1. Design Pattern

* Are the best practices
* Are the solutions to general problems that software developers face during development

1. Gang of Four (GOF)?

* In 1994, four authors ***Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides*** published a book titled Design patterns – Elements of Reusable Object-Oriented Software
* These authors are known as Gang Of Four (GOF)
* Design patterns are primarily based on following principles
  1. Program to an interface not an implementation
  2. Favor object composition over inheritance

1. Classification of Design Patterns

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  1. Creational pattern
     + Create objects hiding the creation logic rather than instantiating objects directly using new operator
  2. Structural Pattern
     + These patterns concern class and object composition.
     + Inheritance is used to compose interfaces and define ways to compose objects to obtain new functionalities
  3. Behavioral Patterns
     + Specifically concerned with communication between objects

1. Design Principles

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  1. Indentify the aspects of your application that vary and separate them from what stays the same
     + Take what varies and “encapsulate” it so it won’t affect the rest of the code
  2. Program to an interface, not an implementation
     + You can actually program to an interface without actually using an interface
  3. Favor Composition over Inheritance
     + It lets you encapsulate a family of algorithms
     + Change behavior at runtime

1. Strategy Pattern

* It comes under behavior pattern
* In this pattern, a class behavior or its algorithm can be changed at runtime
* … defines a family of algorithms, encapsulates each one and make them interchangeable
* In this pattern, instead of adding functions to the interfaces, we create a new interface for behaviors that may vary and create other implementations of that interface so that main context can choose the strategies according to the varying behavior