1. **S**ingle Responsibility → a class should have only one responsibility. It should have only one reason to change. Example is use of **Getter and setter methods** where we can invoke the methods in a separate class.
2. **O**pen/Closed → Open extensions and closed modification.Classes should be open for extension and closed for modification. Examples usage of extends.
3. **L**iskov Substitution → complex item of solid principle.
   1. **if class *A* is a subtype of class *B*, we should be able to replace *B* with *A* without disrupting the behavior of our program.**
   2. Example would be interface.
4. **I**nterface Segregation → Larger interfaces should be split into smaller ones.By this principle implementing classes only need to be concerned.
5. **D**ependency Inversion → decoupling of software modules. Instead of high level modules depending on low level modules both will depend on abstraction.

**Design Patterns in Automation Framework**

**Page object Model -** use of constructor

**Factory Design Pattern -** PageFactory.initElements(driver, this)

**Facade Design Pattern** - Combine the action classfacade then call it in another class designfacede by calling classfacade

**Singleton** -> Use same object of class across the automation framework . Restricts initiation of class to a single instance

**Fluent Page Object Model** - Fluent interface and method chaining

**lazy initialization:** **AjaxElementLocatorFactory** is a lazy load concept in Page Factory. This is used to identify web elements only when used in any operation or activity. The timeout of a web element can be assigned to the object class with the help of the **AjaxElementLocatorFactory**.

**Benefits of Using Page Object Model:**

* Code maintainability
* Readability
* Flexible for modificaition
* Independent modules

Basically POM -> has 3 segregations

Pageobjects -> we define all the locators

Pageactions -> call the locator to performt he logics

Runner -> this is where the code runs

Page Object model - 2 different ways to implement