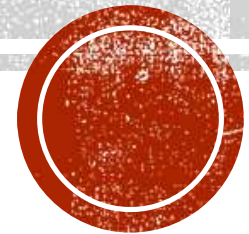


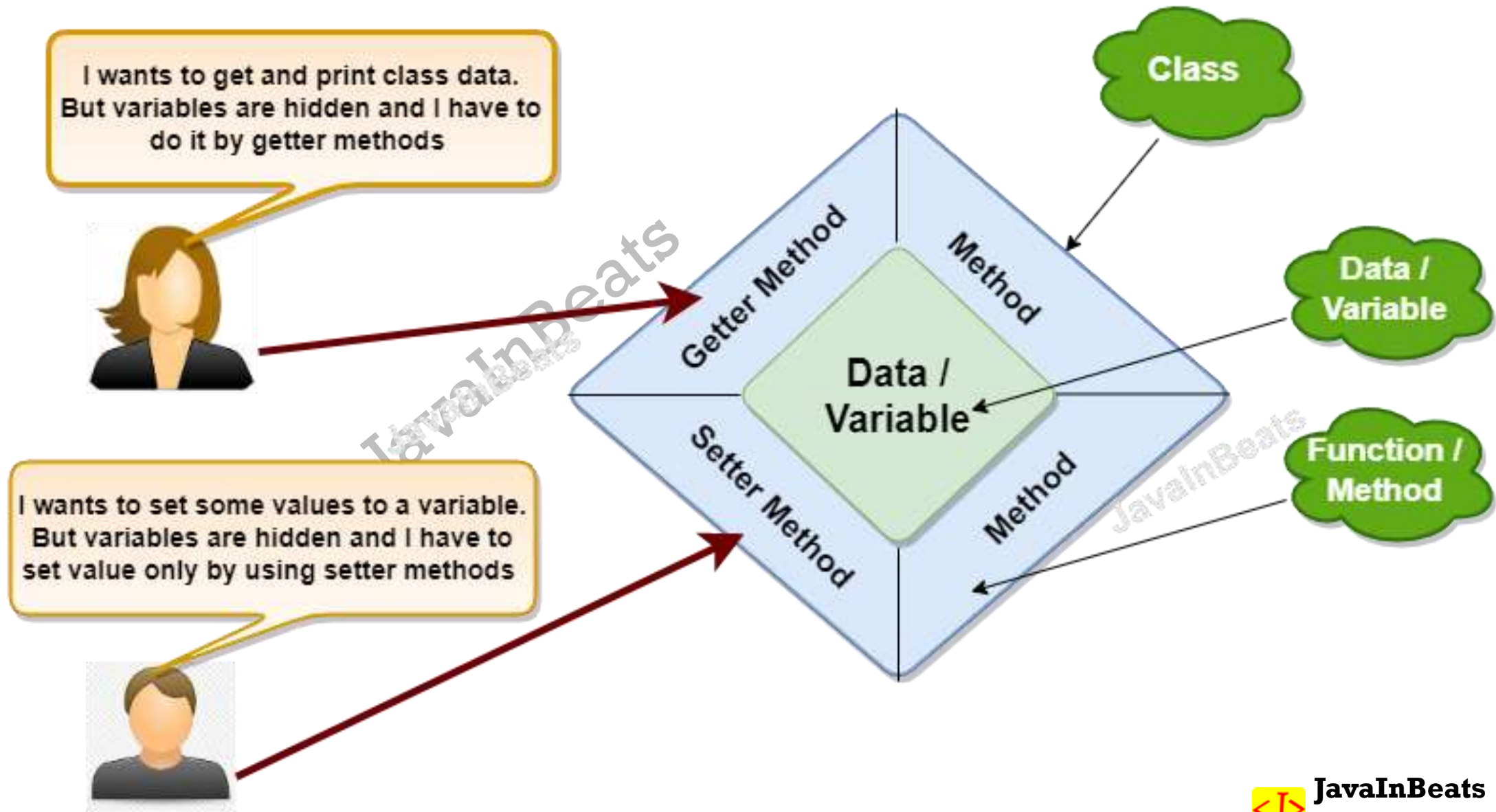
# OBJECT ORIENTED PROGRAMMING



# ENCAPSULATION

1. Is a wrapping of data member (Variable) and member function (method) into a single unit.
2. Class is also a kind of encapsulation.
3. As per the recommendation, do not provide access to an instance variable directly outside class, provide them access using a methods.
4. In encapsulation hide the data members in a class and provide access to it using methods (Getter and Setter)
5. Data can be hide using a private access modifier (Mark all the instance variable as private).
6. Provide access to them using getter and setter methods.
7. Setter Methods
  - a. Setter methods are use to set the value.
  - b. Setter methods should be start with (prefix) 'set' word and followed with variable name.
  - c. Setter methods accept the values which needs to set and no return anything.
8. Getter Methods
  - a. Getter methods are use to get the values
  - b. Getter methods should be start with (prefix) 'get' word and followed with variable name.
  - c. Getter methods will not accept any input value but return the value.

# ENCAPSULATION



# ADVANTAGES OF ENCAPSULATION

- Encapsulated Code is more **flexible** and easily adopts new implementations or modifying existing implementation on the data.
- Allows you to control **who can access what**.
- It is a one of the way to **achieve data hiding**.
- It provides a **central location to access class data/variables**. So that you can decide who and how class data can be access.
- It is a one of the way to **achieve loose coupling**.

# INHERITANCE

- Inheritance in Java is a way in which one class acquires all the properties (variables and methods) of another class.
- There will be a **parent child relationship** establish between the classes after inheritance.
- This is also known as **IS-A relationship** in java.
- Parent class is also known as Super class or Base Class.
- Child class is also known as Sub class or Derived Class.



# INHERITANCE

- You can **access only non private properties** of one class into another class.
- **Cannot inherit constructor** of parent class into child class.
- **extends keyword** is use to achieve inheritance between classes.
- There are total 5 types of inheritance in OOP's, but only single, multilevel, Hierarchical these 3 types are allowed in java.  
Multiple, Hybrid these 2 types are not directly allowed in java but it can be achieve by Interfaces.
- In Java, One class can inherit the properties from only one class at a time.
- In Java one class cannot have more than one parent class.
- All Java classes are directly or indirectly a child of Object Class.





# TYPES OF INHERITANCE

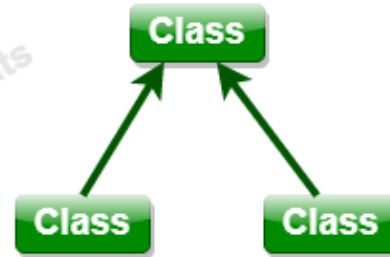
Single



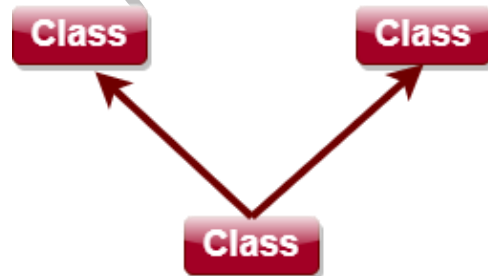
Multilevel



Hierarchical



Multiple



Hybrid

