**Proxy Pattern**

**Overview**

A proxy pattern provides an alternate or placeholder for another object to control access to it. It is like a representative for another object. A proxy object controls access to remote access to object. A proxy can be taken as a bridge between real object and object that accesses that real object. Freeman Eric., Freeman Elisa. (2004). Proxy is used everywhere such as credit card, user account login, authentication, firewall

**In nutshell, an object controls access of an object to another object and acts like a proxy. It’s a very useful pattern for security layer implementation which can stop traffic and filter traffic.**

* A remote proxy controls access to remote object
* A virtual proxy controls access to a resource that is expensive to create
* A protection proxy controls access to a resource based on access rights

**Benefits**

It is used to create an intermediary/representative object that controls access to another object which maybe remote, expensive to create or need of securing. Freeman Eric., Freeman Elisa. (2004). Proxy can make request inexpensive by only giving detail needed from network server to client request. In other words, proxy is a way of talking to remote objects so your clients don’t have time to bother with that themselves.

* A firewall proxy protects against malicious internet traffic.
* A caching proxy can provide temporary storage for operations which require lot of computation and network latency
* A proxy is used to access secure file/internet

**Problem/Scenario**

A company uses an intranet website to scan project dependencies such as Maven, Nugget packages, node modules packages etc. by using dependency scanner which scans for vulnerability of packages before sending request to internet and download those.

**Before Refactor**

Company uses normal internet to download those dependencies one by one without filtering request or checking if vulnerability exists for those dependencies.

**After Refactor**

Company uses a proxy server to check vulnerability of those project dependencies and blocks download if they have issues otherwise it redirects users to internet and gets dependencies to users trying to download during installation of dependencies such as npm, mavn, nugget packages.

Before/after link

<https://github.com/sppanday/S120-PRT583-Group-A/tree/master/s260598-PandaySurendra/Sprint-2-Deliverables/Task016_ProxyPattern/Task016_ProxyPattern>

**UML Diagram**

Please find it inside relevant project uml in pattern folder

/ProxyPatternPatternUML.png

<https://app.creately.com/diagram/WGfq5kdNOWQ/edit>

**Reference**

Freeman Eric., Freeman Elisa. 2004. 1st ed. O’Reily Media Inc. 1995, Sebasttopo, CA