

# SOLID

**S**ingle Responsibility Principle  
**O**pen Closed Principle  
**L**iskov Substitution Principle  
**I**nterface Segregation Principle  
**D**ependency Inversion Principle

# Single Responsibility Principle





**THERE SHOULD NEVER BE MORE THAN ONE  
REASON FOR A CLASS TO CHANGE**

# Single Responsibility

focused, single functionality  
addresses a specific concern





# Open - Closed Principle

The background of the slide is a deep blue gradient. It features an abstract, low-poly geometric pattern composed of various shades of blue, creating a sense of depth and movement. Two bright, circular light flares are positioned in the upper right quadrant, adding a dynamic and modern feel to the design.

**SOFTWARE ENTITIES (Classes, Modules, Methods etc.)  
SHOULD BE OPEN FOR EXTENSION, BUT CLOSED FOR  
MODIFICATION**

**Open for Extension**    Extend existing behavior

**Closed for Modification**    Existing code remains unchanged



Closed for Modification  
(avoid modifying base class)



Open for extension  
(can derive from base &  
override methods)





# **Liskov Substitution Principle**



**WE SHOULD BE TO SUBSTITUTE BASE CLASS OBJECTS  
WITH CHILD CLASS OBJECTS & THIS SHOULD NOT  
ALTER BEHAVIOR/CHARACTERISTICS OF PROGRAM**

# Interface Segregation Principle



**CLIENTS SHOULD NOT BE FORCED TO DEPEND  
UPON INTERFACES THAT THEY DO NOT USE**

# Interface Pollution

## Signs of Interface Pollution

Classes have empty method implementations

Method implementations throw `UnsupportedOperationException` (or similar)

Method implementations return null or default/dummy values

# Dependency Inversion Principle



**A. HIGH LEVEL MODULES SHOULD NOT DEPEND UPON  
LOW LEVEL MODULES. BOTH SHOULD DEPEND UPON**

## **ABSTRACTIONS**

**B. ABSTRACTIONS SHOULD NOT DEPEND UPON DETAILS.  
DETAILS SHOULD DEPEND UPON ABSTRACTIONS**