

Design Patterns in Action



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Abstract Factory

Provides an interface
for creating families of
related or dependent
objects without
specifying their
concrete classes



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Builder

Separates the construction of a complex object from its representation, allowing the same construction process to create different representations.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Factory Method

Defines an interface
for creating objects
but allows subclasses
to alter the type of
objects that will be
created.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Prototype

Creates new objects by copying an existing object, thus avoiding the need to create new classes.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Singleton

Ensures a class has
only one instance and
provides a global point
of access to that
instance.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Adapter

Allows incompatible interfaces to work together by wrapping an interface around an existing class.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Bridge

Decouples an abstraction from its implementation so that the two can vary independently.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Composite

Allows clients to treat individual objects and compositions of objects uniformly.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Decorator

Attaches additional responsibilities to an object dynamically, providing a flexible alternative to subclassing for extending functionality.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Facade

Provides a unified interface to a set of interfaces in a subsystem, simplifying their usage.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Flyweight

Minimizes memory
usage or
computational
expenses by sharing as
much as possible with
similar objects.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Proxy

Provides a placeholder
for another object to
control access to it.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Chain of Responsibility

Allows multiple objects to handle a request without the sender needing to know which object will process it.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Command

Encapsulates a request
as an object, thereby
allowing for
parameterization of
clients with queues,
requests, and
operations.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Interpreter

**Defines a grammar for
a language and
provides an interpreter
to interpret sentences
in the language.**



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Iterator

Provides a way to access the elements of an aggregate object sequentially without exposing its underlying representation.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Mediator

Defines an object that encapsulates how a set of objects interact, promoting loose coupling by keeping objects from referring to each other explicitly.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Memento

Captures and externalizes an object's internal state so that the object can be restored to this state later.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Observer

Defines a dependency between objects so that when one object changes state, all its dependents are notified and updated automatically.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



State

Allows an object to alter its behavior when its internal state changes, treating different states as separate objects.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Strategy

Defines a family of algorithms,
encapsulates each one,
and makes them interchangeable,
enabling clients to use
them interchangeably.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Template Method

Defines the skeleton
of an algorithm in the
superclass but lets
subclasses override
specific steps of the
algorithm without
changing its structure.



Dr Milan Milanović
Chief Technology Officer @ 3MD

Dinesh Varyani
Engineer @ Google



Visitor

**Represents an operation
to be performed on
elements of an object
structure, allowing new
operations to be defined
without changing the
classes of the elements
on which they operate.**

If you like the content
Don't forget to
follow us



Dinesh Varyani



Dr Milan Milanović