The Proxy

Proxy

Controlled access

Hides the real object

Provides the same interface as the real object

```
Client ──────────────▶ «interface»
                        Subject
                        ─────────────
                        +request()
                              △
                              ┊
                ┌─────────────┴─────────────┐
                ┊                           ┊
          Proxy                       RealSubject
          ─────────────────────       ─────────────
          +realSubject: RealSubject   +request()
          ─────────────────────
          +request()

          func request() {
              // proxy logic before
              realSubject.request()
              // proxy logic after
          }
```
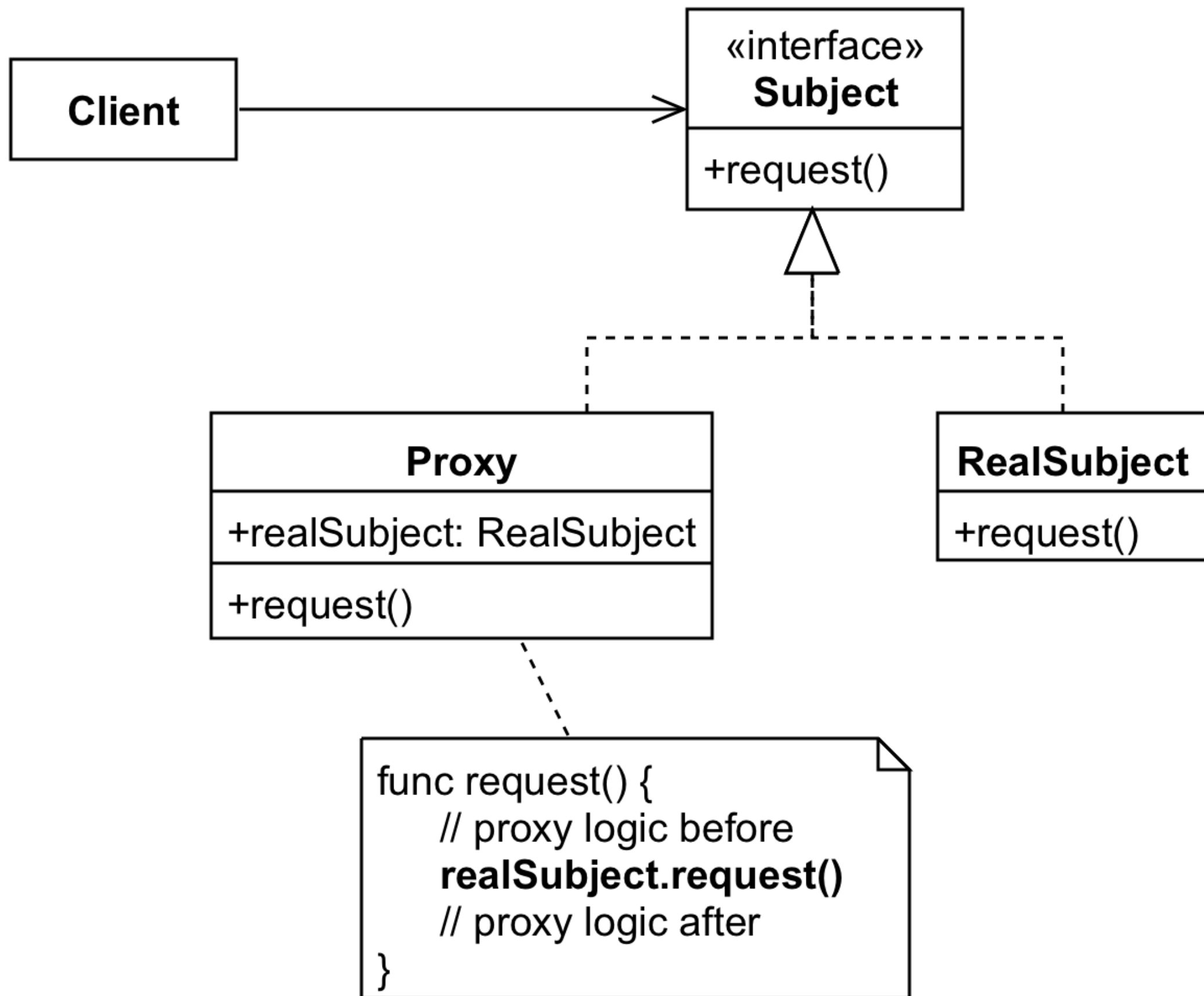
Remote proxy

- Local placeholder for remote resources

- Delegates client requests over the network

- Hides complex network operations

Virtual proxy

- Placeholder for expensive resources

- Delays creation of real object until its first use

Protective proxy

- Controls access to sensitive objects

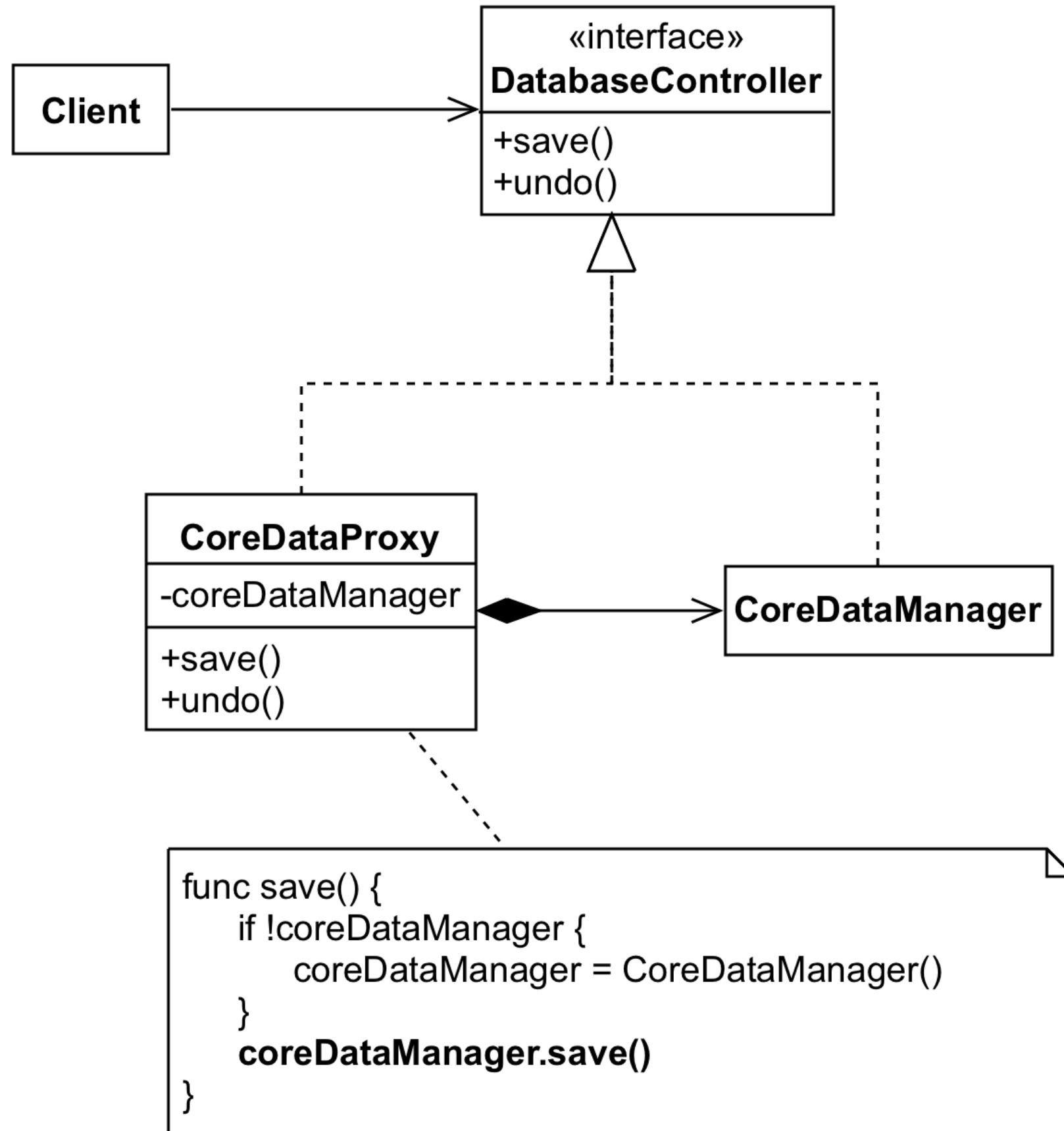- Checks caller before delegating the request to the protected object

Proxy

Provides controlled access to an object through a placeholder.

Demo

SlowLoader

Lazy Initialization

Delaying the creation of an object until its first use.

```
func save() {
    if !coreDataManager {
        coreDataManager = CoreDataManager()
    }
    coreDataManager.save()
}
```

Summary

The Proxy Pattern:

- Hides real object behind a placeholder

Popular Uses:

- Remote proxy

- Virtual proxy

- Protective proxy

Pitfalls

- Introducing the proxy should not trigger changes on the client-side

- Don't expose the real objects