

## **Tutorial 14: Polymorphism**

**This tutorial should be completed before the next lecture.**

### **Task 1: Pet shop revisited**



You are required to modify your pet shop application from the previous tutorial so that polymorphism is used.

Instead of storing the pets in separate variables, use an array. Read through the lecture material, and examine the example code given in L20.zip on blackboard. Make sure you understand Polymorphism before attempting this task. Ask your tutor if you are unsure.

#### **Step 1: Copy the NetBeans project**

Create a folder called T14. Copy your PetShop project folder from your T13 folder, and paste it into your T14 folder, and rename it PolymorphicPetShop. In NetBeans, open the project, and rename it as PolymorphicPetShop.

#### **Step 2: Modify the PetShopApplication class**

Add a method called printPetDetails() method, which outputs to the console window the contents of the pets array in a tabulated format, similar to the illustration below. The pets array must be passed to the method as a parameter. Use the instanceof operator as shown in the main() method, InheritanceApplication class, Person\_Inheritance\_3 project from the lecture (Found in L20.zip on Blackboard)

The main() method should create six Cat objects and four Budgie objects, storing them all in the pets array, and then call the printPetDetails() method, passing the pets array as the parameter.

```

Output
PolymorphicPetShop (clean,jar) x PolymorphicPetShop (run) x

All pets

  Pet name      Owner name      Teeth      Tail length      Feather colour
  =====      =====      =====      =====      =====
  Cat 1         Owner 10         28          2                ---
  Cat 2         Owner 11         27          4                ---
  Cat 3         Owner 12         26          6                ---
  Cat 4         Owner 13         25          8                ---
  Cat 5         Owner 14         24         10                ---
  Cat 6         Owner 15         23         12                ---
  Bird 1         Owner 21         ---         ---              Blue
  Bird 2         Owner 22         ---         ---              Yellow
  Bird 3         Owner 23         ---         ---              Green
  Bird 4         Owner 24         ---         ---              White

BUILD SUCCESSFUL (total time: 0 seconds)

```

### Step 3: Test your program

Run your program, and take a screen shot. Make sure your pet names are not the same as the illustration above.

### Portfolio requirements:

- All your .java source code files from steps 1 and 2
- An image file (.jpg, .gif, or .png) of your screen shot from step 3 with pet names different from the illustration above