**Proxy Pattern: Internet Access Control**

**Description:**

The **Proxy Pattern** is a structural design pattern that provides a surrogate or placeholder object to control access to another object. The proxy object acts as an intermediary, managing access to the real subject and allowing additional control or functionality before or after delegating requests to the real subject.

**Components:**

1. **Subject Interface (Internet):**  
   Defines the interface for accessing the real subject. In this example, it includes the method connectTo(String serverHost) that represents connecting to a server.
2. **Real Subject (RealInternet):**  
   Implements the subject interface and provides the actual implementation of the connectTo method, which performs the real operation of connecting to a server.
3. **Proxy Class (ProxyInternet):**  
   Implements the same interface as the real subject and contains a reference to a real subject object. It controls access to the real subject by adding additional logic (such as access control) before delegating the request.
4. **Client (ProxyPatternDemo):**  
   Uses the proxy class to interact with the real subject, demonstrating how the proxy controls access and enforces additional rules.

**How It Works:**

1. **Subject Interface:** Defines the contract for the real subject and the proxy. Both RealInternet and ProxyInternet implement this interface.
2. **Real Subject:** Provides the core functionality. In this case, it implements the method to connect to a server.
3. **Proxy Class:** Contains logic to control access. It maintains a list of banned sites and checks whether the requested server is banned. If banned, it denies access; otherwise, it delegates the request to the real subject.
4. **Client Code:** Interacts with the proxy to perform operations. The proxy ensures that only allowed requests are forwarded to the real subject.

**Scenario:**

1. **Successful Connection:** The client requests to connect to "geeksforgeeks.org". The proxy checks the banned sites list and finds that this site is not banned, so it allows the connection through to the RealInternet object.
2. **Denied Connection:** The client then attempts to connect to "abc.com". The proxy detects that this site is on the banned list and throws an exception, preventing the connection.

**Benefits:**

1. **Access Control:** Allows control over access to the real subject, enforcing rules like access restrictions or authentication before delegating requests.
2. **Additional Functionality:** Enables the addition of extra features such as logging, security checks, or caching without modifying the real subject.
3. **Separation of Concerns:** Keeps the core logic of the real subject separate from the control logic in the proxy, promoting cleaner and more maintainable code.