Arbeitsblatt 6, infT

```
package animals;

import java.io.*;
import java.util.*;

/**
 * The class Animal determines common characteristics and behaviour of
 * the animals.
 */
abstract class Animal {

   /**
    * name - the name of the animal.
    */
   protected String name;


   /**
    * Display a message for the animal on the System.out, consisting
    * of the animal's class name and name preceding string.
    * @param string - the animal's answer.
    * @return void
    */
   protected void answer(String string) {
      // Suppress the preceding string "class ".
      String className = this.getClass().toString().substring("class ".length());
      System.out.println(className + " " + name + ": " + string);
   }


   /**
    * Change the animal's name.
    * @param name - the animal's name.
    * @return void
    */
   public void setName(String name) {
      this.name = name;
   }


   /**
    * Display a message that the receiver can't talk.
    * @return void
    */
   public void talk() {
      answer("I can't talk");
   }
}

// ***************************************************************************



package animals;

/**
 * The class Mammal determines the common characteristics and behaviour of
 * mammals.
 */
abstract class Mammal extends Animal {
}

// ***************************************************************************
```

```
package animals;

import java.awt.Toolkit;

/**
 * The class Dog determines the common characteristics and behaviour of dogs.
 */
public class Dog extends Mammal {
   /**
    * barksALot - if the dog is barking a lot.
    */
   protected boolean barksALot;

   /**
    * barkInitalized - initial state, if the dog is barking a lot.
    */
   protected boolean barkInitialized = false;


   /**
    * Let the dog bark by displaying a bark message.
    * @return void
    */
   protected void bark() {
      if (barksALot) {
        answer("Bow Wow, Bow Wow, Bow Wow");
      }
      else {
        answer("Woof");
      }
   }

   /**
    * Change the status of the dog to noisy.
    * @return void
    */
   public void beNoisy() {
      barksALot = true;
      answer("I'll bark a lot");
      barkInitialized = true;
   }

   /**
    * Change the status of the receiver dog to quiet.
    * @return void
    */
   public void beQuiet() {
      barksALot = false;
      answer("I won't bark much");
      barkInitialized = true;
   }

   /**
    * Let the dog talk by barking unless barkInitialized is false, in which case
    * the superclass can decide how to talk.
    * @return void
    */
   public void talk() {
      if (!barkInitialized) {
         super.talk();
      }
      else {
        bark();
      }
   }

}

// ********************************************************************************
```

```
import animals.*;

/**
 * Die Klasse AnimalTest dient zum Testen des package animals, das Klassen zur
 * Realisierung einer Tierwelt beinhaltet.
 */
public class AnimalTest {

   /**
    * Teste die Tierwelt.
    */
   public static void main(String [] args) {
      // Kreiere Tiere.
      Dog snoopy = new Dog();
      snoopy.setName("Snoopy");
      snoopy.beQuiet();

      Dog lassie = new Dog();
      lassie.setName("Lassie");
      lassie.beNoisy();

      // Lasse die Tiere sprechen.
      lassie.talk();
      snoopy.talk();

      snoopy.beNoisy();
      snoopy.talk();
      lassie.beQuiet();
      lassie.talk();
   }
}

// ********************************************************************************
```