammal
   2. Feline
   3. Canine