**CMSC 155 Spring 2020**

**Exercise 4 (20 points available)**

**DUE: Midnight Thursday Feb 13**

Always hand in your code PLUS how you tested it and the results you obtained.

1. **Review Class Definition**

Write and test two classes to model a pet. First write a test class for the Pet class. It will not compile until you finish the Pet class. Then write the Pet class. It should have instance variables (or attributes) for the name, type of the pet, and how many times it has been petted. Create a constructor that initializes the name and type and set the number of times petted to zero. Write a toString() method for the class and a method to “pet” the pet (increment the number of times petted). (10 points)

1. Update the Pet class you created in exercise 1 to add a static variable that keeps track of the number of pet objects created. Update the constructor to increment this number each time a pet is created. (5 points)

1. Modify the Pet class created in exercises 1 and 2 to add a method that returns a copy (not an alias) of a pet. (5 points)

package Week5;  
  
public class Pet {  
   
 private String name;  
 private String type;  
 private int numberOfTimesPetted;  
  
 //constructor  
 public Pet(String petName, String petType) {  
 name = petName;  
 type = petType;  
 numberOfTimesPetted = 0;  
 }  
  
  
  
 //other methods  
 public void timesPetting(int number) {  
 numberOfTimesPetted += number;  
 }  
  
 //output  
 public String toString() {  
 String out = "Pet's name is " + name + " pet type is " + type;  
 out += " has been petted " + numberOfTimesPetted;  
 return out;  
 }  
}

package Week5;  
import java.util.Arrays;  
  
public class PetTester {  
  
 public static void main(String[] args) {  
 PetmyPet = new Pet("Fido", "dog");  
  
  
 HW4[] petArray = new Pet[][ 5];  
 petArray[0] = myPet;  
 petArray[1] = new Pet("goldy", "goldfish");  
 petArray[2] = new Pet("Fisco", "cat");  
  
 System.*out*.println(petArray);  
 System.*out*.println(petArray.toString());  
 System.*out*.println(Arrays.*toString*(petArray));  
 for (Pet pet : petArray)  
 System.*out*.println(pet);  
 for (int count = 0; count < 3; count++)  
 System.*out*.println(petArray[count]);  
  
 }  
  
 }