1. What is meant by polymorphism ?

Polymorphism is one of the core concepts in OOP languages. It describes the concept that different classes can be used with the same interface. Each of these classes can provide its own implementation of the interface.

The word polymorphism means having many forms. ... Real life example of polymorphism, a person at the same time can have different characteristic. Like a man at the same time is a father, a husband, an employee.

1. How does polymorphism work in the above program?

In the program, we stored the Cat and Dog instances in an array of Animal, which is their parent class. This is called upcasting since we're casting the child classes into their parent class.

1. The method introduceYourself of Animal appears to be never called? Why not?

introduceYourself() method from the Animal class doesn't run because its child classes, Cat and Dog class have overriden the method with their own implementation of the same method. When called, we'll use the child version of the method since we called the method using the subclass instances (which was upcasted into Animal).

1. Comment out the method introduceYourself in Dog. What happens now when you run the program?

Meow. I am a cat. My name is Kurre.

Morr. I am a cat.

Meow. I am a cat. My name is Bamse.

The Animal version of the method will be called instead.

1. Where is the name stored for the instances of Cat and Dog? (In what / which classes did you put the instance variable that refers to the name of the animal? Both Cat and Dog, or just in Animal?)

Inside of the Animal class as a protected String, so both Cat and Dog subclasses will inherit it.

1. How does the code in the test program work?

First, declare an Animal array and an int variable, which acts as a counter later.

Then initialize the array into an Animal array with the size of 3.

Then initialize Cat and Dog objects and store them inside the Animal array. Cat on index 0 and 2, while Dog on index 1.

Initialize the int variable earlier with 0 and start a while loop, which keeps repeating until the counter is no longer less than the length of the array.

Inside the loop, call the introduceYourself() from each object stored inside the array.

Then increment the counter by 1.

1. How does an array work?

An array is a container object that holds a fixed number of values of a single type. The length of an array is established when the array is created. After creation, its length is fixed.

1. In the above programs we have used a while loop to step through the array and to get information about the animals. But there is a more appropriate loop statement here. What is it?

**For loop**

1.reduce the code length.

2.avoid using additional variables.

for (int i = 0; i != allAnimals.length; i++) {

allAnimals[i].introduceYourself();

}