



December 11, 2002

Fifth Assignment: Software Visualization (WS 02/03)

Exercise 1: (9 points)

Below you find the excerpts of the Java source code of a program that controls a pet door. The pet door detects animals wearing a collar key. The collar key electronically transmits an id. The pet door opens and closes automatically for registered pets.

For this program draw three different diagrams (3 points each):

- Draw an architecture diagram using icons and metaphors related to the application. You can draw the diagrams by hand, but you can also produce it with your computer. The best diagrams will be shown in class.
- Draw the UML class diagram with aggregations.
- Draw a class blueprint (no color coding required).

```
public class Pet
{ int collarKey; String name; }

public class Pets
{ final int maxPets=10;
  Pet[] list = new Pet[maxPets];
  public boolean contains(int k) { ... }
  public void add(Pet p) { ... }
  public void remove(int k) { ... }
}

public class Door
{ boolean isOpen;
  public void isOpen() { return isOpen; }
  public void open() { isOpen=true; }
  public void close() { isOpen=false; }
}

public class PetDoor extends Door
{ Pets currentPets, registeredPets;
  PetDoor(Pets regPets)
  { registeredPets=regPets;
    currentPets=new Pets();
    isOpen=false; }

  public void open()
  { if (!isOpen) { super.open(); } }

  public collarKeySignalReceived(int k)
  { Pet p=registeredPets.contains(k);
    if (p!=null) { open(); currentPets.add(p); } }

  public collarKeySignalLost(int k)
  { if (currentPets.contains(k))
    { currentPets.remove(k); close(); } }
}
```

Please, hand in your assignment at the start of the lecture on December 18th.