Command and Mediator pattern

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1. Command pattern – Real World Examples

- Turn on/off the light.

- Order dishes in restaurant.

- Stock buy/sell system.

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1. Command pattern – Definition

- The **command pattern** is a [behavioral](link) [design pattern](link) in which an object is used to [encapsulate](link) all information needed to perform an action or trigger an event at a later time. This information includes the method name, the object that owns the method and values for the method parameters.

- The **command pattern** encapsulates a request as an object, thereby letting us parameterize other objects with different requests, queue or log requests, and support undoable operations.

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1. Command pattern – Class diagram
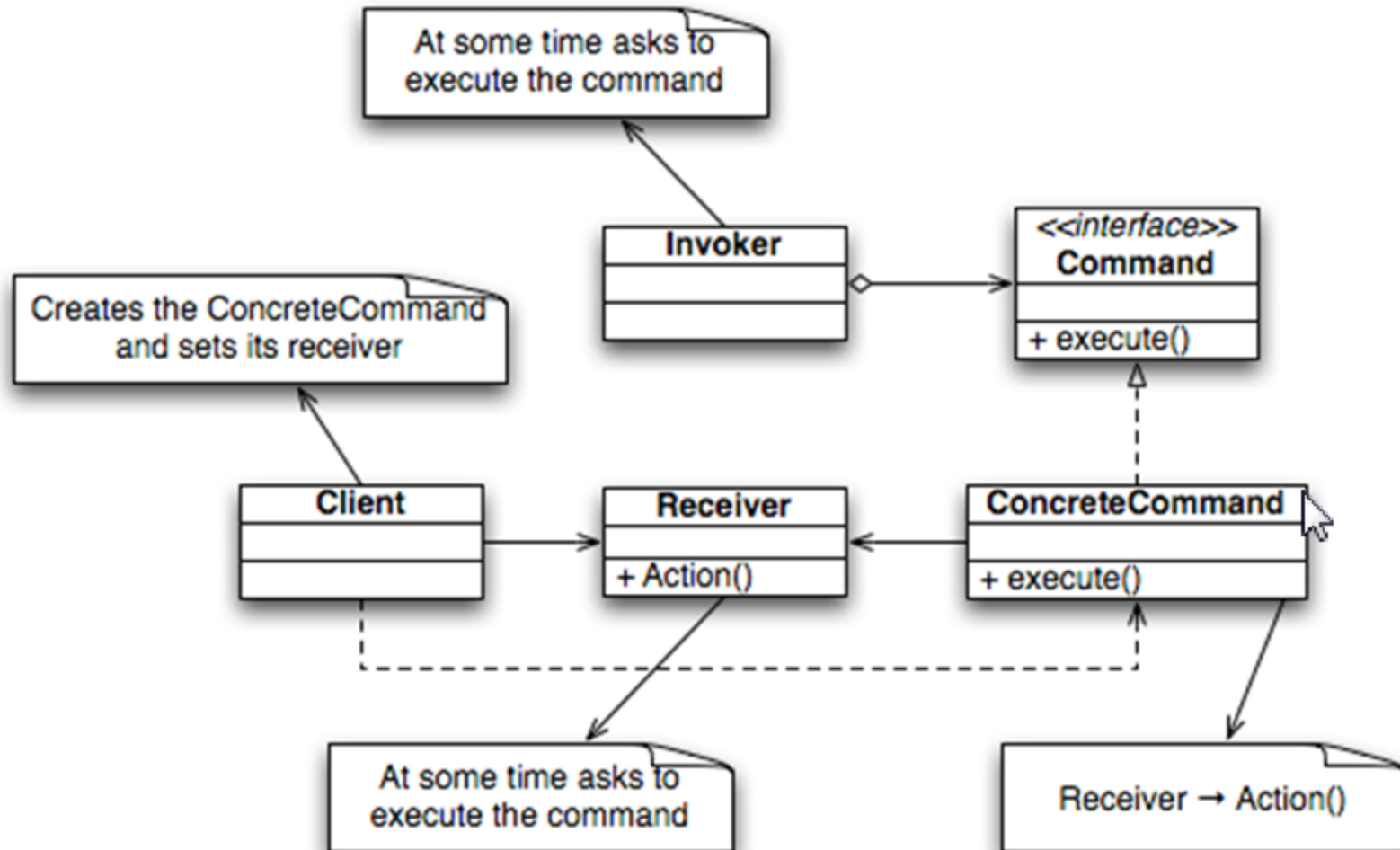
1. Command pattern – Sequence diagram
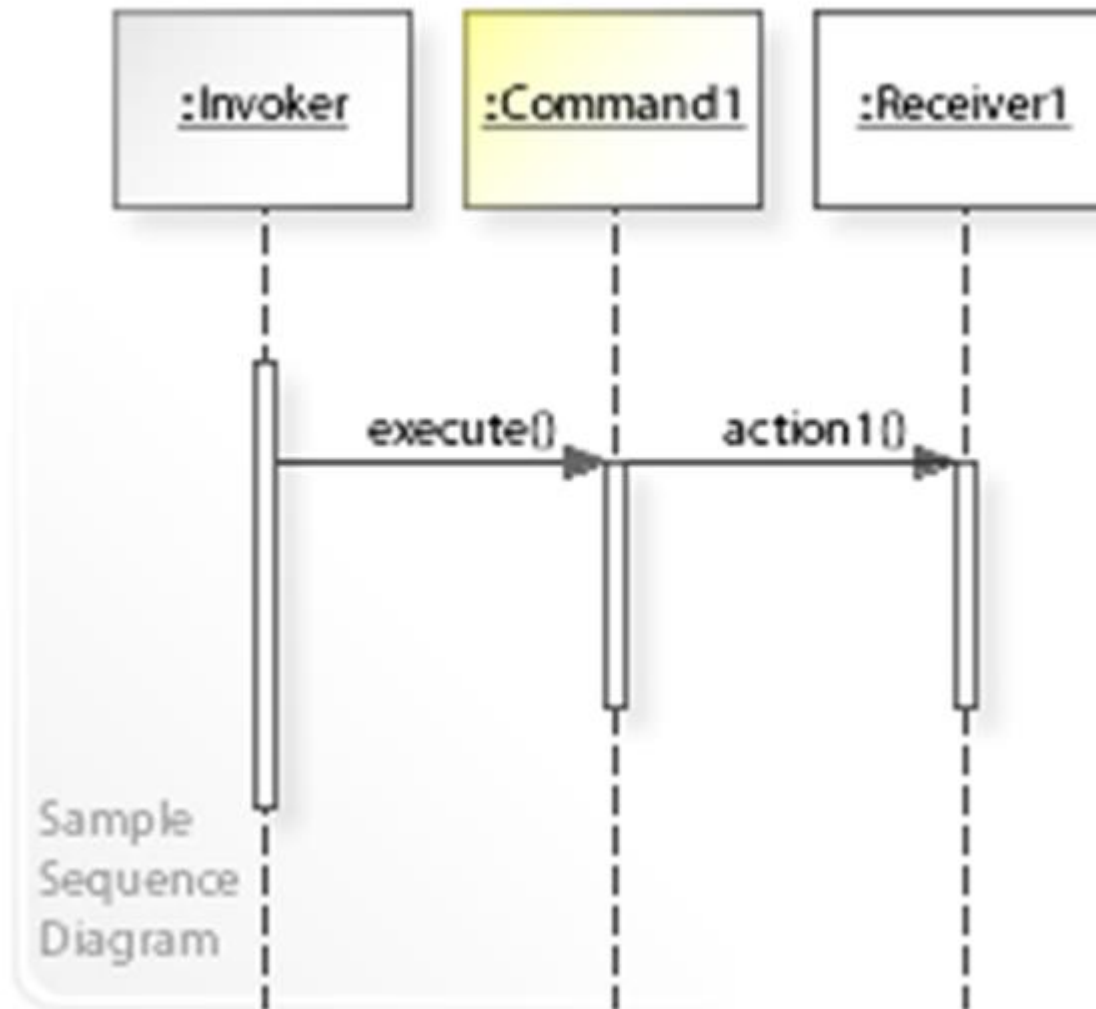
1. Command pattern – Advantages

- Makes our code extensible as we can add new commands without changing existing code.

- Reduces coupling the invoker and receiver of a command.
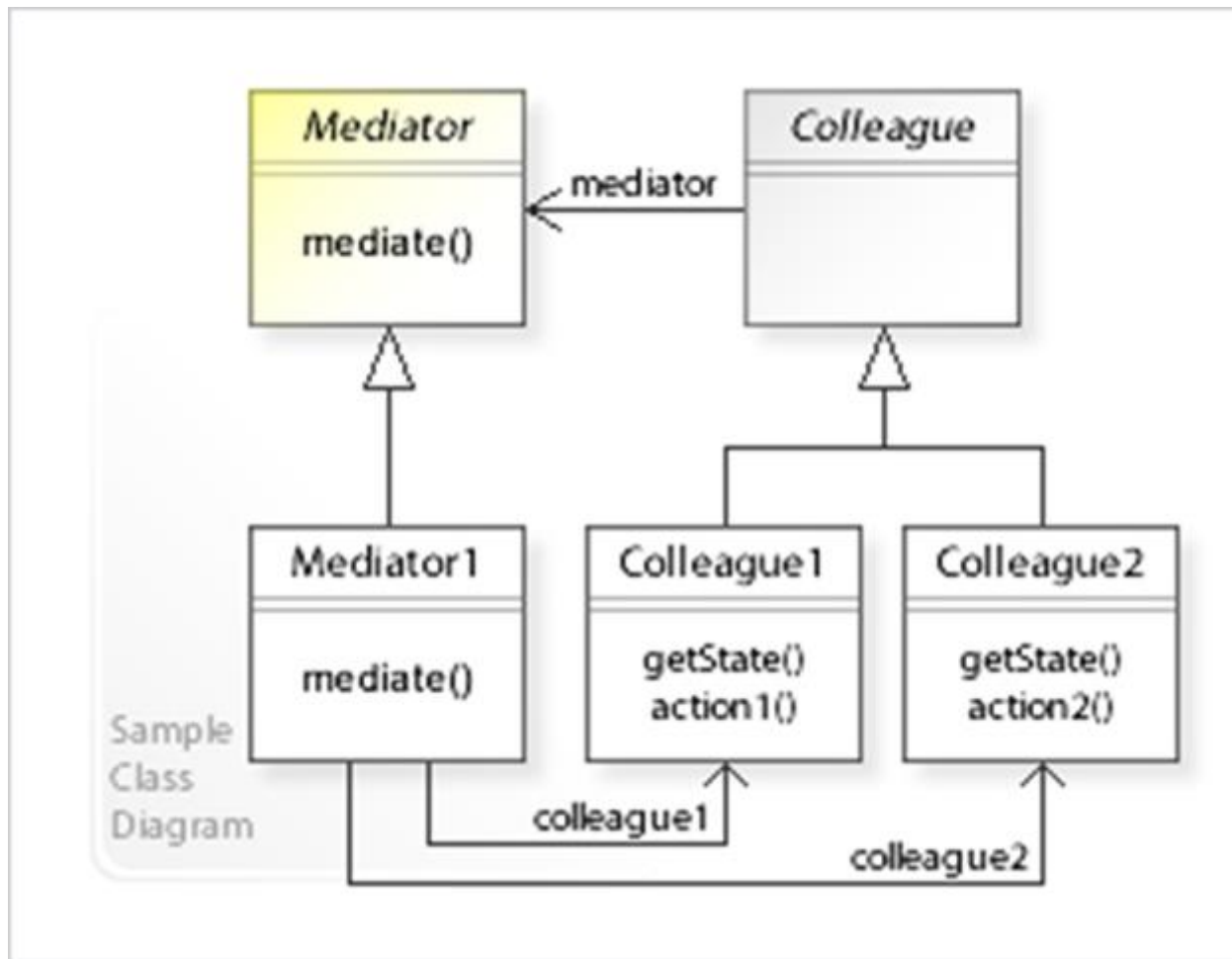
1. Command pattern – Disadvantages

- Increase in the number of classes for each individual command.

# 1. Command pattern – Source code demo

2. Mediator pattern – Definition

- The **mediator pattern** defines an object that encapsulates how a set of objects interact. This pattern is considered to be a behavioral pattern due to the way it can alter the program's running behavior.

- The mediator design pattern defines an object that encapsulates how a set of objects interact.
  The Mediator is a behavioral pattern (like the Observer or the Visitor pattern) because it can change the program's running behavior.

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2. Mediator pattern – Class diagram

2. Mediator pattern – Sequence diagram
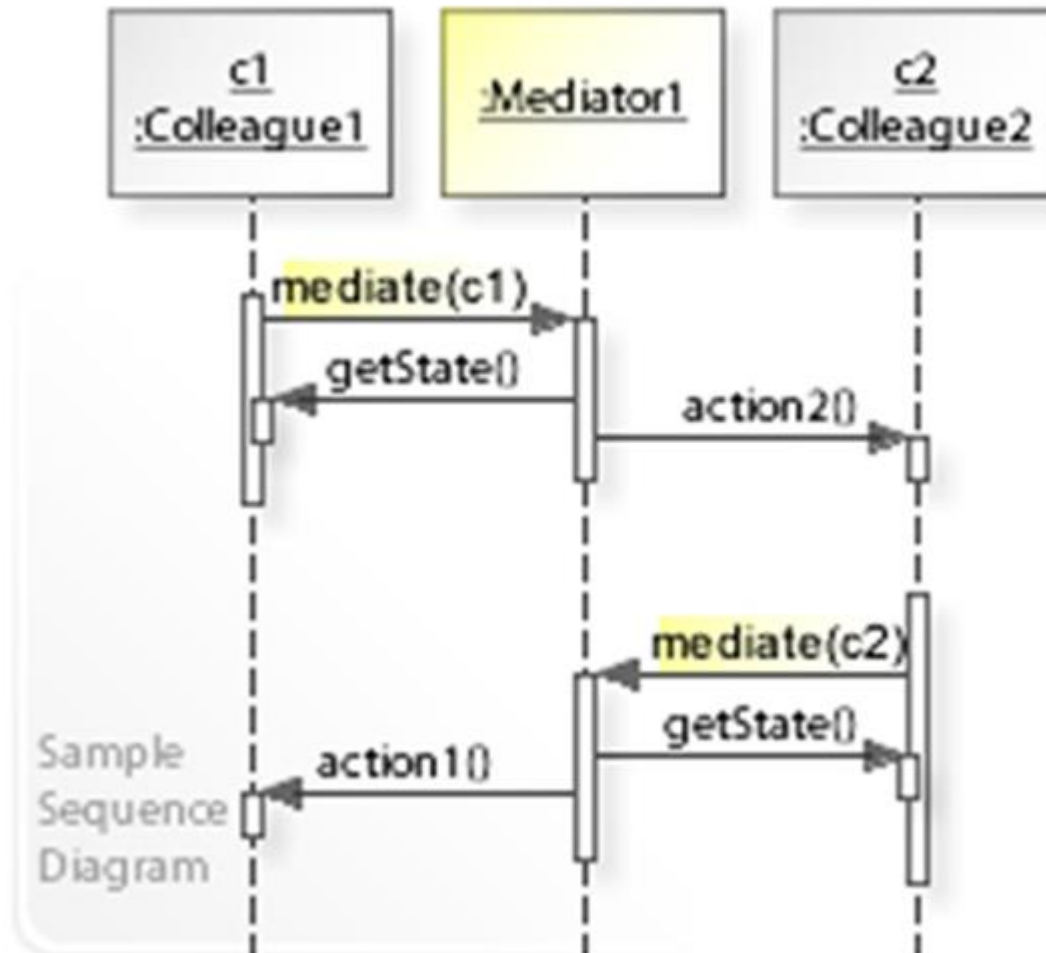
2. Mediator pattern – Advantages

- Simplicity.

- You can replace one object in the structure with a different one without affecting the classes and the interfaces.

2. Mediator pattern – Disadvantages

- The Mediator often needs to be very intimate with all the different classes, And it makes it really complex.

2. State pattern – Source code demo

4. Quiz

1. What kind of command pattern?
   a. *Creational* **b.** *Structural* **c.** *Behavioral* **d.** *Concurrency*

2. What kind of Mediator pattern?
   a. *Creational* **b.** *Behavioral* **c.** *Structural* **d.** *Concurrency*

3. What are the disadvantages of Command pattern?

   a. Increase in the number of classes for each individual command

   b. Nothing

   c. Memory leaks caused by [Lapsed listener problem](#)

   d. This pattern avoids duplication of objects which might be huge size and memory intensive.

4. What is the benefit of Mediator pattern?

   a. Simplicity.

   b. New states can be added by defining new state classes.

   c. One of the advantages of this pattern is security.

   d. You can replace one object in the structure with a different one without affecting the classes and the interfaces.

5. Which are these methods that Command class commonly have in Command pattern?

   a. SwitchState, Unsubcrible, Notify **b.** Execute *c. Clone, Update*

   d. Sucrible, Unsubcrible, Notify

6. How many class types need to implement in Mediator pattern?

   a. 4 **b.** many *c. 2* **d.** 8

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End…

Thank you!

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