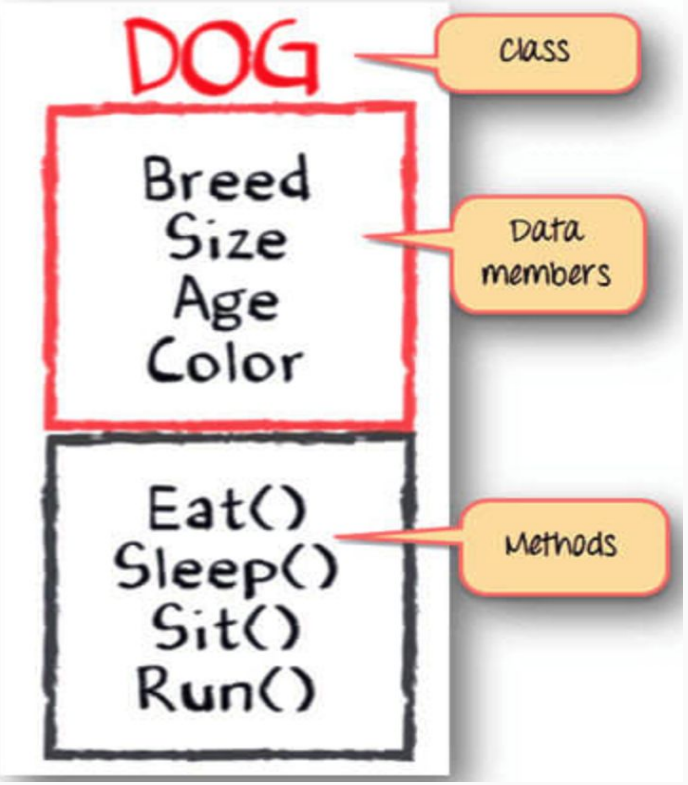
CYDEO

Custom Class: Class & Object

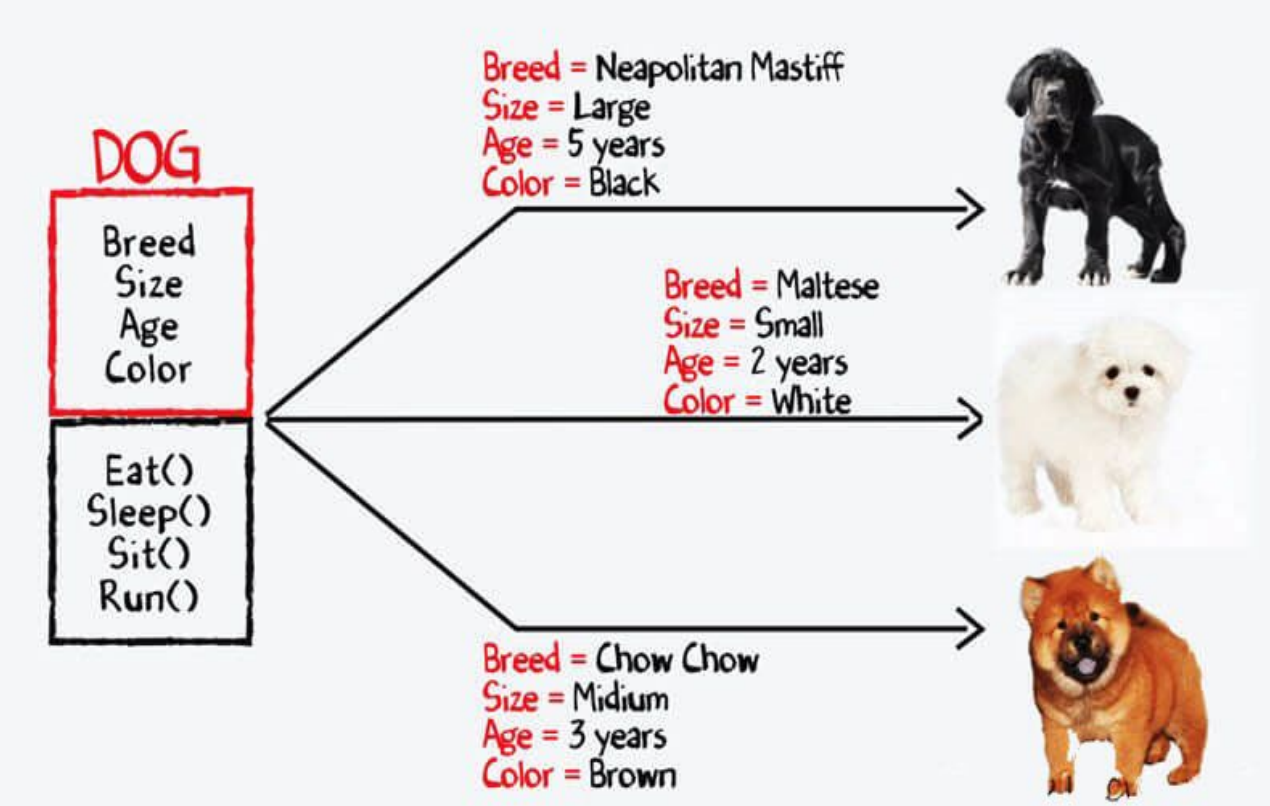
Class

- Where Objects came from
- An entity that determines how an object will behave and what the object will contain
- A blueprint or set of instruction to build a specific type of Object

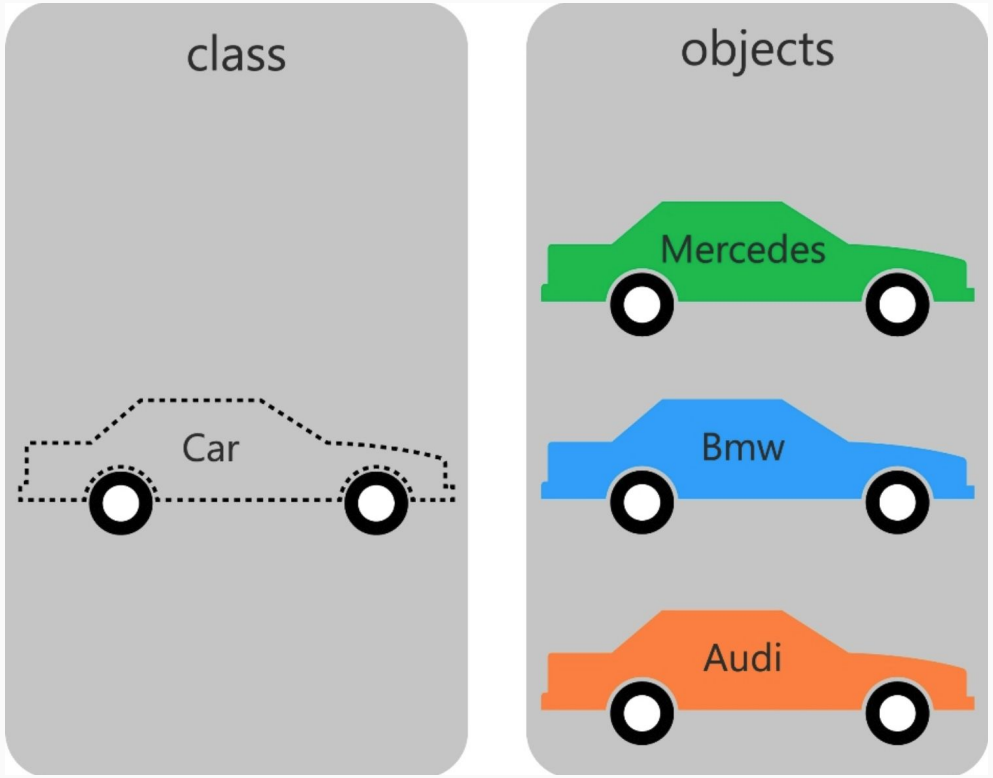


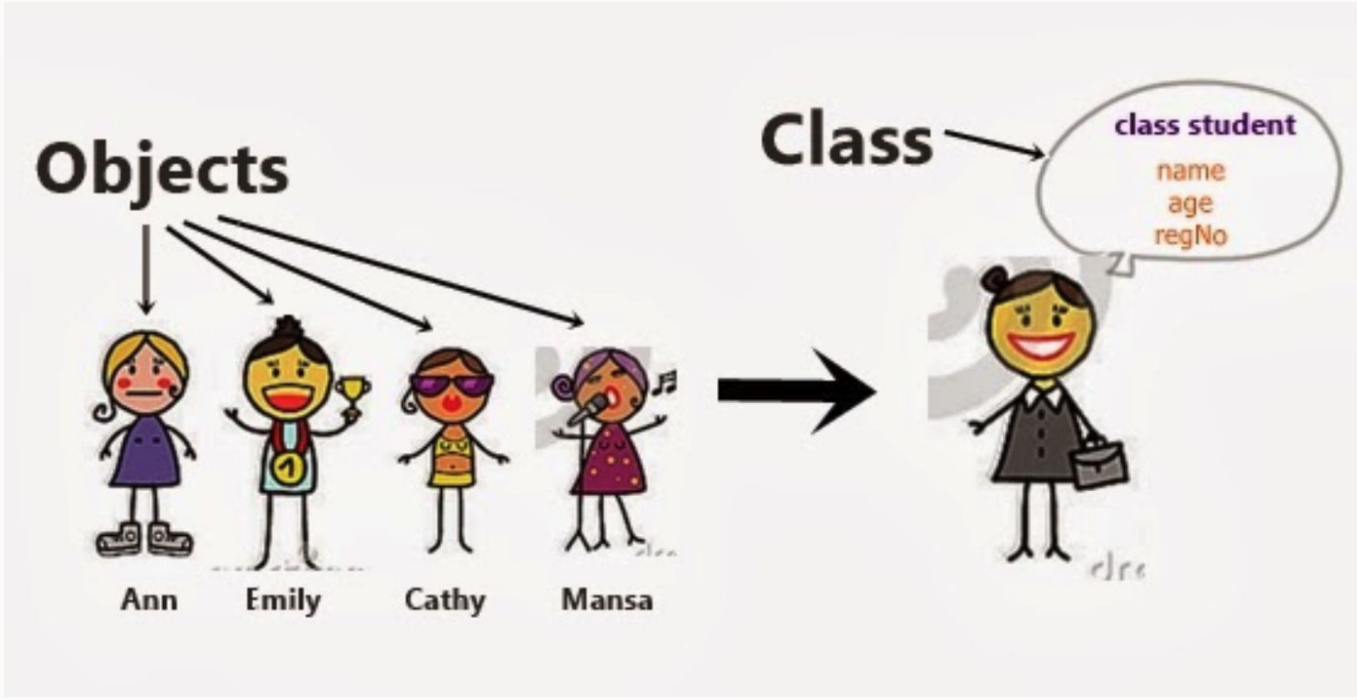
Object

- Instance of a class
- An object can store data
- The data stored in an object are called fields
- Multiple objects can be created from a class



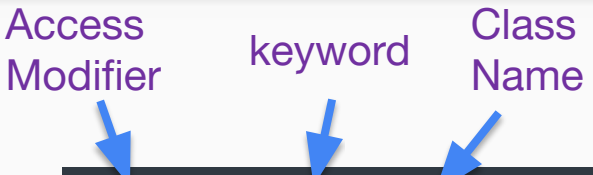
Class & Object Examples





Writing a Custom Class

Class Name	Dog
Fields (Attributes)	name breed size age color ...
Methods (Actions)	eat() drink() play() ...




```java
public class Dog{

    public String name;
    public String breed;
    public String size;
    public int age;
    public String color;

    public void eat(){
        System.out.println(name+" is eating dog food");
    }

    public void drinking(){
        System.out.println(name+" is drinking water");
    }

    public void play(){
        System.out.println(name+" is playing");
    }

}
```

Instance Variables

- Declared inside the class and outside any methods/blocks
- Belongs to the object, and each object has its own memory
- Each Object has a separate copy of the instance variable

```
public class Dog{

    public String name;
    public String breed;
    public String size;
    public int age;
    public String color;

}
```

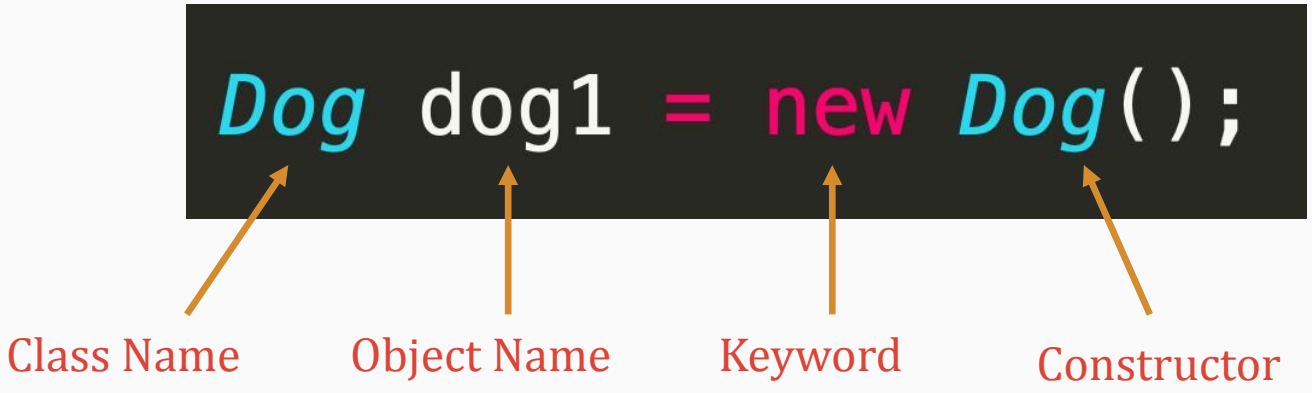
Instance Methods

- Does not have static keyword
- Belongs to the object
- Each Object has a separate copy of the instance methods

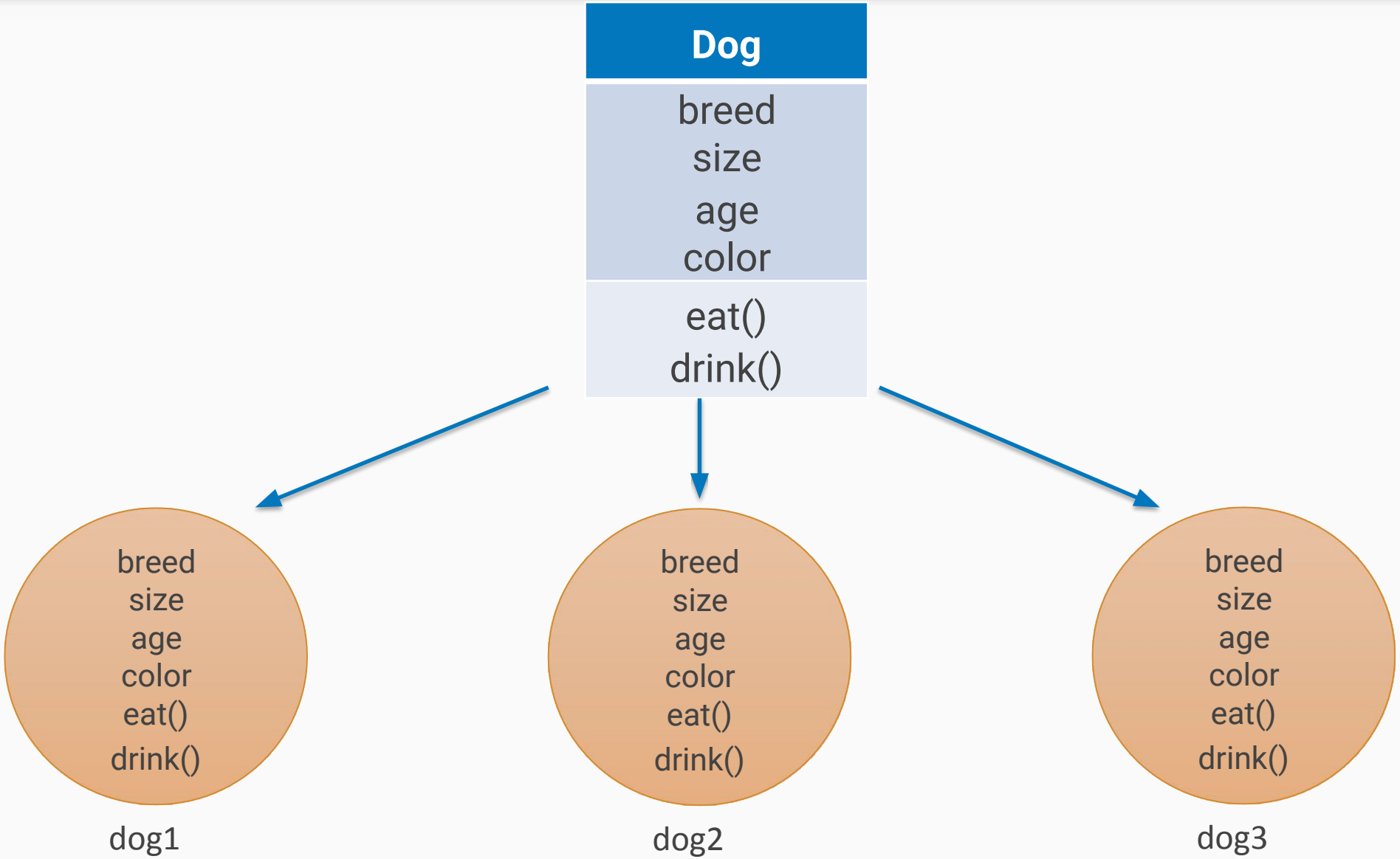
```
public void eat(){
    System.out.println(name+" is eating dog food")
}

public void drink(){
    System.out.println(name+" is drinking water")
}

public void play(){
    System.out.println(name+" is playing")
}
```

Creating an Object/Instance

- The new keyword is used to create an instance of a class



Instances



Accessing an object's Data and Methods

- An Object's members refer to it's data fields and methods. After object is created its data can be accessed and its methods can be invoked using the dot operator (.)

```
dog1.breed = "Maltese";
dog1.size = "Small";
dog1.age = 2;
dog1.color = "white";

dog1.eat();
dog1.play();
```

Class vs Object

Class	Object
Class is a collection of similar objects	Object is an instance of a class
Class is conceptual (is a template)	Object is real
No memory is allocated for a class	Each object has its own memory
Class can exist without any objects	Objects can not exist without a class