How to Select & Use a Design Pattern

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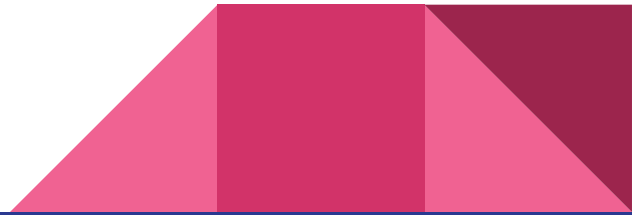
How to Select a Design Pattern

1. *Consider how design patterns solve design problems.*
2. *Scan Intent sections.*
3. *Study how patterns interrelate.*
4. *Study patterns of like purpose.*
5. *Examine a cause of redesign.*
6. *Consider what should be variable in your design.*



Purpose

Design Pattern	Aspect(s) That Can Vary	
Creational	Abstract Factory	families of product objects
	Builder	how a composite object gets created
	Factory Method	subclass of object that is instantiated
	Prototype	class of object that is instantiated
	Singleton	the sole instance of a class

Purpose

Design Pattern	Aspect(s) That Can Vary	
Structural	Adapter	interface to an object
	Bridge	implementation of an object
	Composite	structure and composition of an object
	Decorator	responsibilities of an object without subclassing
	Facade	interface to a subsystem
	Flyweight	storage costs of objects
	Proxy	how an object is accessed; its location

Purpose

Design Pattern	Aspect(s) That Can Vary	
Behavioral	Chain of Responsibility	object that can fulfill a request
	Command	when and how a request is fulfilled
	Interpreter	grammar and interpretation of a language
	Iterator	how an aggregate's elements are accessed, traversed
	Mediator	how and which objects interact with each other

Purpose

Design Pattern	Aspect(s) That Can Vary	
Behavioral	Memento	what private information is stored outside an object, and when
	Observer	number of objects that depend on another object; how the dependent objects stay up to date
	State	states of an object
	Strategy	an algorithm
	Template Method	steps of an algorithm
	Visitor	operations that can be applied to object(s) without changing their class(es)

How to Use a Design Pattern

1. *Read the pattern once through for an overview.* Pay particular attention to the **Applicability and Consequences** sections to ensure the pattern is right for your problem.
2. *Go back and study the **Structure, Participants, and Collaborations** sections.* Make sure you understand the classes and objects in the pattern and how they relate to one another.
3. *Look at the **Sample Code** section to see a concrete example of the pattern in code.* Studying the code helps you learn how to implement the pattern.
4. *Choose **names** for pattern participants that are meaningful in the application context.*
5. *Define the **classes.***
6. *Define application-specific **names for operations** in the pattern.*
7. ***Implement the operations** to carry out the responsibilities and collaborations in the pattern.* The Implementation section offers hints to guide you in the implementation.

Thank You