

# Observer Pattern

`add-watch`   `remove-watch`

(   /   )

가 (Dartee Hebl) 가

가 가 가 ?

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Observer

```
public interface Observer {
    void notify(User u);
}
```

: .

```
class MailObserver implements Observer {
    @Override
    public void notify(User user) {
        MailService.sendToFBI(user);
    }
}
```

```
class BlockObserver implements Observer {
    @Override
    public void notify(User u) {
        DB.blockUser(u);
    }
}
```

: Tracker .

```
public class Tracker {
    private Set<Observer> observers = new HashSet<Observer>();

    public void add(Observer o) {
        observers.add(o);
    }
}
```

```

    }

    public void update(User u) {
        for (Observer o : observers) {
            o.notify(u);
        }
    }
}

```

가 : User initTracker()  
 . addMoney 100\$ FBI  
 .

```

public class User {
    String name;
    double balance;
    Tracker tracker;

    public User() {
        initTracker();
    }

    private void initTracker() {
        tracker = new Tracker();
        tracker.add(new MailObserver());
        tracker.add(new BlockObserver());
    }

    public void addMoney(double amount) {
        balance += amount;
        if (amount > 100) {
            tracker.update(this);
        }
    }
}

```

: ? .

```

class MailAndBlock implements Observer {
    @Override
    public void notify(User u) {
        MailService.sendToFBI(u);
        DB.blockUser(u);
    }
}

```

: (Single responsibility principle) .

```

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```

```

;; Tracker
(def observers (atom #{}))

(defn add [observer]
  (swap! observers conj observer))

(defn notify [user]
  (map #(apply % user) @observers))

;; Fill Observers
(add (fn [u] (mail-service/send-to-fbi u)))
(add (fn [u] (db/block-user u)))

;; User
(defn add-money [user amount]
  (swap! user
    (fn [m]
      (update-in m [:balance] + amount))))
;; tracking
(if (> amount 100) (notify)))

```

```

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: , watch .

```

```

(add-watch
 user
 :money-tracker
 (fn [k r os ns]
  (if (< 100 (- (:balance ns) (:balance os)))
    (notify))))

```

```

: ?

: add-money 가 . watcher
add-money , user

:

```

: secret-add-money가 , watcher  
.  
: ! .

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## Plugin Backlinks:

From:

<https://moro.kr/> - **Various Ways**

Permanent link:

<https://moro.kr/open/observer-pattern>

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