|  |
| --- |
| Chain of Responsibility |
| * Gives more than one object an opportunity to handle a request by linking receiving objects together. * Example: JDK implementation of exception handling. Use throws keyword to pass the request to the next exceptional handler. |
| Mediator Pattern |
| * **Too many relationships exist and common point of control or communication is needed.** * Example, group chat program. All users need to have a reference of mediator. Mediator maintains a list of users. When one of the users sends a message, the user actually uses the reference of the mediator to loop through all the users and send out the message to everybody. ([Detail](http://www.journaldev.com/1730/mediator-design-pattern-in-java-example-tutorial))           ChatMediator mediator = new ChatMediatorImpl();          User user1 = new UserImpl(mediator, "Pankaj");          User user2 = new UserImpl(mediator, "Lisa");          mediator.addUser(user1);          mediator.addUser(user2);            user1.send("Hi All"); |
| Observer Pattern |
| * **Other objects will be notified when one object’s state is changed.** * Example: can be found in almost every GUI env. When buttons or other components are placed in application, the application typically registers as a listener for those controls. When a user triggers an event, such as clicking a button, the control iterates through its registered observers and sends a notification to each. (one button can have multiple listeners. ) |
| Strategy Pattern |
| 1. Defines multiple algorithms that can be swapped to carry out a specific behavior 2. Example in JDK, [Arrays.sort().](http://www.programcreek.com/2013/11/arrays-sort-comparator/) By passing in different comparator, the sorting behavior is different.   *Dog d1 = new Dog(2, 50);*  *Dog d2 = new Dog(1, 30);*  *Dog d3 = new Dog(3, 40);*  *Dog[] dogArray = {d1, d2, d3};*  *printDogs(dogArray);*  *Arrays.sort(dogArray, new DogSizeComparator());*  *printDogs(dogArray);*  *Arrays.sort(dogArray, new DogWeightComparator());*  *printDogs(dogArray);* |
| Template Method |
| * Identifies the framework of an algorithm, allowing implementing classes to define the behavior. * Example in JDK. Any interface defined in java, the concrete classes need to implement the abstract method defined in the interface. |
| State Pattern |
| * This allows you easily change an object’s behavior at runtime based on internal state. * Example: [MP3 Player](http://java.dzone.com/articles/design-patterns-state), press play button. (State object has a reference to the context object too) |
| Command Pattern |
| * It allows the requester of a particular action to be decoupled from the object that performs the action. * Command will have common interface which has an abstract function execute all concrete command must impl. * Example: JDK: java.lang.Runnable |
| Iterator Pattern |
| * Allows access to the elements of an aggregate object without allowing access to its underlying representation. * Example: JDK, ArrayList and iterator. ArrayList will have iterator created. Client get reference of iterator by ArrayList. |