Head First

Chapter-2:
A Trip to Objectville

Upcode Software
Engineer Team

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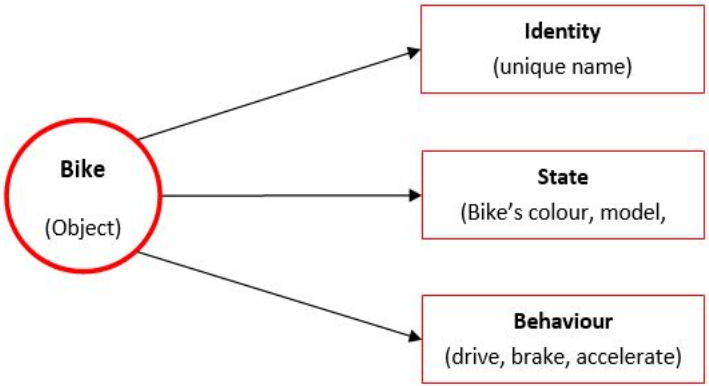
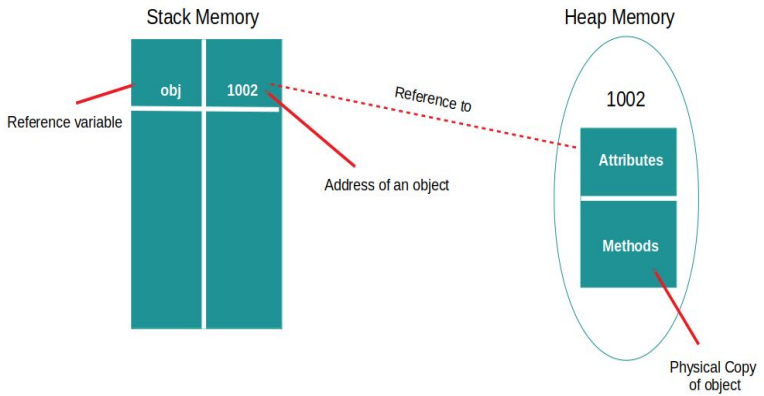
1. What is Object ?

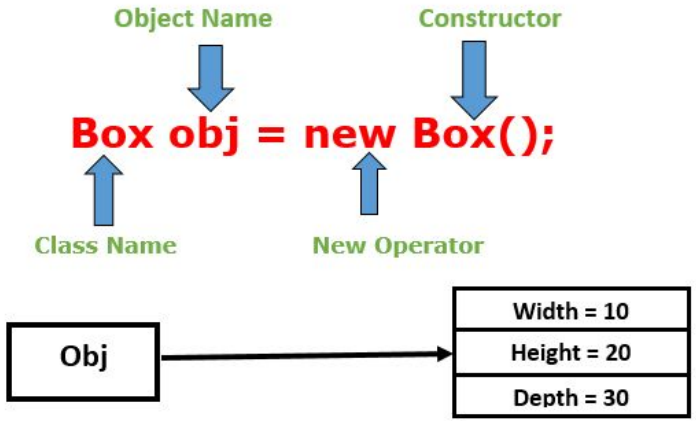
- An **object** is an instance of a class.
- An **object has** its own **identity**, **behavior**, and **state**.
- **Objects** are created during runtime.
- **Objects** are allocated to memory and space addresses.





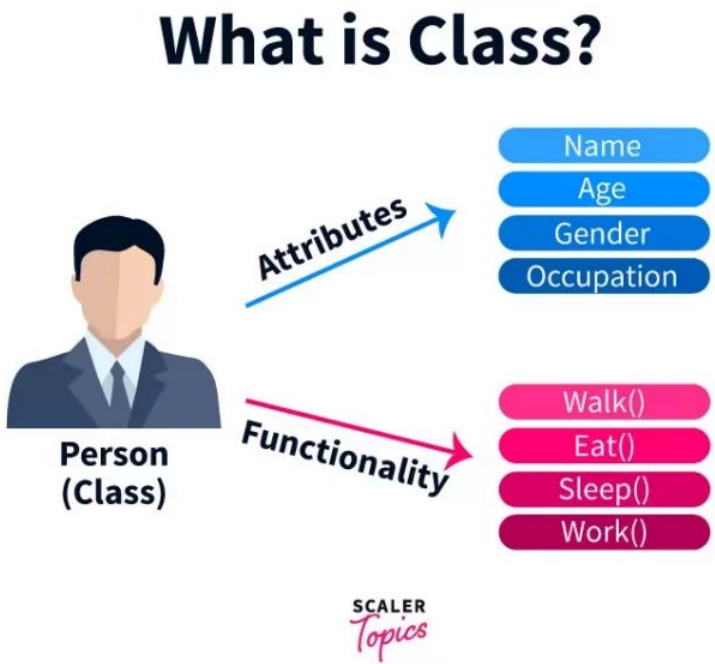
1. What is Object ?

- **State**: represents the data (value) of an object.
- **Behavior**: represents the behavior (functionality) of an object such as deposit, withdraw, etc.
- **Identity**: An object identity is typically implemented via a unique ID. The value of the ID is not visible to the external user. However, it is used internally by the JVM to identify each object uniquely.
- **An object** is created using the **new** keyword.



2. What is a Class ?

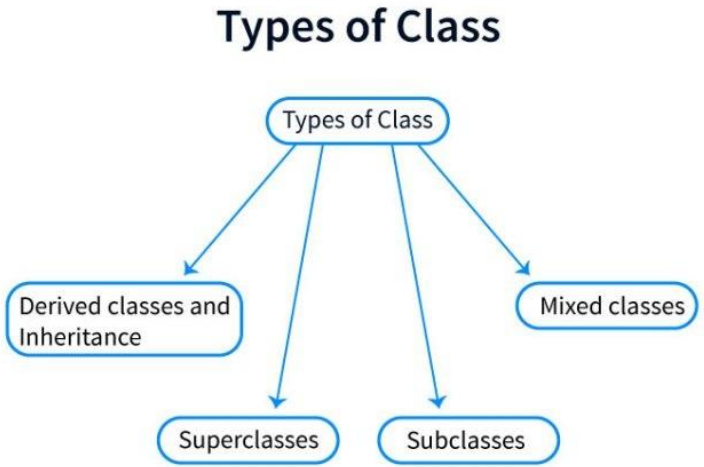
- Class is a user-defined blueprint or prototype from which objects are created.
- A class shares common characteristics/ **behavior** and common properties/ **attributes**.



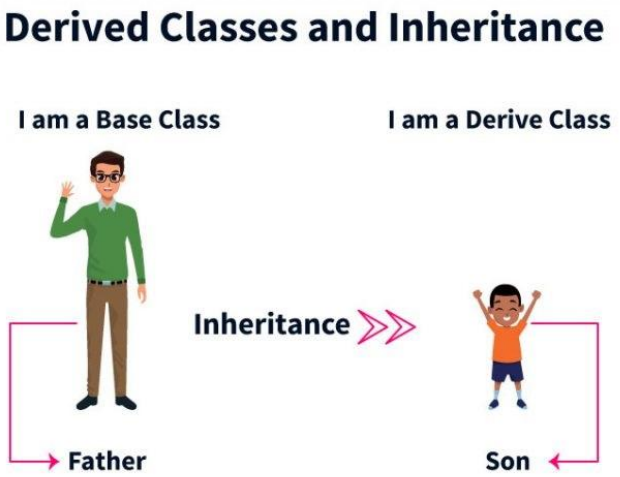
2. What is a Class ?

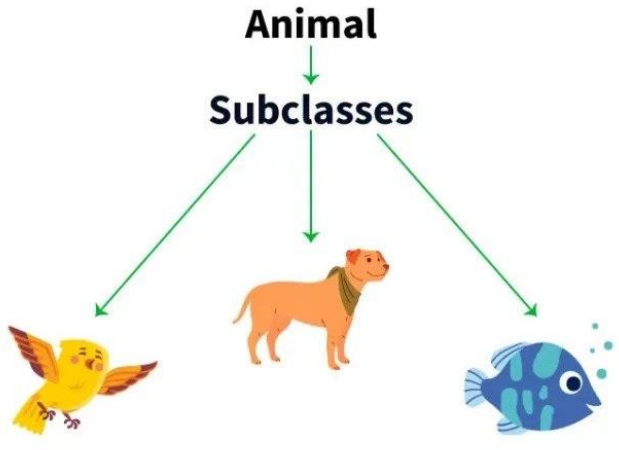
- Class is not a real-world entity. It is just a template or blueprint or prototype from which objects are created.
- Class does not occupy memory.
- Class is a group of variables of different data types and a group of methods.
- A Class in Java can contain:
    - Data member
    - Method
    - Constructor
    - Nested Class
    - Interface

2. What is a Class ?



2. What is a Class ?





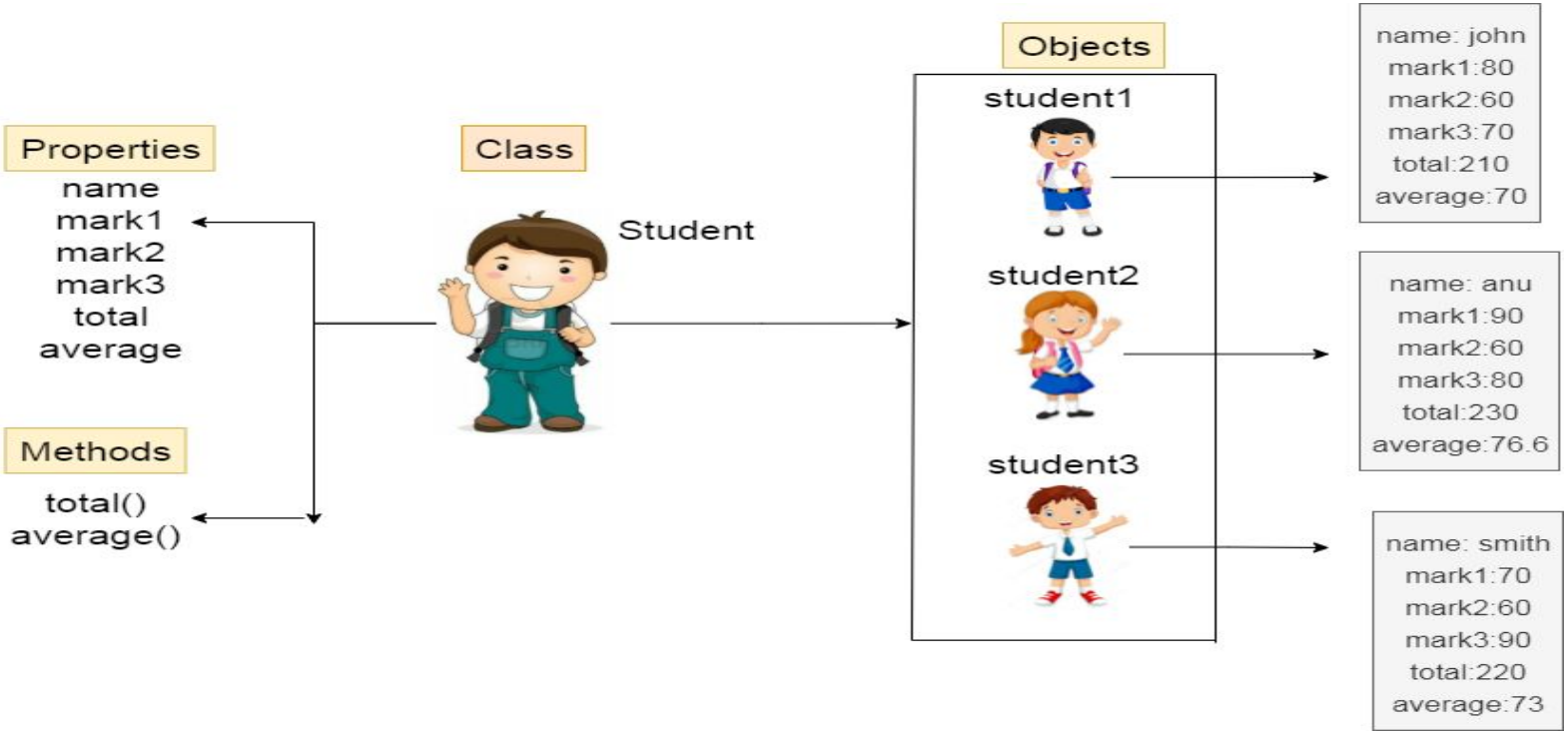
4. Difference between class and object ?

No.	Object	Class
1)	Object is an **instance** of a class.	Class is a **blueprint or template** from which objects are created.
2)	Object is a **real world entity** such as pen, laptop, mobile, bed, keyboard, mouse, chair etc.	Class is a **group of similar objects**.
3)	Object is a **physical** entity.	Class is a **logical** entity.
4)	Object is created through **new keyword** mainly e.g. Student s1=new Student();	Class is declared using **class keyword** e.g. class Student{}
5)	Object is created **many times** as per requirement.	Class is declared **once**.
6)	Object **allocates memory when it is created**.	Class **doesn't allocated memory when it is created**.
7)	There are **many ways to create object** in java such as new keyword, newInstance() method, clone() method, factory method and deserialization.	There is only **one way to define class** in java using class keyword.

4. Additional data

- A variable which is created inside the class but outside the method is known as an instance variable.
- Instance variable doesn't get memory at compile time.
- It gets memory at runtime when an object or instance is created. That is why it is known as an instance variable.
- In Java, a method is like a function which is used to expose the behavior of an object.
- Code Reusability
- Code Optimization

5. Source code



5. Source code

Ways to Create an Object of a Class

1. **Using new keyword** => Test t = new Test();
2. **Using Class.forName(String className) method** =>

   Test obj = (Test)Class.forName("com.p1.Test").newInstance();
3. **Using clone() method =>** Test t1 = new Test();

   Test t2 = (Test)t1.clone();
4. **Deserialization =>** FileInputStream file = new FileInputStream(filename);

   ObjectInputStream in = new ObjectInputStream(file);

   Object obj = in.readObject();

Reference Resources?

1. Head First JAVA (book)
2. Object and class in java in www.javatpoint.com
3. Classes and Objects in Java in www.geeksforgeeks.org
4. Difference between object and class in www.javatpoint.com
5. Difference Between Class and Object in OOPs in www.guru99.com

Thank you!

Presented by Sanjar