

Pontificia Universidad Católica de Chile
Escuela de Ingeniería
Departamento de Ciencia de la Computación

Clase 23: Patrones Estructurales (parte 2)

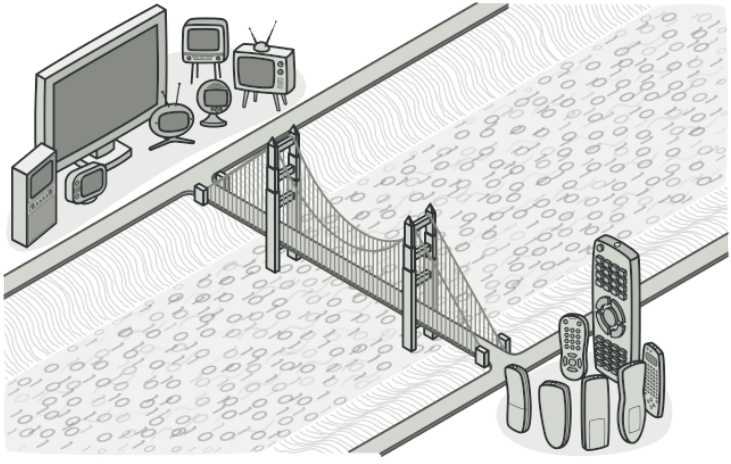
Francisco Gazitúa Requena (fco_gazitua_requena@uc.cl)

IIC2113 Diseño Detallado de Software

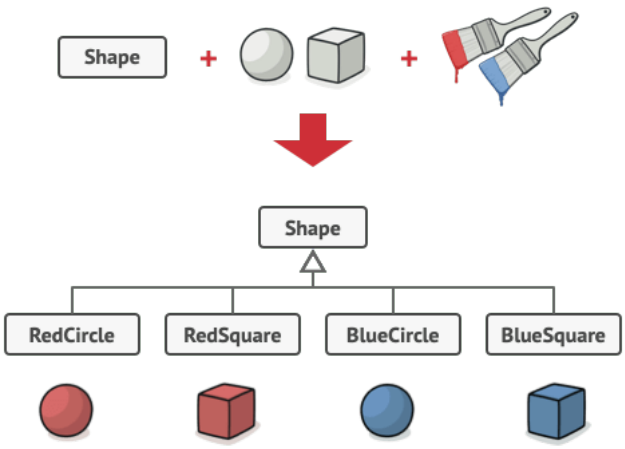
28 de Octubre, 2025

Bridge

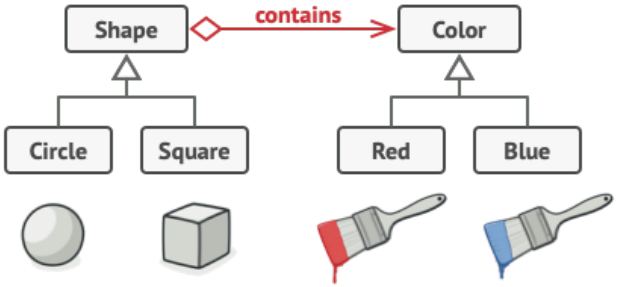
Bridge



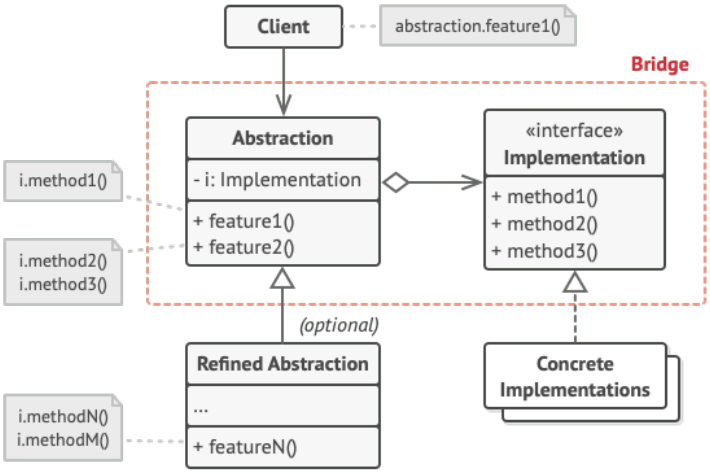
Bridge



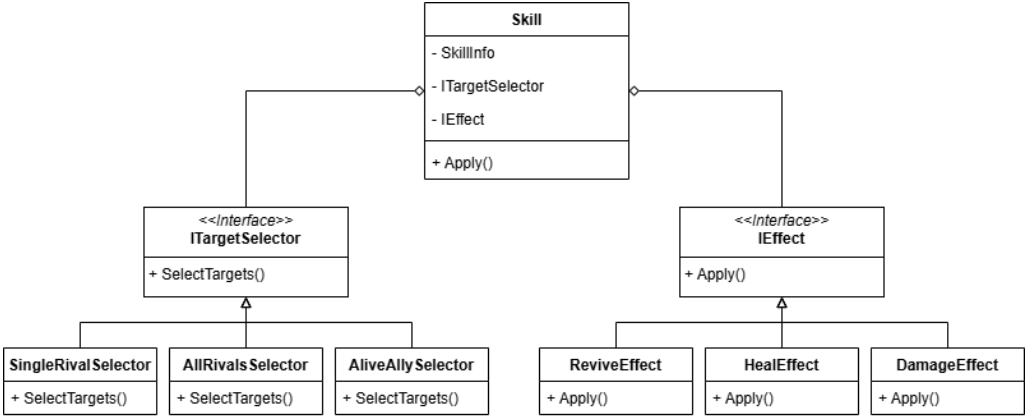
Bridge



Bridge

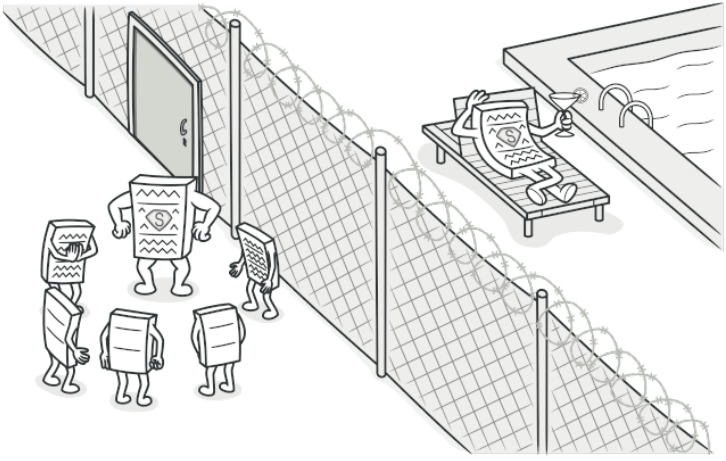

Client
abstraction.feature1()
Bridge
Abstraction
- i: Implementation
+ feature1()
+ feature2()
«interface»
Implementation
+ method1()
+ method2()
+ method3()
i.method1()
i.method2()
i.method3()
(optional)
Refined Abstraction
...
+ featureN()
Concrete
Implementations
i.methodN()
i.methodM()

Bridge

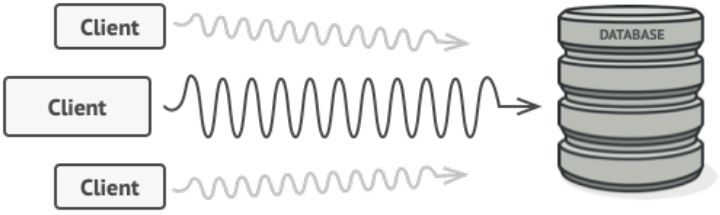

Skill
- SkillInfo
- ITargetSelector
- IEffect
+ Apply()
<<Interface>>
ITargetSelector
+ SelectTargets()
<<Interface>>
IEffect
+ Apply()
SingleRivalSelector
+ SelectTargets()
AllRivalsSelector
+ SelectTargets()
AliveAllySelector
+ SelectTargets()
ReviveEffect
+ Apply()
HealEffect
+ Apply()
DamageEffect
+ Apply()

Proxy

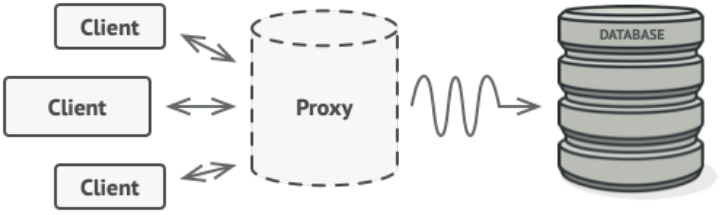
Proxy



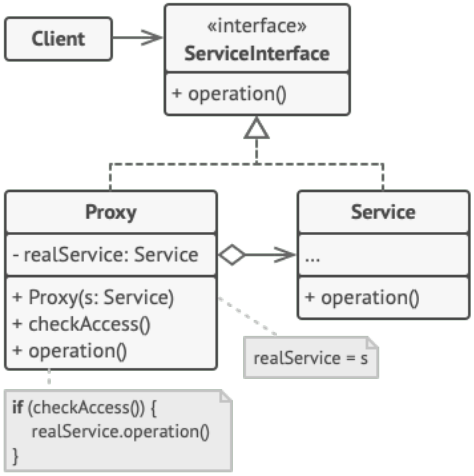
Proxy



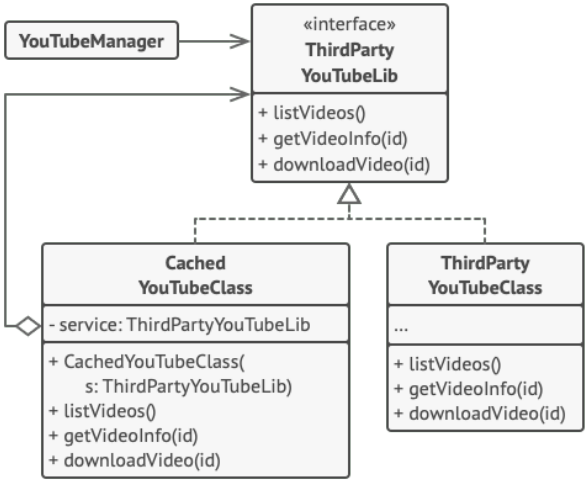
Proxy



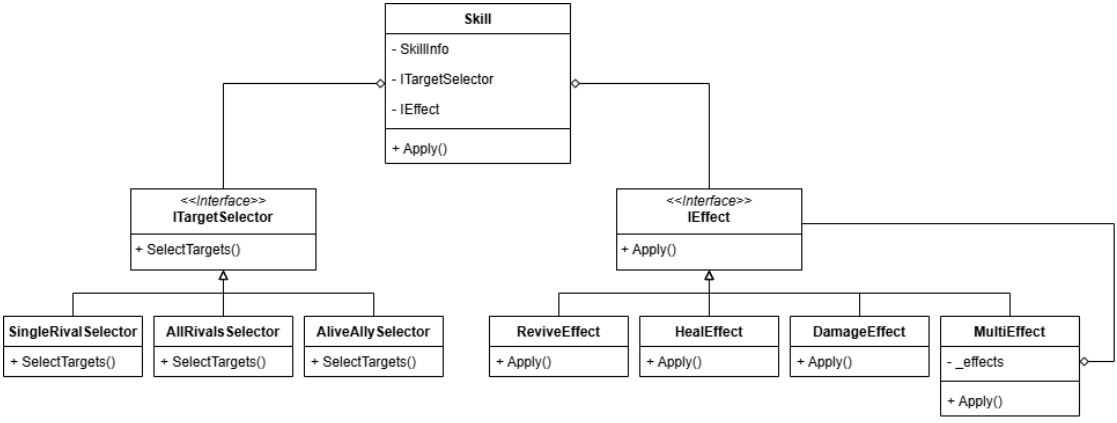
Proxy


Client
«interface»
ServiceInterface
+ operation()
Proxy
- realService: Service
+ Proxy(s: Service)
+ checkAccess()
+ operation()
Service
...
+ operation()
realService = s
if (checkAccess()) {
realService.operation()
}

Proxy

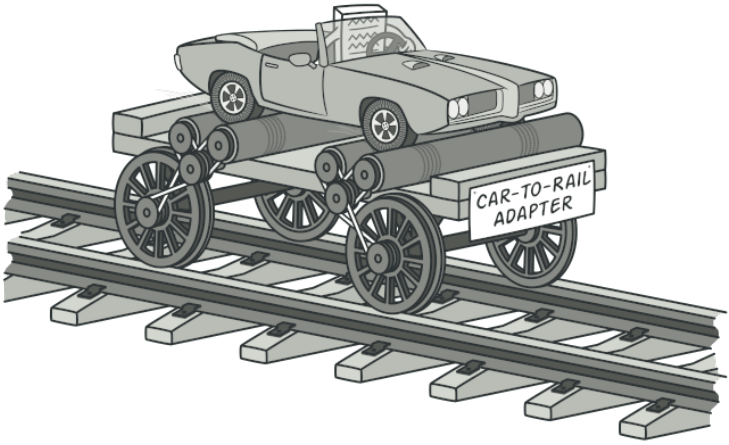

YouTubeManager
«interface»
ThirdParty
YouTubeLib
+ listVideos()
+ getVideoInfo(id)
+ downloadVideo(id)
Cached
YouTubeClass
- service: ThirdPartyYouTubeLib
+ CachedYouTubeClass(
s: ThirdPartyYouTubeLib)
+ listVideos()
+ getVideoInfo(id)
+ downloadVideo(id)
ThirdParty
YouTubeClass
...
+ listVideos()
+ getVideoInfo(id)
+ downloadVideo(id)

Proxy

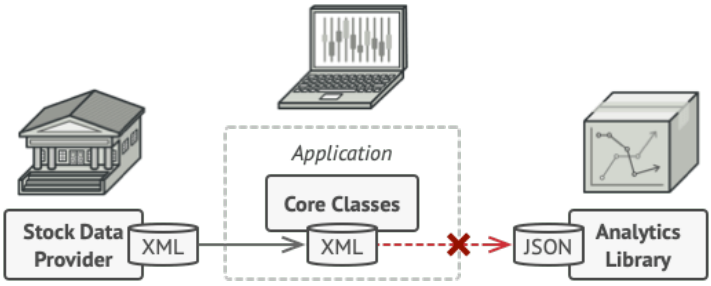

Skill
- SkillInfo
- ITargetSelector
- IEffect
+ Apply()
<<Interface>>
ITargetSelector
+ SelectTargets()
<<Interface>>
IEffect
+ Apply()
SingleRivalSelector
+ SelectTargets()
AllRivalsSelector
+ SelectTargets()
AliveAllySelector
+ SelectTargets()
ReviveEffect
+ Apply()
HealEffect
+ Apply()
DamageEffect
+ Apply()
MultiEffect
- _effects
+ Apply()

Adapter

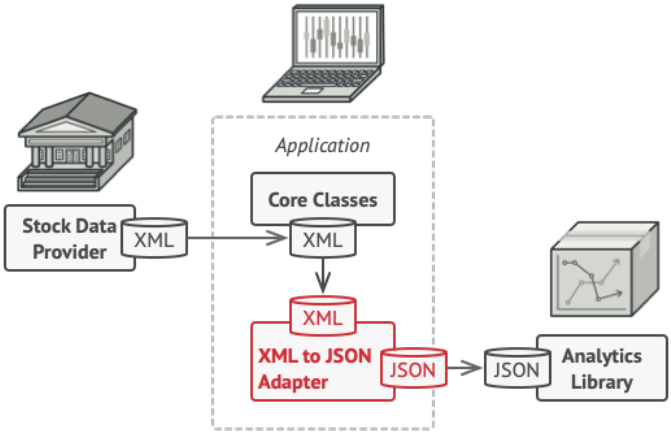
Adapter



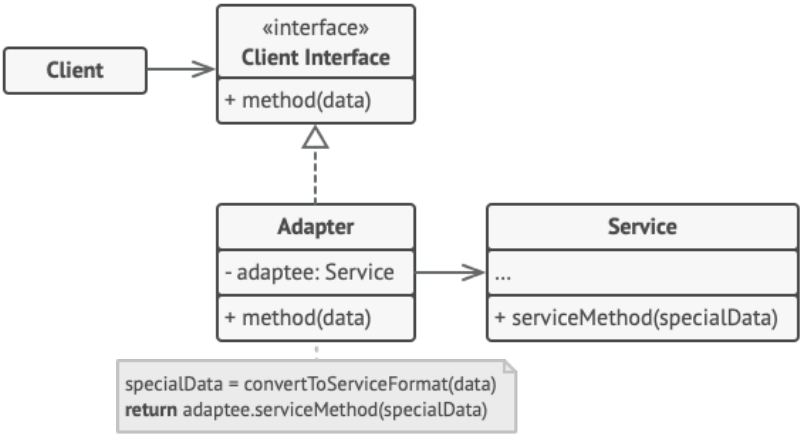
Adapter


Application
Core Classes
Stock Data Provider
XML
XML
JSON
Analytics Library

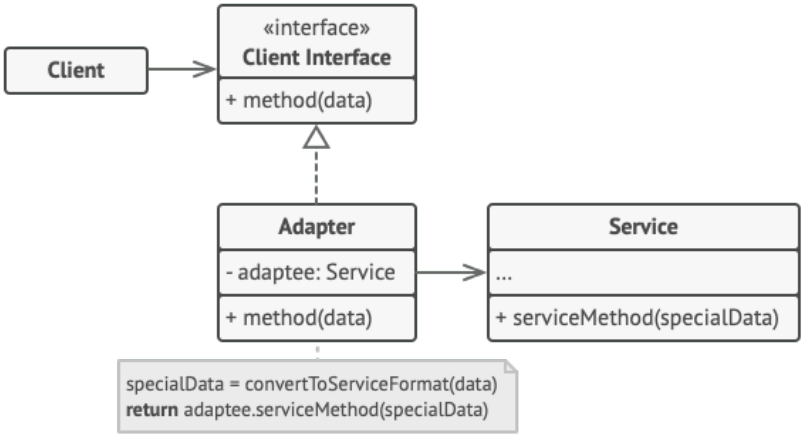
Adapter


Application
Core Classes
Stock Data Provider
XML
XML
XML
XML to JSON Adapter
JSON
JSON
Analytics Library

Adapter

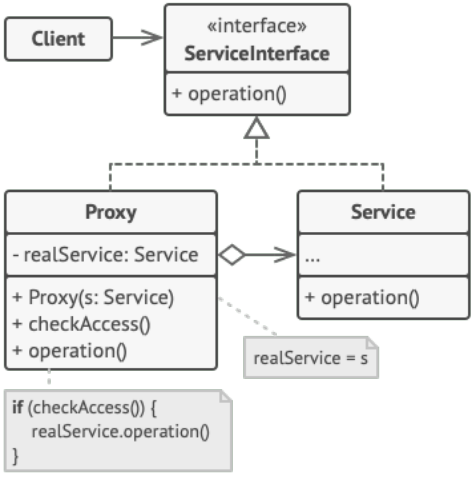

«interface»
Client Interface
+ method(data)
Client
Adapter
- adaptee: Service
+ method(data)
Service
...
+ serviceMethod(specialData)
specialData = convertToServiceFormat(data)
return adaptee.serviceMethod(specialData)

Adapter



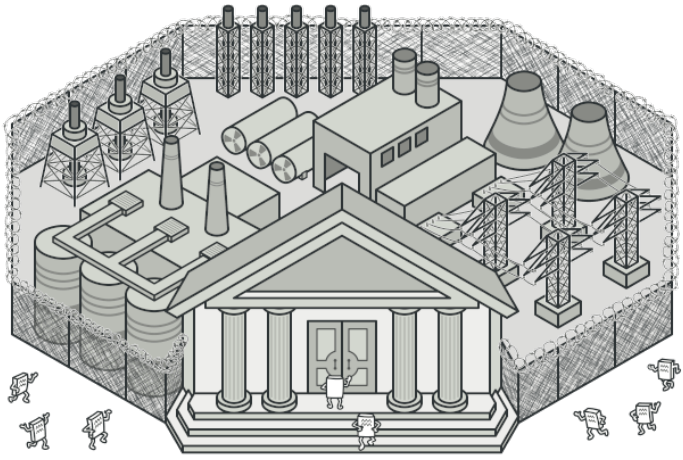
¿Cuál es la diferencia entre el Adapter y el Proxy?

Adapter

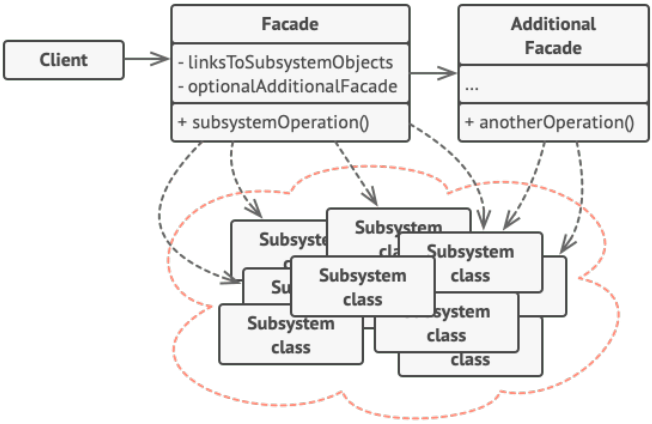

Client
«interface»
ServiceInterface
+ operation()
Proxy
- realService: Service
+ Proxy(s: Service)
+ checkAccess()
+ operation()
Service
...
+ operation()
realService = s
if (checkAccess()) {
realService.operation()
}

Facade

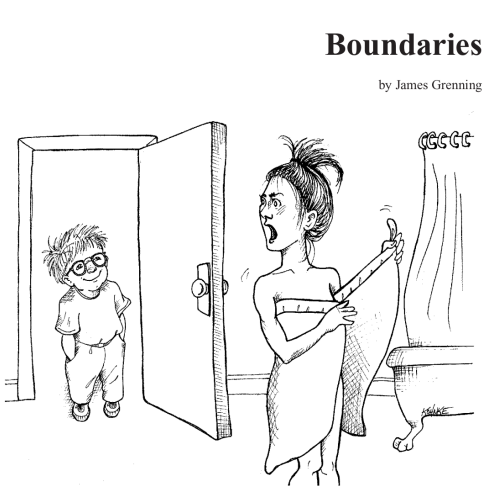
Facade



Facade


Client
Facade
- linksToSubsystemObjects
- optionalAdditionalFacade
+ subsystemOperation()
Additional Facade
...
+ anotherOperation()
Subsystem class
Subsystem class
Subsystem class
Subsystem class
Subsystem class

Facade



Facade

Discutimos los problemas que surgen al usar librerías externas.

- Adapter(IList)
- Add(Object)
- AddRange(ICollection)
- BinarySearch(Int32, Int32, Object, IComparer)
- BinarySearch(Object)
- BinarySearch(Object, IComparer)
- Clear()
- Clone()
- Contains(Object)
- CopyTo(Array)
- CopyTo(Array, Int32)
- CopyTo(Int32, Array, Int32, Int32)
- Equals(Object)
- FixedSize(ArrayList)
- FixedSize(IList)
- GetEnumerator()
- GetEnumerator(Int32, Int32)
- GetHashCode()
- GetRange(Int32, Int32)
- GetType()
- IndexOf(Object)
- IndexOf(Object, Int32)
- IndexOf(Object, Int32, Int32)
- Insert(Int32, Object)
- InsertRange(Int32, ICollection)
- LastIndexOf(Object)
- LastIndexOf(Object, Int32)
- LastIndexOf(Object, Int32, Int32)
- MemberwiseClone()
- ReadOnly(ArrayList)
- ReadOnly(IList)
- Remove(Object)
- RemoveAt(Int32)
- RemoveRange(Int32, Int32)
- Repeat(Object, Int32)
- Reverse()
- Reverse(Int32, Int32)
- SetRange(Int32, ICollection)
- Sort()
- Sort(IComparer)
- Sort(Int32, Int32, IComparer)
- Synchronized(ArrayList)
- Synchronized(IList)
- ToArray()
- ToArray(Type)
- ToString()
- TrimToSize()

Por ejemplo `ArrayList` contiene mucho más de lo que necesitamos.

Facade

Solución fue usar el patrón *fachada* para crear una interfaz a la medida :)

```
public class Team {
    private ArrayList _team = new ArrayList();

    public void AddUnit(Character unit)
        => _team.Add(unit);

    public Character GetUnit(int id)
        => (Character)_team[id];

    public void RemoveDeadUnits()
    {
        // ...
    }
}
```

Actividad