

Design Pattern

Design patterns are elegant solutions to repeating problems in software design. There are 23 design patterns that were originally documented in nineties in the book called "Design Patterns: Elements of Reusable Object - Oriented Software". The book was written by four Authors known as Gang of Four (GoF). Gang of Four Patterns includes 23 design patterns in 3 categories.

1. Creational design pattern
2. Structural design pattern
3. Behavioral design pattern

1. Creational design pattern

Creational design patterns are all about different ways to create objects.

- Singleton
- Prototype
- Builder
- Abstract factory
- Factory method

2. Structural design pattern

Structural design pattern can be used to combine object and classes in order to built structured object. or They deal with how objects are connected with each other or How classes are connected with each other.

- Adaptor
- Bridge
- Composite
- Decorator
- Facade
- Flyweight
- Proxy

2. Behavioral design pattern

Behavioral design pattern deals with the way in which classes or objects interacted and distribute responsibilities among themselves.

- Chain of responsibility
- Command
- Interpreter
- Iterative
- Mediator
- Observer
- State
- Strategy
- Template method
- Visitor
- Memento

Benefits of Design Patterns

- They help us to communicate with other developers at a more abstract level.
- They make us better designer. We can learn how to build reusable, extensible and maintainable software.
- They make us learn new frameworks faster.

SOLID Principles of Object-Oriented Design:

1. SRP (Single Responsibility Principle)
2. OCP (Open Closed Principle)
3. LSP (Liskov Substitution Principle)
4. ISP (Interface Segregation Principle)
5. DIP (Dependency Inversion Principle)