Object − Objects have states and behaviors. Example: A dog has states - color, name, breed as well as behaviors – wagging the tail, barking, eating. An object is an instance of a class.

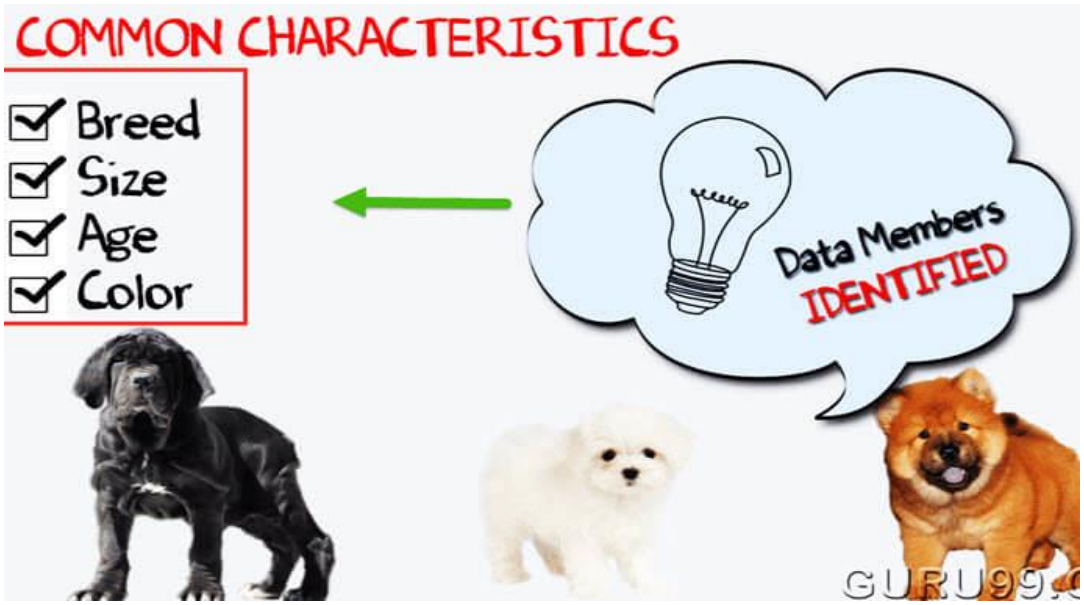
Class − A class can be defined as a template/blueprint that describes the behavior/state that the object of its type support.

Let's see an example:

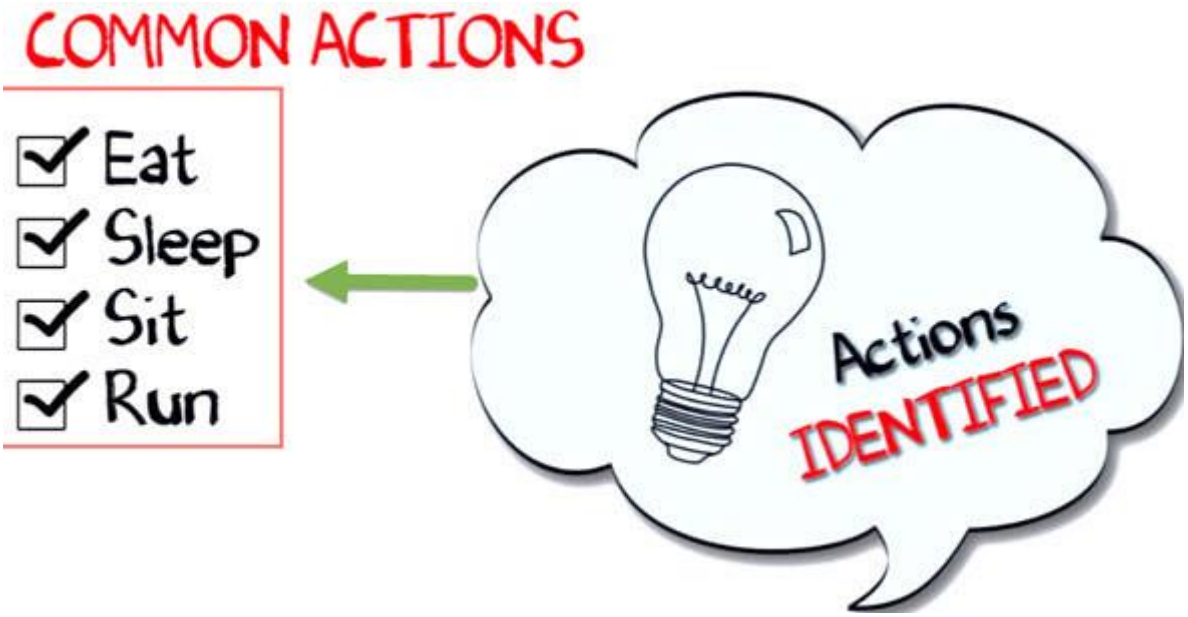
You can see the picture of three different breeds of dogs below.

List down the differences between them.

Some of the differences you might have listed out maybe breed, age, size, color, etc. If you think for a minute, these differences are also some common characteristics shared by these dogs. These characteristics (breed, age, size, color) can form a data members for your object.



Next, list out the common behaviors of these dogs like sleep, sit, eat, etc. So these will be the actions of our software objects.

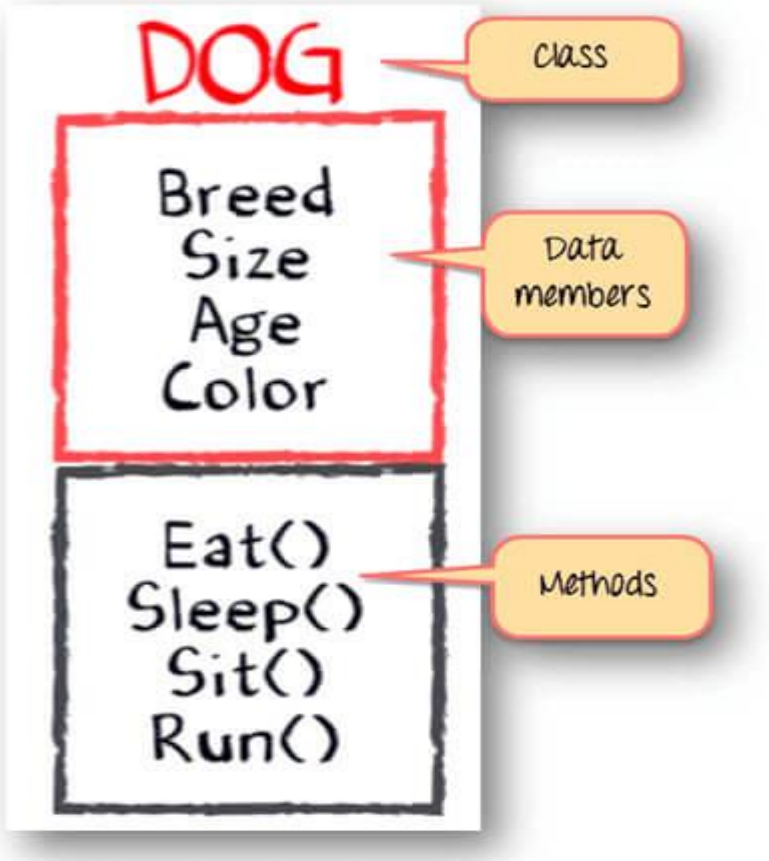


So far we have defined following things,

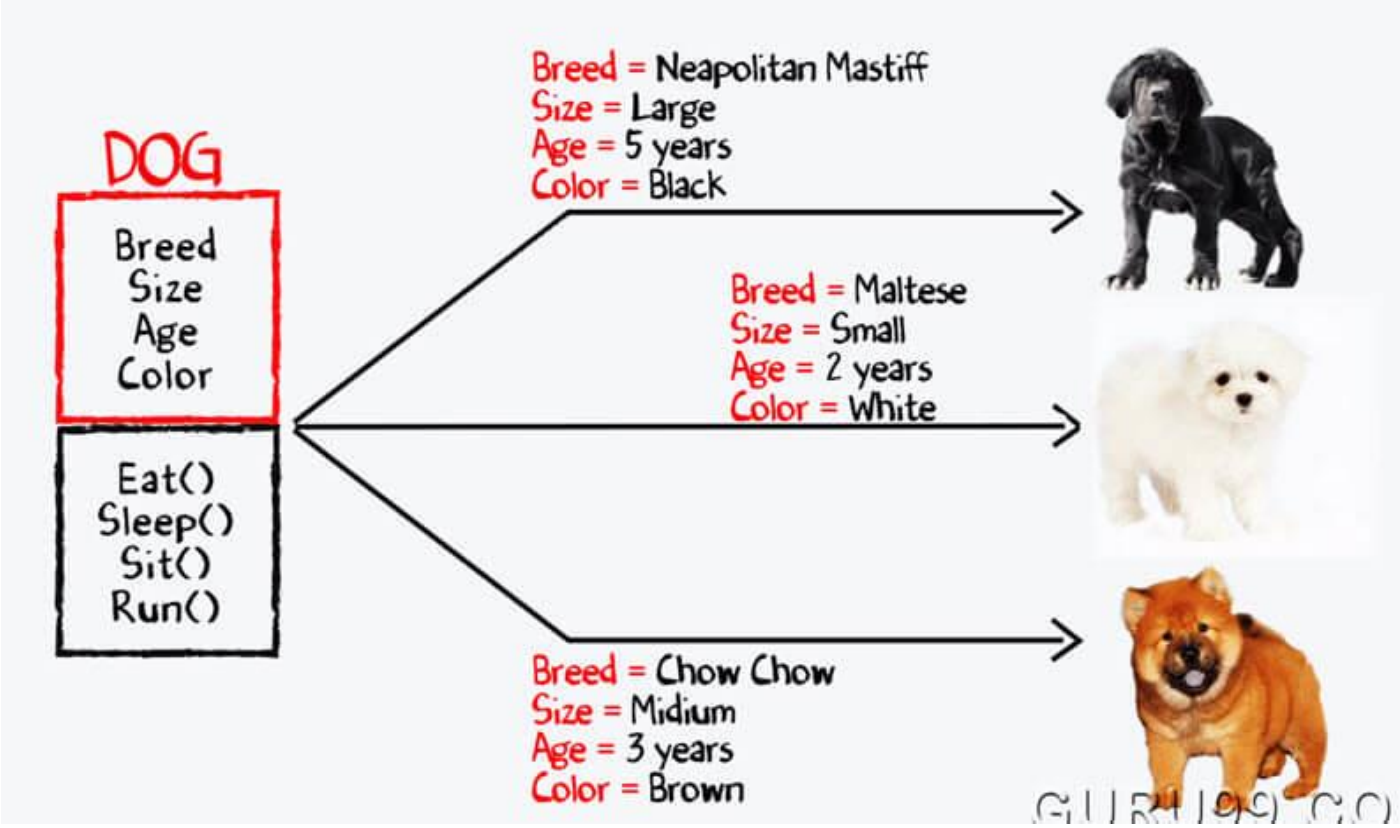
Class - Dogs

Data members or objects- size, age, color, breed, etc.

Methods- eat, sleep, sit and run.



Now, for different values of data members (breed size, age, and color) in Java class, you will get different dog objects.



Example Code: Class and Object

```
// Class Declaration

public class Dog {

    // Instance Variables

    String breed;

    String size;

    int age;

    String color;

    // method 1

    public String getInfo() {

        return ("Breed is: "+breed+" Size is:"+size+" Age is:"+age+" color is: "+color);

    }

    public static void main(String[] args) {

        Dog maltese = new Dog();
```

```
        maltese.breed="Maltese";
        maltese.size="Small";
        maltese.age=2;
        maltese.color="white";
        System.out.println(maltese.getInfo());
    }
}
```

Output:

Breed is: Maltese Size is:Small Age is:2 color is: white

Object and Class Example: main outside class

In previous program, we are creating main() method inside the class. Now, we create classes and define main() method in another class. This is a better way than previous one.

```
// Class Declaration
class Dog {
    // Instance Variables
    String breed;
    String size;
    int age;
    String color;
     // method 1
    public String getInfo() {
        return ("Breed is: "+breed+" Size is:"+size+" Age is:"+age+" color is: "+color);
    }
}
```

```
public class Execute{

    public static void main(String[] args) {

        Dog maltese = new Dog();

        maltese.breed="Maltese";

        maltese.size="Small";

        maltese.age=2;

        maltese.color="white";

        System.out.println(maltese.getInfo());

    }

}
```

Output:

Breed is: Maltese Size is:Small Age is:2 color is: white