

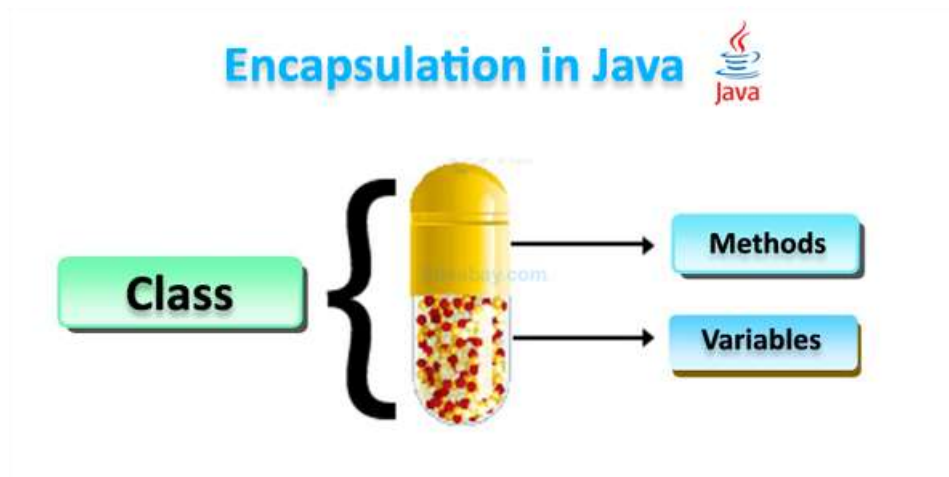
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Object-oriented programming

CSE 1203

Encapsulation

- **Encapsulation** is a process of wrapping of data and methods in a **single unit** is called encapsulation.
- Combining of state and behavior in a is known as encapsulation. **single container**
- Encapsulation is achieved in java language by **class** concept.
- The **Java Bean class** is the example of a fully encapsulated class.
- For example, a capsule which is mixed of several medicines.



Advantage of Encapsulation

- Provides data hiding, other class will not be able to access the data through the private data members.
- Reusability
- Code can be modified without breaking the code
- Maintainability: Hiding implementation details reduces complexity

- By providing only a setter or getter method, you can make the class read-only or write-only. In other words, you can skip the getter or setter methods.
- It provides you the control over the data.
- The encapsulate class is easy to test. So, it is better for unit testing.

Simple Example of Encapsulation

File: Student.java

1. //A Java class which is a fully encapsulated class.
2. //It has a private data member and getter and setter methods.
3. package com.javatpoint;
4. public class Student {
5. //private data member
6. private String name;
7. //getter method for name
8. public String getName(){
9. return name;
10. }
11. //setter method for name
12. public void setName(String name){
13. this.name=name
14. }
15. }

File: Test.java

```
1. //A Java class to test the encapsulated class.
2. package com.javatpoint;
3. class Test{
4.     public static void main(String[] args){
5.         //creating instance of the encapsulated class
6.         Student s=new Student();
7.         //setting value in the name member
8.         s.setName("vijay");
9.         //getting value of the name member
10.        System.out.println(s.getName());
11.    }
12. }
```

Output:

```
vijay
```

How to do encapsulation?

- Declare the variables as private
- Provide public setter and getter method to modify and get the variables value