**Q.** Write code to calculate the volume of any shape(circle ,rectangle) given by user. Given: Two separate classes for calculating area of them separately. Third class paint calculator should not have any constructor.

Explanation-

The best possible way to implement the previous problem is by using interface .Make a generalized interface Shape and by giving different shapes we can calculate area (for circle and rectangle for time being, later we can add other shapes also)just by using one single function for all different kinds of shapes.

**INTERFACE-**

There are mainly three reasons to use interface. They are given below.

* It is used to achieve abstraction.
* By interface, we can support the functionality of multiple inheritance.
* It can be used to achieve loose coupling.

An **Java interface** cannot contain an implementation of the methods, only the signature (name, parameters and exceptions) of the method. You can use **interfaces** in **Java** as a way to achieve polymorphism.

This method satisfies one of the five SOLID principles of OOPs called the **Open & Closed principle**

In this problem if we add another shape like square. Do we have to change the Shape function?The answer is no.This means this method allows us to add new functionality(OPEN) without having to modify the code(CLOSED).

For more details visit the following link:

<http://www.objectmentor.com/resources/articles/ocp.pdf>

<https://www.hanselminutes.com/145/solid-principles-with-uncle-bob-robert-c-martin>