Object

we will cover the following

- Object
- Real-world explanation
- How to create objects?
- constructor
- Implementation

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

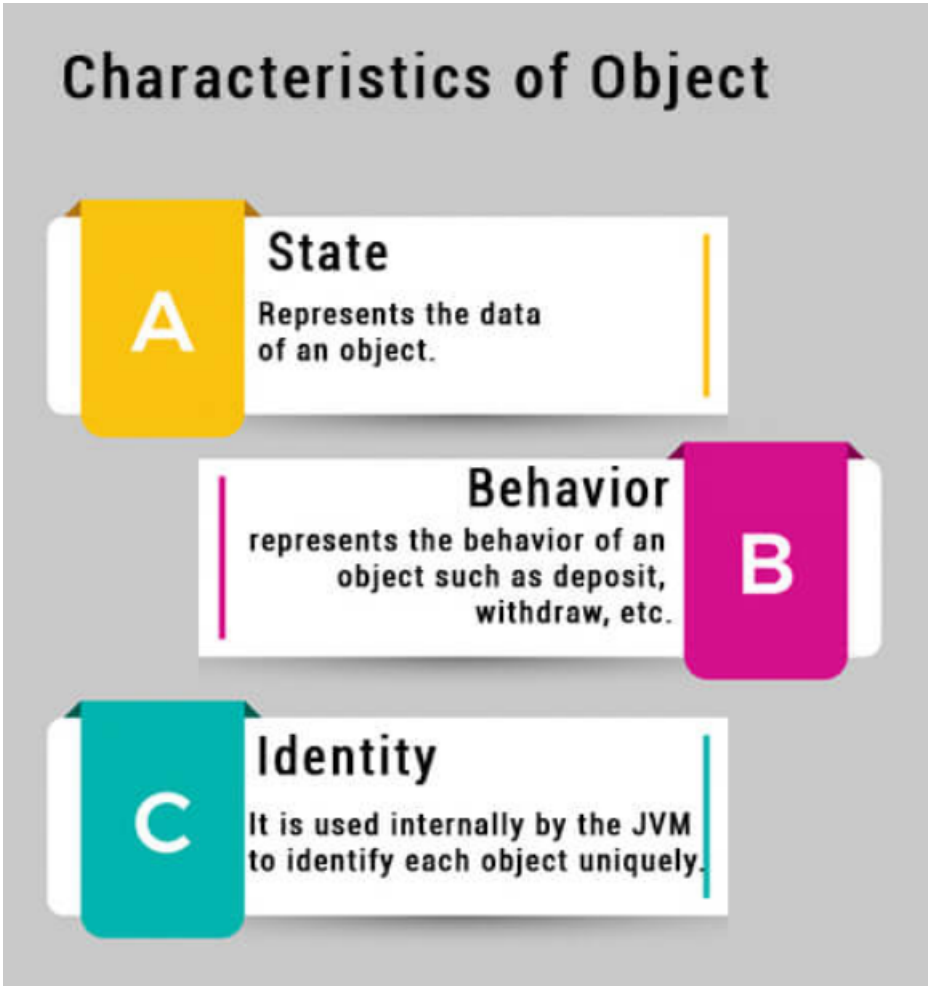
- The new keyword is used to allocate memory at runtime. All objects get memory in the Heap memory area.

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.

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

```
Welcome to codingninjas


...Program finished with exit code 0
```