

ENCAPSULATION:

“ What is Encapsulation?

Encapsulation is a mechanism of wrapping the data (variables) and the methods (functions) together as a single unit, which is called a class. This helps to protect the data from external interference and misuse.”

Benefits of Encapsulation:

1. Data Hiding: Encapsulation helps to hide the data from the outside world, which makes it secure.
2. Code Reusability: Encapsulation promotes code reusability, as the data and methods are wrapped together in a single unit.
3. Improved Code Organization: Encapsulation helps to organize the code in a better way, as the data and methods are grouped together.

How to Achieve Encapsulation in Java:

1. Use Access Modifiers: Use access modifiers like private, public, protected, and default to control the access to the data and methods.
2. Use Getter and Setter Methods: Use getter and setter methods to access and modify the data, instead of accessing it directly.

CODE:

```
class Student
{
    private int age;
    private String name;
    private int rollno;

    public String getname()
    {
        return name;
    }
    public int getage()
    {
        return age;
    }
    public int getrollno()
    {
        return rollno;
    }
}
```

```

    }
    public void setname(String n)
    {
        name= n;
    }
    public void setage(int a)
    {
        age= a;
    }
    public void setrollno(int rn)
    {
        rollno= rn;
    }
}

public class Encapsulation {
    public static void main(String[] args) {
        Student obj =new Student();
        obj.setname("malaika");
        obj.setage(20);
        obj.setrollno(14);
        System.out.println(obj.getname());
        System.out.println(obj.getage());
        System.out.println(obj.getrollno());
    }
}

```

EXPLANATION OF CODE:

Class Student

This class represents a student with three private attributes:

1. age: an integer representing the student's age
2. name: a string representing the student's name
3. rollno: an integer representing the student's roll number

The class provides:

1. Getter methods: getname(), getage(), and getrollno() to retrieve the values of the private attributes.

2. Setter methods: `setname()`, `setage()`, and `setrollno()` to modify the values of the private attributes.

Class Encapsulation:

This class contains the `main()` method, which demonstrates the usage of the Student class:

1. Create a Student object: `Student obj = new Student();`
2. Set the student's attributes: `obj.setname("malaika");`, `obj.setage(20);`, and `obj.setrollno(14);`
3. Retrieve and print the student's attributes: `System.out.println(obj.getname());`, `System.out.println(obj.getage());`, and `System.out.println(obj.getrollno());`