

Summary of Single Responsibility Principle

The Single Responsibility Principle (SRP) is the first of the SOLID Design Principles, emphasizing that a class should have only one reason to change. This means a class should focus on a single, specific functionality or address a particular concern.

Key Points:

1. If a class has multiple responsibilities, changes in one area can lead to a ripple effect, impacting other functionalities.
2. For example, a class that creates and sends messages might need to change if:
 - The communication protocol changes.
 - The message format changes (e.g., from JSON to XML).
 - Additional communication parameters, like authentication, are introduced.
3. To avoid such issues, responsibilities should be divided among separate classes or modules, each handling a distinct concern.

Purpose:

The principle aims to make code easier to maintain, modify, and organize by ensuring each class has a focused purpose.

When properly applied, changes to the code are localized, reducing unintended side effects.

In essence, SRP ensures that every class in a system is responsible for only one functionality, simplifying maintenance and improving overall code quality.