CLASSES AND OBJECTS

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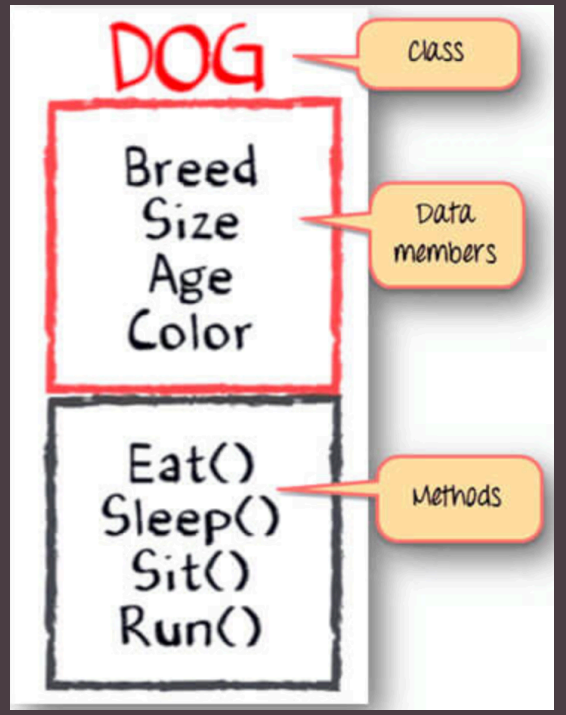
Classes : Where Objects Come From

- A class is an entity that determines how an object will behave and what the object will contain.

- A class is a blueprint or set of instruction to build a specific type of object.



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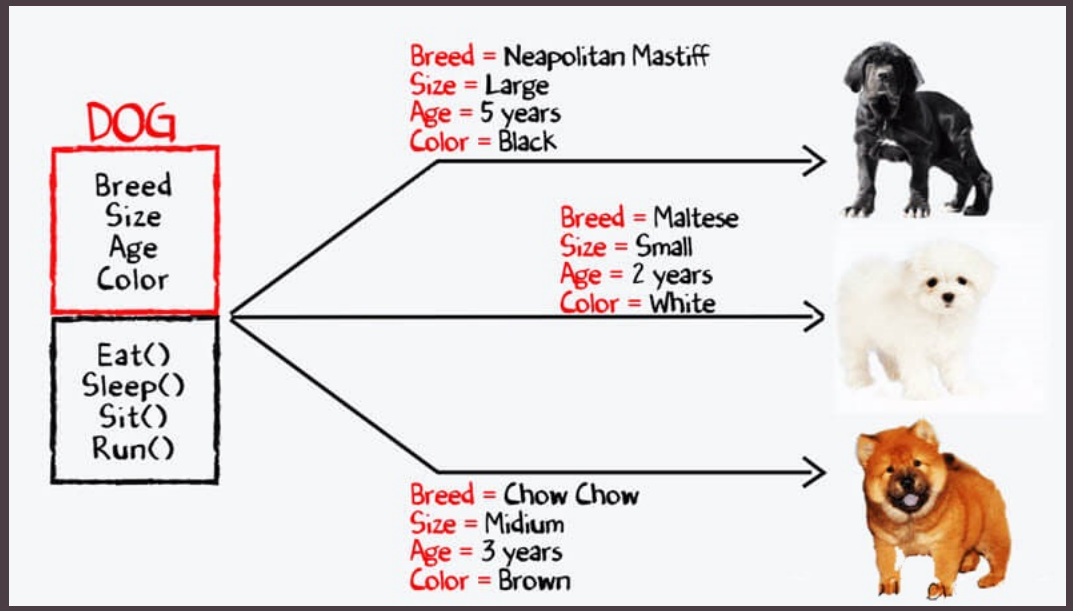
Objects

- An object is an instance of a class.
- An object can store data. The data stored in an object are commonly called fields.



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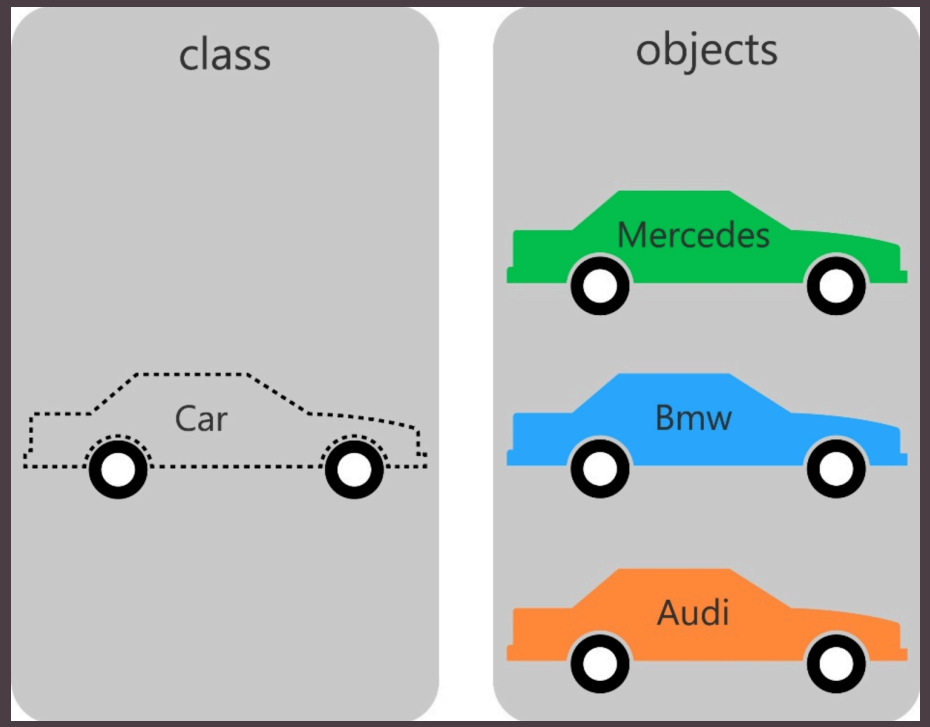
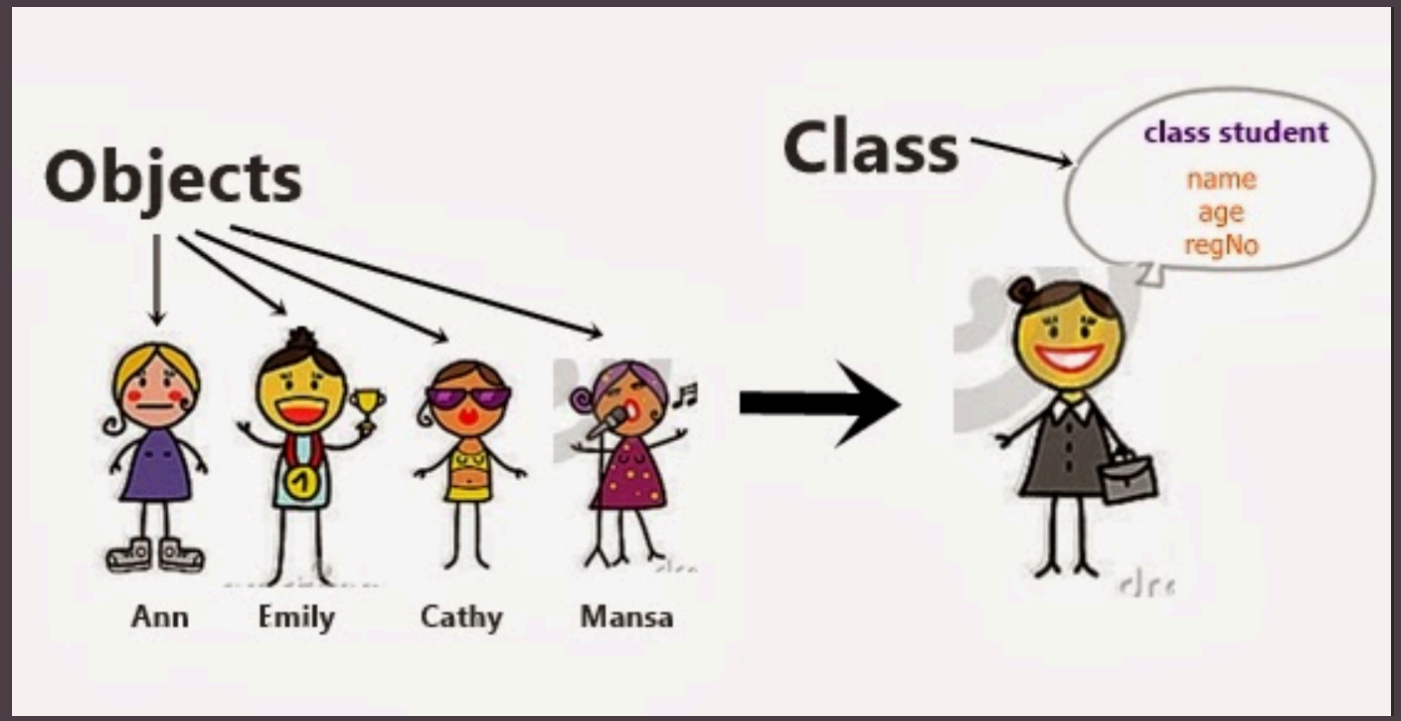
Class and Object Examples





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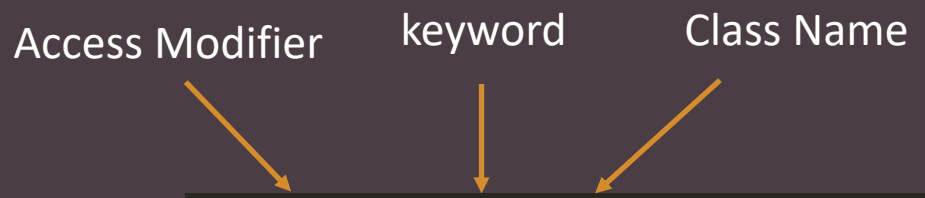
Writing a Simple Class

Class Name
Fields
Methods

Dog
breed size age color
getInfo()




```
public class Dog{

    String breed;
    String size;
    int age;
    String color;

    public String getInfo(){
        return ("This is my new dog");
    }

}
```

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Access Modifier

- An access modifier indicates how the class may be accessed.

- The public access modifier indicates that the class will be publicly available to code that is written outside of the class.

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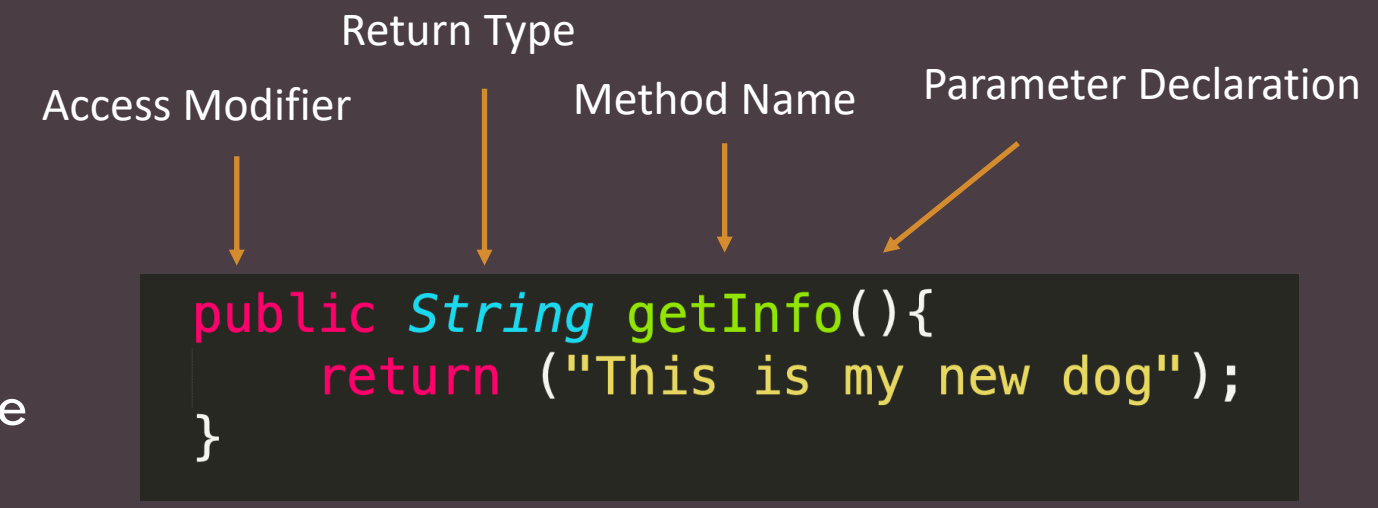
Writing a Method

- Notice that the word static does not appear in the method header.
- When a method is designed to work on an instance of a class, it is referred to as an instance method, and you do not write the word static in the header.



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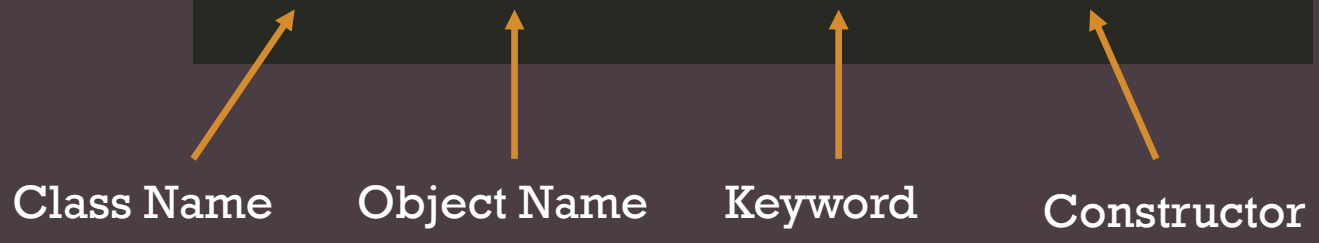
Creating an Object/Instance

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

```
Dog dog1 = new Dog();
```



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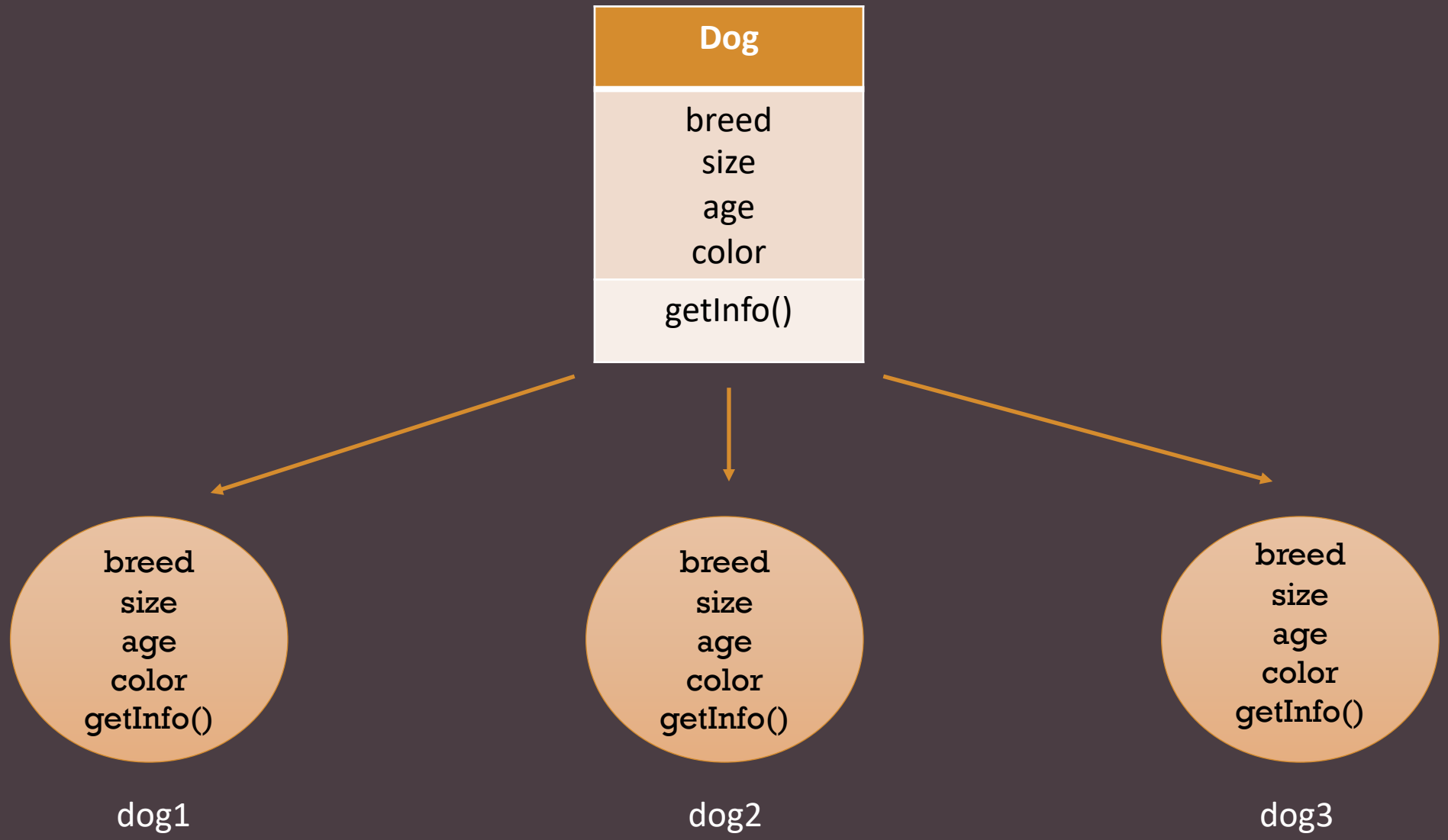
Dog
breed
size
age
color
getInfo()
breed
size
age
color
getInfo()
dog1
breed
size
age
color
getInfo()
dog2
breed
size
age
color
getInfo()
dog3

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Default values for Instance Variables

```
public class Student{

   String name;  //name has the default value null

   int age; //age has the default value 0

   boolean isScienceMajor; //isScienceMajor has default value false

   char gender; //gender has default value '\u0000'

}
```

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Accessing an Object's Data and Methods?

- An Object's member refer to its data fields and methods. After an 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.getInfo();
```

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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

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