ECE 122
We know this

Cat cat = new Cat();
Animal animal = new Animal();
and this?

• Animal animal = new Cat();
• An object reference of super class type points to an object of sub class type.
• It is legal and it is called polymorphism.
Motivation

• Let’s introduce array first.
Array

• Syntax:
  Type array-name[] = new type[size];
• int number[] = new int[3];
• Animal animal[] = new Animal[3]; //array declaration
• Array index start from 0: number[0], number[1], number[2]
• animal[0] = new Animal(); //object instantiation
Create an array of every animal in the Zoo?

Animal animal[] = new Animal[1000];
animal[0] = new Dog();
animal[1] = new Cat();
animal[2] = new Tiger();
animal[3] = new Lion();
......
Super class object in parameter list of an method

public void performance(Animal animal) {
    animal.makeNoise();
}
Let each animal in the zoo to give a performance in sequence

for (int i = 0; i < 1000; i++)
{
    performance(animal[i]);
}
What if we don’t use polymorphism?

performance(dog);
performance(cat);
performance(tiger);
performance(lion);
…./total 1000 times.
Demo MyAnimalList.java
Demo MyDoctor.java
Assignments

• Read “Head first Java” Chapter 8