

Object

we will cover the following

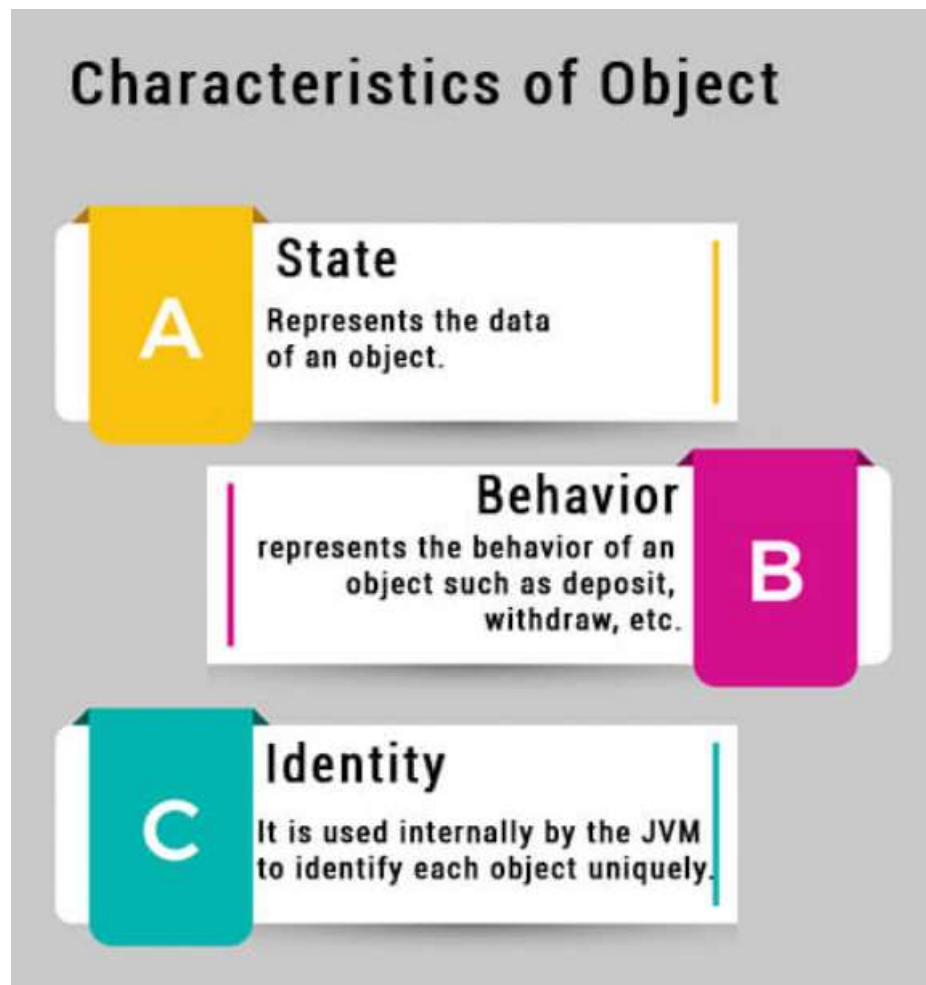
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Object:-

- In Java object is an instance of a Java class. Each object has a unique identity, a behavior, and a state of it.
 - We store the state of an object in fields(variables), while methods show the object's behavior. JVM creates the Objects at runtime from templates, also known as blueprints/classes.
 - In Java, we create an object using the keyword "new."
 - Memory allocation takes place when the object is created
 - The new keyword is used to allocate memory at runtime. All objects get memory in the Heap memory area.
-

Features used to characterize an object:

- **State:** represents the properties of the object.
- **Behavior:** represents the functionality of an object such as walking, talking, running, etc.
- **Identity:** An object identity is implemented by a unique ID. The value of the ID is hidden to the external user. It is only used internally by the JVM to identify each object uniquely.



Object explanation with real-world entities

Java objects are pretty similar to what we come across in the real world like A Dog, a lighter, a cat, or vehicles are all objects.

For example, a dog's state includes its color, size, gender, and age, while its behavior is sleeping, barking, walking around like a security guard at 3 a.m.



State	Name Color Breed Hungry
Behavior	Barking Fetching Wagging Tail

How to Create Objects in Java

Using the **new** keyword is the best way to create an instance of the class. When we create an object by using the new keyword, it allocates memory (heap) for the **object** and it also returns the **reference** of that object.

Syntax:-

```
ClassName object = new ClassName();
```

Here you can see `ClassName()` is looking like a method used here, basically, it is a constructor, after keyword `new` constructor is called so here we will study what is the constructor;

Constructor:-

constructor is a special method because it does not have a return type. We do not even need to write `void` as the return type. It is a good practice to declare/define it as the first member method. and its name should be the same as the name of the class.

It is called a constructor because it constructs the values at the time of object creation. It is not necessary to write a constructor for a class. It is because the java compiler creates a default constructor if your class doesn't have any.

It is a special type of method which is used to initialize the object.

Implementation:-

Let's create a program to get familiar with classes and objects

```
1 public class codingninja
2 {
3
4
5     void show ()
6     {
7
8         System.out.println ("Welcome to codingninja");
9
10    }
11
12    public static void main (String[] args)
13    {
14
15        //creating an object using new keyword
16        codingninja obj = new codingninja ();
17
18        //invoking method using the object
19        obj.show ();
20
21    }
22 }
```

Welcome to codingninja

...Program finished with exit code 0