**What is Encapsulation?  
Encapsulation** is one of the main ideas in object-oriented programming. It how we hide **the internal details of how a class works** and only showing the parts that other code needs to use not from outsider but mainly from ourselves. We do this by making variables **private** and creating **public methods** (called **getters** and **setters**) to access or change them. Encapsulation helps to keep code clean, organized, and safe from accidental changes. It also makes it easier to fix or improve the code later, because we can control how the data is accessed.

A big benefit of encapsulation is **data protection**. Since variables are private, they cannot be changed directly from outside the class. This prevents bugs and makes the program more secure and easier to understand.

public class Person

{

private string \_name;

public string GetName()

{

return \_name;

}

public void SetName(string name)

{

\_name = name;

}

}

In this example, the \_name variable is private. That means it cannot be accessed directly from outside the class. Instead, the class provides two public methods: GetName() to read the name, and SetName() to change it. This protects the data and gives full control over how it is used.

In conclusion, encapsulation is a powerful tool that helps developers write cleaner, safer, and more reliable code. By keeping data private and using public methods to interact with it, we can make our programs easier to understand and easier to maintain.