DESIGN PATTERNS: PROXY

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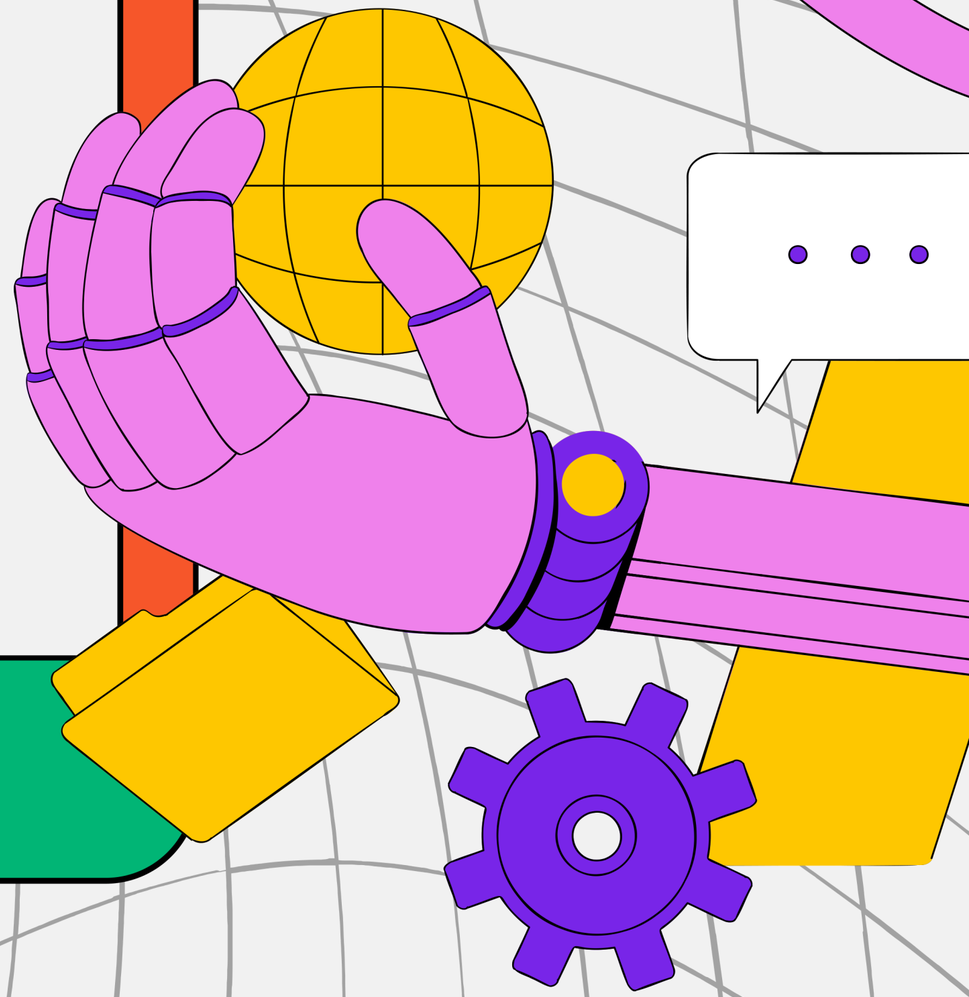


Uses

Proxies are very general design patterns and can be used in many different aspects

Security

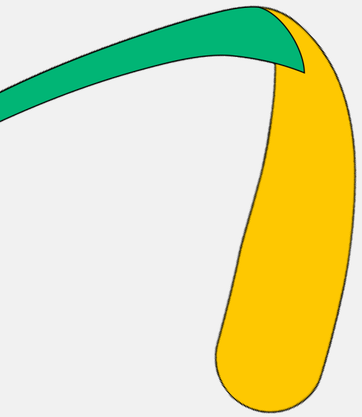
Security proxies authenticate and authorize clients, ensuring that only authorized users can access sensitive resources and functionalities

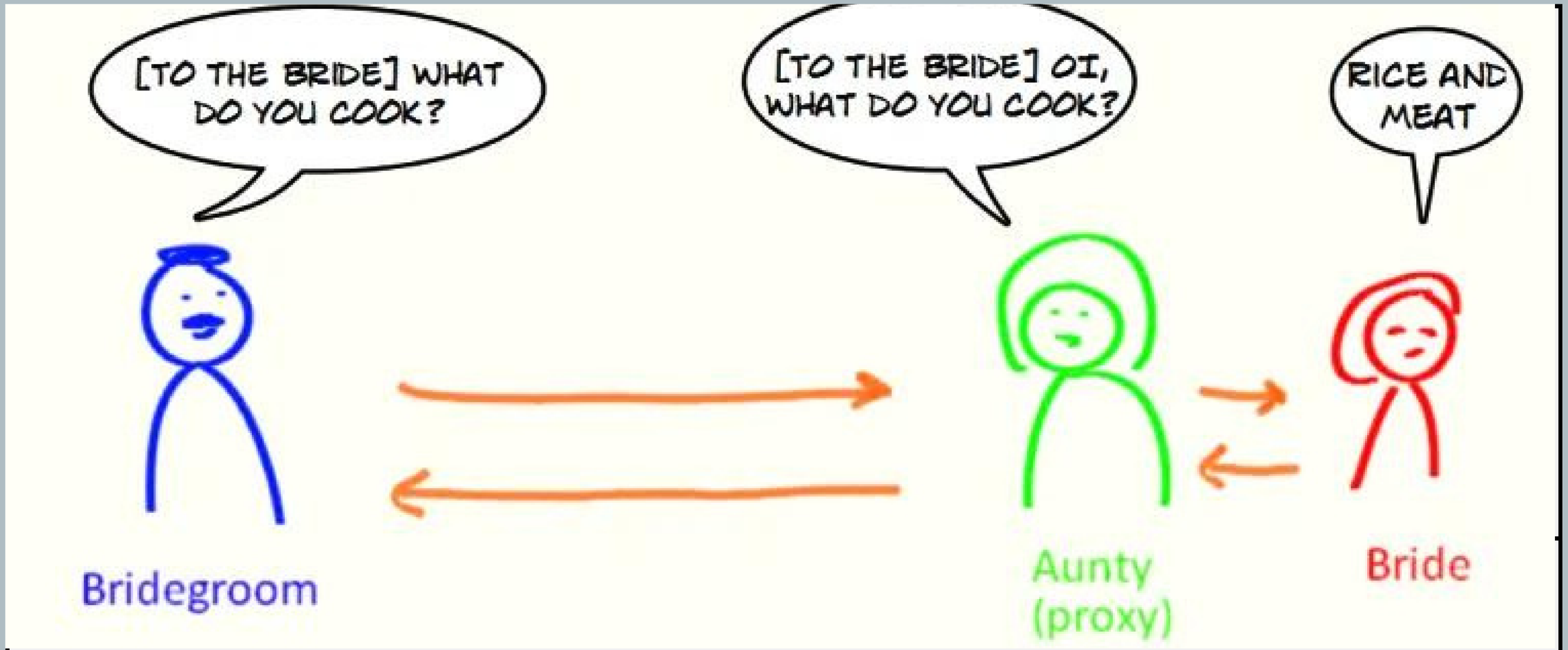
Caching

Proxies can cache expensive operations or results, reducing the overall load on the primary object and improving performance.

Remote

In distributed systems, proxies act as representatives for remote objects, enabling clients to interact with them as if they were local





A structural design pattern provides placeholders for another object to control access to it. The proxy

Protects the object by controlling and managing it.

COMPONENTS

01

Subject

Groom: interface that talks both to the RealSubject and Proxy

02

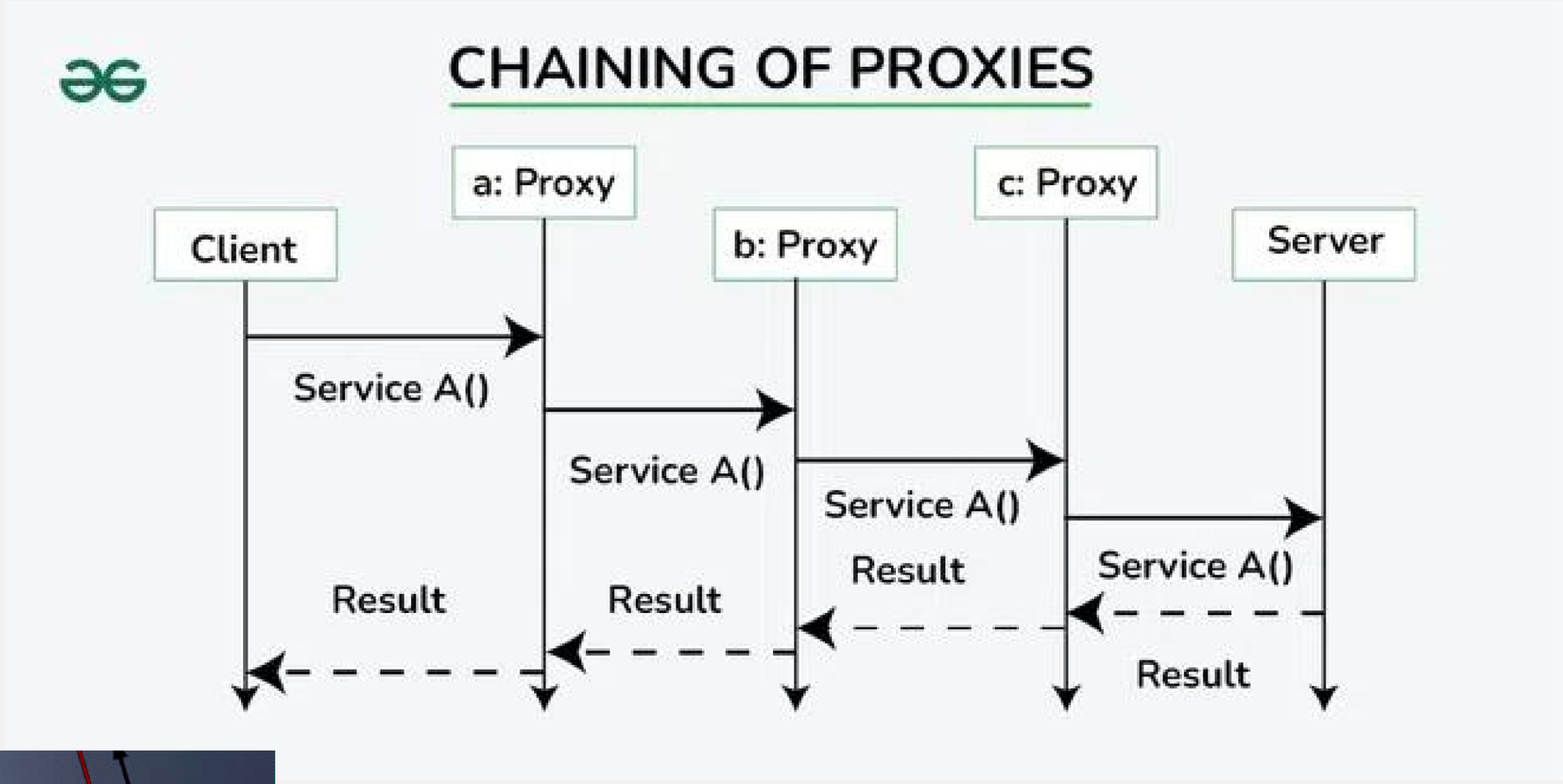
RealSubject

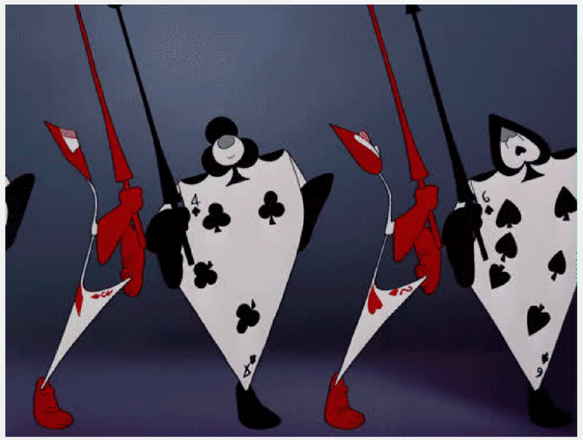
Bride: The concrete subject the implements the interface.

03

Proxy

Aunt: provides the same interface as RealSubject or a subset of it. Protecting the RealSubject through set provisions





CHAINING

Proxies can be connected in a sequence where each proxy adds its behavior before passing the request through.

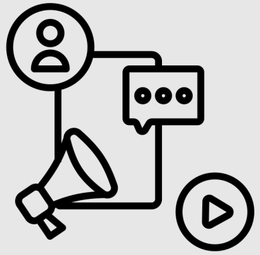
PROS

Ensured Privacy

Proxies mask a users real time IP address along with other personal information to keep identifiable details protected

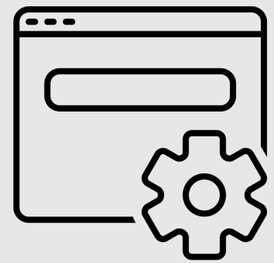
Enhanced Performace

A proxy is able to cache expensive operations, reducing the load on the primary subject and speeds up the connections



Strong Security

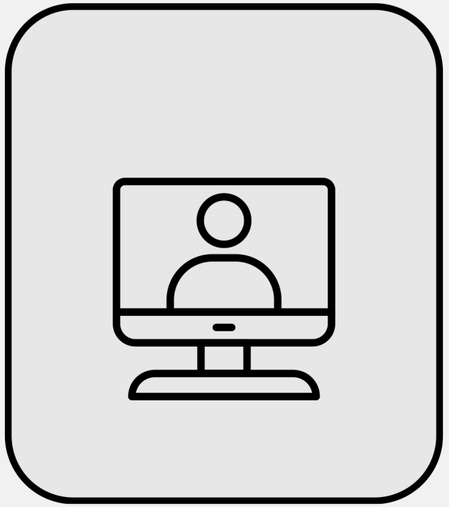
Proxy serves strengthen security and prevent most viruses from attacking the network through the connection



Controlled Access

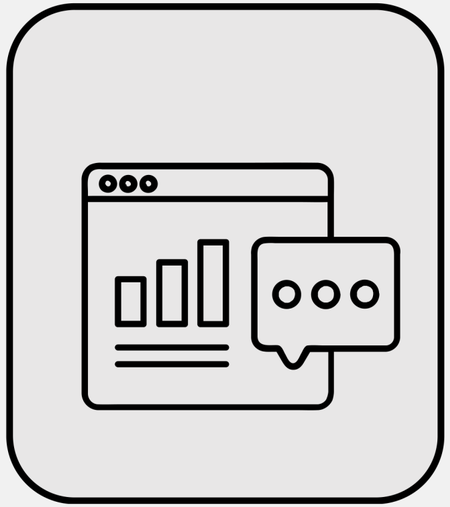
By using a proxy, a users access to the internet can be monitored allowing for certain banned to be placed on sites

CONS



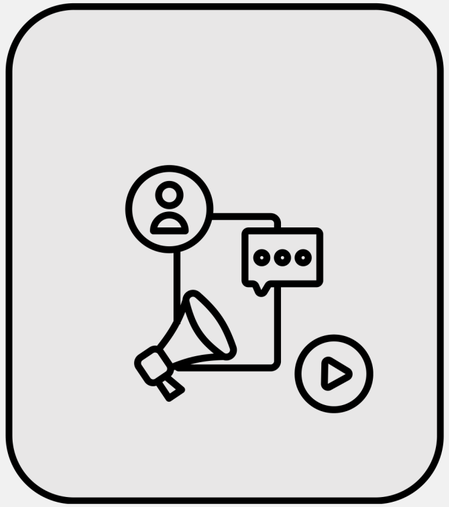
Compatibility

A proxy and a network might not always work the same. They each might have their own parameters so it might have to be reconfigured



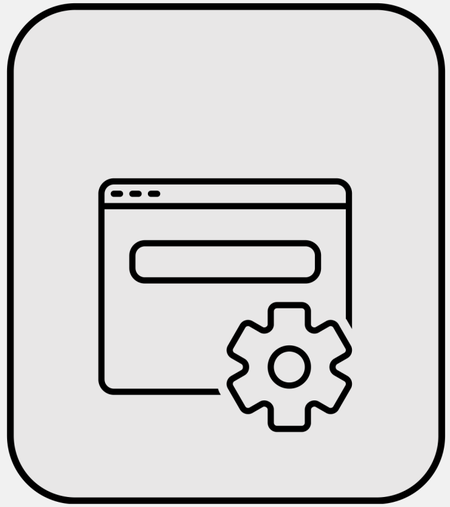
Security Issues

While proxies do offer confidentiality, their encryptions can be weak, making it easy for some attacks to get through



Adaptability

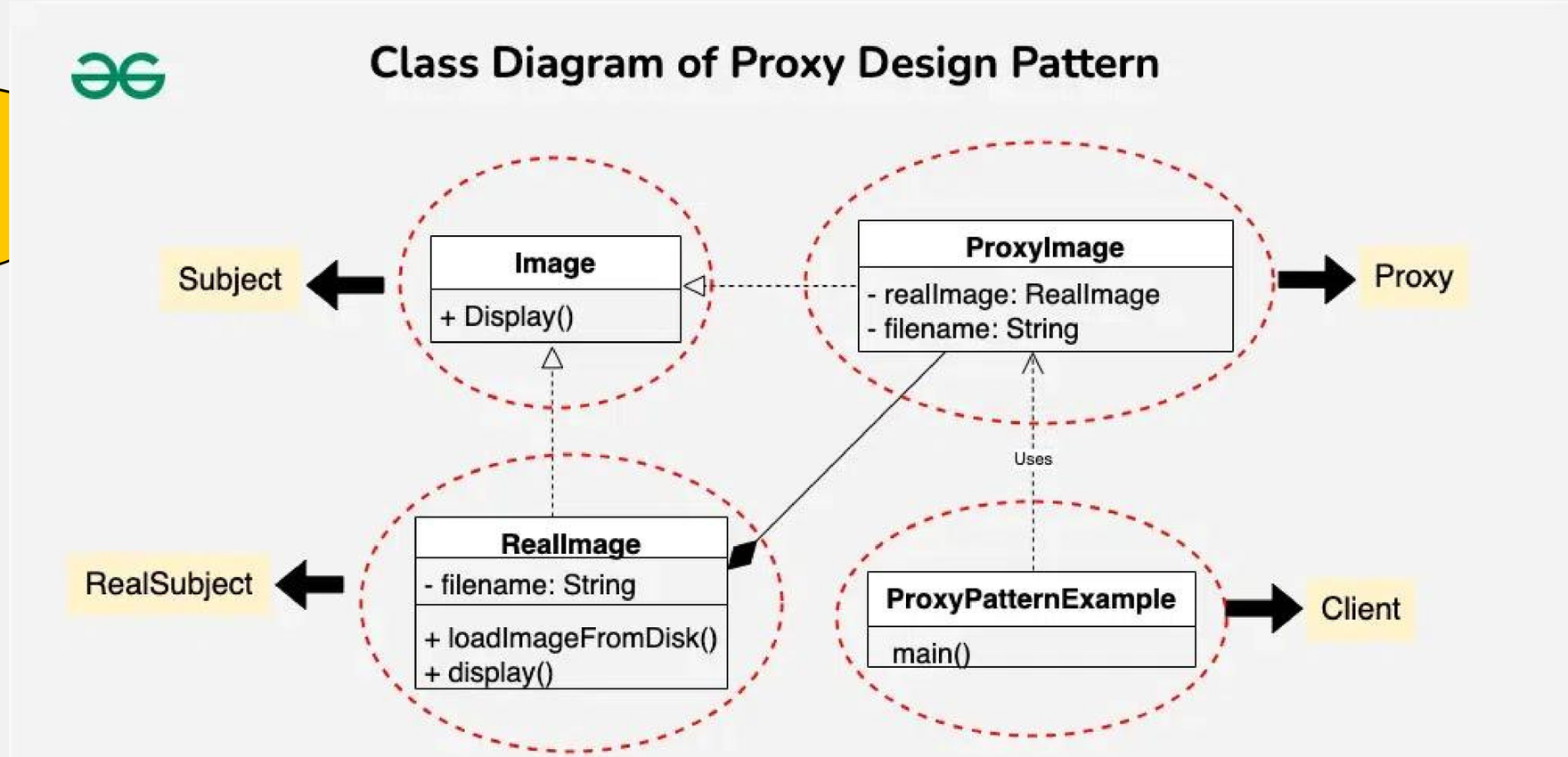
In the case of an update to the main subject might not be as protected and the proxy may become outdated and require significant changes

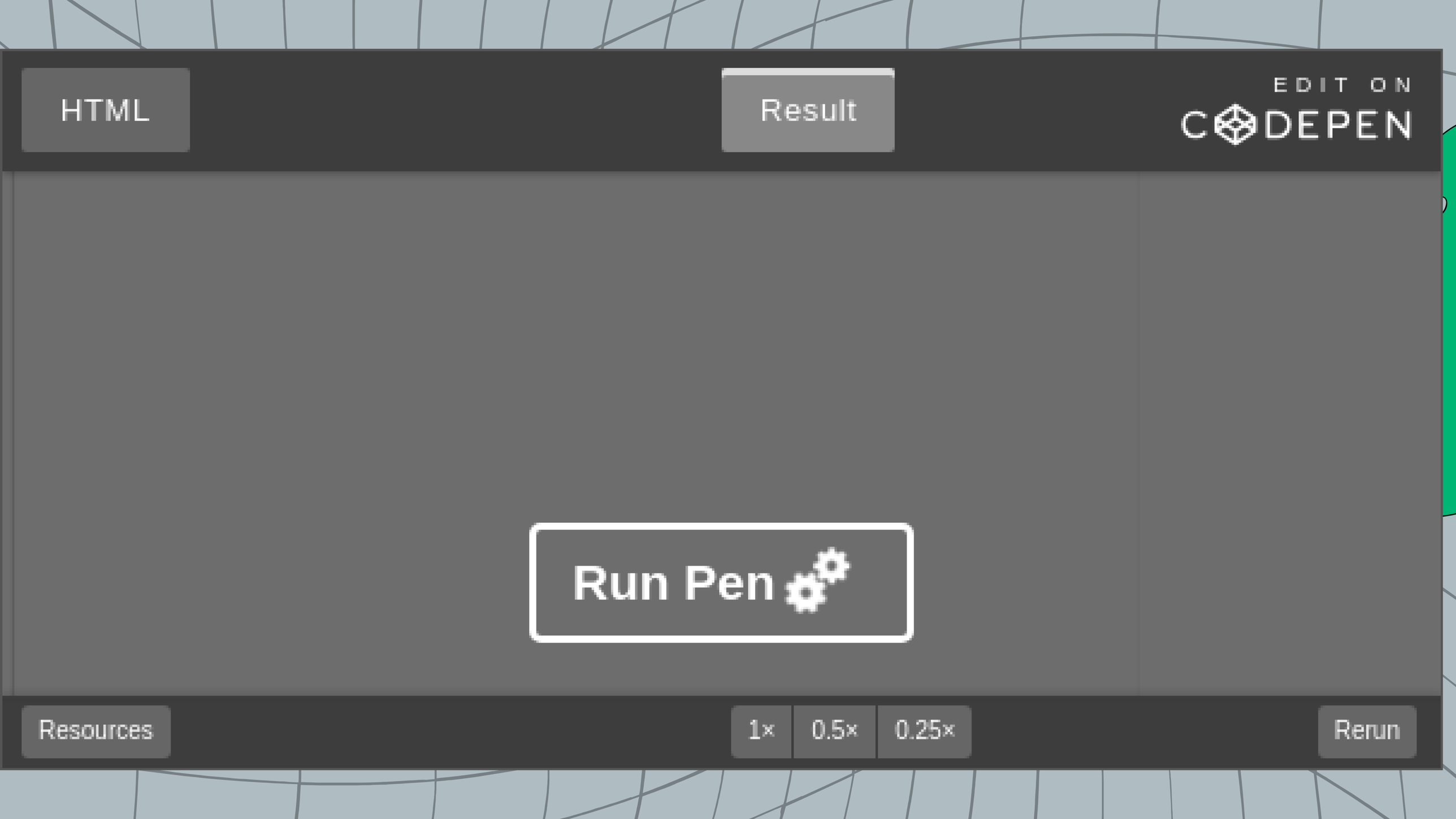


Expensive

Setting up a proxy server may be extremely expensive making it difficult for them to be used by all companies

EXAMPLE


Class Diagram of Proxy Design Pattern
Subject
Image
+ Display()
ProxyImage
- realImage: RealImage
- filename: String
Proxy
Uses
RealSubject
RealImage
- filename: String
+ loadImageFromDisk()
+ display()
ProxyPatternExample
main()
Client


HTML
Result
EDIT ON
CODEPEN
Run Pen
Resources
1×
0.5×
0.25×
Rerun

SOURCES

HTTPS://WWW.GEEKSFORGEEKS.ORG/PROXY-DESIGN-PATTERN/

HTTPS://MEDIUM.COM/@MITHUNSASIDHARAN/UNDERSTANDING-THE-PROXY-DESIGN-PATTERN-5E63FE380S2A

HTTPS://EN.WIKIPEDIA.ORG/WIKI/PROXY_PATTERN

HTTPS://BROWSERJET.COM/BLOG/ADVANTAGES-AND-DISADVANTAGES-OF-A-PROXY-SERVER