Web Service Proxy

🧱 **5. Web Service Proxy — Local Representation of a Remote Service**
What is it?
A **Web Service Proxy** is an automatically generated class on the client side that *acts like a local object*, but actually communicates with the remote web service.
It hides all the networking details.

```
ServiceReference1.MyServiceSoapClient proxy = new ServiceReference1.MyServiceSoapClient();
int result = proxy.Add(5, 7);  // looks local, but calls remote web service
```

Why do we use it?
Because without a proxy, the client would have to manually:
- Build SOAP messages
- Send them over HTTP
- Parse XML responses
- Handle errors

The proxy automates all of this.
✔ Makes calling a web service feel like calling a normal method
✔ Saves time
✔ Reduces complexity
✔ Ensures correct SOAP formatting

When is it used?
Whenever a client application wants to **consume** a web service.
- After adding a "Service Reference"
- When the client needs to call web service methods
- When SOAP messages need to be created and sent automatically

Relation to XML, SOAP, WSDL, and UDDI
XML
- The proxy sends and receives XML data inside SOAP messages.

SOAP
- The proxy automatically creates the SOAP request and parses the SOAP response.

WSDL
- The proxy is *generated* from the WSDL file.
- WSDL tells the proxy what methods exist and what they return.

UDDI
- UDDI helps locate services, and once found, the WSDL is used to generate the proxy.

👉 **The proxy is the bridge between your code and the web service.**

🧠 **In One Sentence**
A Web Service Proxy makes a remote web service look like a local C# object and automatically handles SOAP messages using information from the WSDL.