C++

Design Patterns Simplified Version

by admin

Design pattern describes solutions to a problem which arises while developing software for a specific condition. Design patterns are basically independent of any programming language. Lot of guys do the mistake of thinking it as an algorithm but its a common way to solve a generic problem which can be simple or complex.

Basically there are three different categories of design patterns depending on the problem they address:

1) Creational Patterns

2) Structural Patterns

3) Behavioural Patterns

Creational Patterns:

These design patterns solves the given problem by means of object creation mechanism. Normal way of object oriented solution to solve a problem sometimes create design problems and increasing complexity of the software. Thus, a set of design patterns are there to handle such kind of issues. Examples of this category of design patterns are as follows:

1) Factory Method – This design pattern is used to create an instance from the family of various derived classes.

2) Abstract Factory Method – This design pattern is used to create an instance from the several family of various derived classes.

3) Builder Method – This design pattern is used to separate construction and representation of an object to create different objects via same construction process.

4) Prototype Method – This design pattern is used clone mechanism to create a new object from a fully initialized object to minimize cost creation of new object.

5) Singleton Method – This design pattern is used to create one and only one object of a class of global context to provide co-ordination between various modules of a software.

Structural Patterns:

These design patterns solves the given problem by means of class and object composition to provide required functionality. Examples of this category of design patterns are as follows:

1) Adapter – This design pattern is used to adapt the interface of a class into another interface which other module expects.

2) Bridge – This design pattern is used to separate out the interface from its implementation logic to provide flexibility.

3) Composite – This design pattern is used to create a tree structure of objects to provide hierarchies in the software.

4) Decorator – This design pattern is used to provide additional functionality to an objects dynamically.

5) Facade – This design pattern is used to hide the complexities of the system by providing a simple interface to other module of the system.

6) Flyweight – This design pattern is used to share properties of objects to reduce maintenance cost of objects.

7) Proxy – This design pattern is used to create an object for another object to hide the complexities and reduce maintenance cost of the object.

Behavioural Patterns:

These design patterns solves the given problem by means of communication between different class objects. Examples of this category of design patterns are as follows:

1) Chain of Responsibility – This design pattern is used to to handle passing of information from a chain of objects until one of them handles it.
2) Command – This design pattern is used to encapsulate a request as an object.
3) Interpreter – This design pattern is used to provide a way to include grammar of a language to interpret sentences in the language.
4) Iterator – This design pattern is used to iterate through a similar collection of objects.
5) Mediator – This design pattern is used to encapsulate way of interaction between objects to simplify communication between classes.
6) Memento – This design pattern is used to capture an object to expose object's internal state without violating encapsulation.
7) Observer – This design pattern is used to handle notification to multiple objects due to one object modification.
8) State – This design pattern is used to change the functionality of an object whenever its state changes.
9) Visitor – This design pattern is used to provide a way to define a new functionality to a class object without changing its structure.
10) Strategy – This design pattern is used to encapsulate various algorithm inside class to allowing the change of algorithm randomly.

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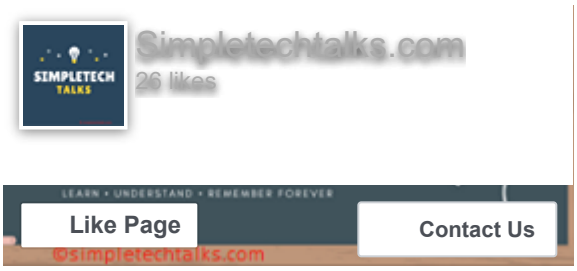

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