

General Responsibility Assignment Software Patterns (GRASI)

Pattern	Description
Information Expert	A general principle of object design and responsibility assignment? Assign a responsibility to the information expert — the class that has the information necessary to fulfill the responsibility.
Creator	Who creates? (Note that Factory is a common alternate solution.) Assign class B the responsibility to create an instance of class A if one of these is true: 1. B contains A 4. B records A 2. B aggregates A 5. B closely uses A 3. B has the initializing data for A
Controller	Who handles a system event? Assign the responsibility for handling a system event message to a class representing one of these choices: 1. Represents the overall system, device, or a subsystem (facade controller). 2. Represents a use case scenario within which the system event occurs (use-case or session controller)
Low Coupling (evaluative)	How to support low dependency and increased reuse? Assign responsibilities so that (unnecessary) coupling remains low.
High Cohesion (evaluative)	How to keep complexity manageable? Assign responsibilities so that cohesion remains high.
Polymorphism	Who is responsible when behavior varies by type? When related alternatives or behaviors vary by type (class), assign responsibility for the behavior — using polymorphic operations — to the types for which the behavior varies.
Pure Fabrication	Who is responsible when you are desperate, and do not want to violate high cohesion and low coupling? Assign a highly cohesive set of responsibilities to an artificial or convenience "behavior" class that does not represent a problem domain concept — something made up, in order to support high cohesion, low coupling, and reuse.
Indirection	How to assign responsibilities to avoid direct coupling? Assign the responsibility to an intermediate object to mediate between other components or services, so that they are not directly coupled.
Protected Variations	How to assign responsibilities to objects, subsystems, and systems so that the variations or instability in these elements do not have an undesirable impact on other elements? Identify points of predicted variation or instability; assign responsibilities to create a stable "interface" around them.