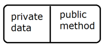
How to write setter and getter for a variable :

```
public class Student
{
   private int rollNumber;   //[Data Hiding]
   private String name;

   public void setRollNumber(int rollNumber)  //setter for rollNumber
   {
      this.rollNumber = rollNumber;
   }

   public int getRollNumber() //getter for rollNumber
   {
       return this.rollNumber;
   }

    public void setName(String name) //setter for name variable
    {
       this.name = name;
    }

    public String getName()  //getter for name
    {
        return this.name;
    }
}
```

*** What is Encapsulation in java ?

[Accessing the private data via public methods like setter and getter]

In Medical Term
we can say it is
capsul



* Binding the data with its associated method in a single unit is called Encapsulation.
* Encapsulation ensures that **our private data must be accessible via public methods like setter and getter.**

```
public class Customer
{
   private double customerBill;


  public void setCustomerBill(double  customerBill)
  {
     this.customerBill =  customerBill;
  }

  public double getCustomerBill()
  {
     return this.cutsometBill;
  }
}
```

ELC class Operation :

1) initailize the customer bill with
   user value
   [Parameterized Constructor]

2) To modify the existing bill
   amount
   [setter OR any public method]

3) To read the customerBill value
   outside of the BLC class
   [getter or Any public method]

4) To print customer bill
   [toString() method]

* It provides data security
* Without data hiding we cannot achieve encapsulation.
* Class is the example of encapsulation because we have data + method

How to achieve encapsulation in a class :

In order to achieve encapsulation we need to follow the following two steps

1) Declare all the fields with private access modifier. [Data Hiding]
2) Declare public methods like setter and getter for the non static variable in the class.

What is tightly encapsulated class and loosely encapsulated class ?

Tightly Encapsulated class :

If we declare all our variables with private access modifier then it is called Tightly encapsulated class

Example :

```
class Student
{
   private int roll;
   private String name;
   private String address;

   //Generate setter and getter for all the variables
}
```

Loosely encapsulated class :

If we decalre our non static filed other than private access modifier then it is called loosely encapsulated class.

Example :

```
class Player
{
   private int id;
   protected String name;
   protected String address;
  //Generate setter and getter for all the variables
}
```

Method return type as a class :

While declaring a method in java, return type is compulsory.
As a method return type we have following options

1) void as a retutn type of the Method

2) Any primitive data type as a return type of the method.

3) Any class name/interface / enum / record we can take as a return type of the method.

```
public int m1()
{

   return 8;
}
```

Conclusion is : The return value **(8)** of the method must be compaitable with return type **(int)** of the method

```
package com.ravi.encapsulation;

public class Test
{

   public Test m2()
   {
      //return null;

      //return new Test();

      Test t1 = new Test();
      return t1;

   }
}
```