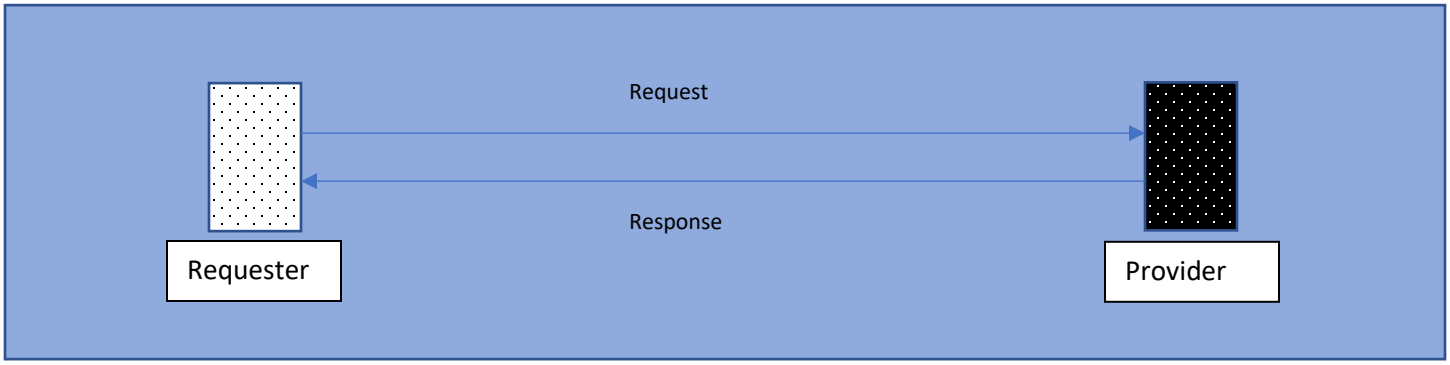
[Source: https://www.w3.org/wiki/WebServices and various other sources on the internet]
[Source: https://www.guru99.com/testing-rest-api-manually.html and various other sources on the internet]

What is an API

API stands for Application Programming Interface. It is a software intermediary which allows two applications to talk to each other. So, the API is the messenger that delivers your request to the Provider and then delivers the response back to you (Requester).

Typical Exchange between Requester and Provider



An API exactly defines the methods for one software program to interact with the other. An API generally involves calling functions from within a software program.

In general API's are like below, they have server name, paths, etc.
http://<server name>/v1/export/Publisher/Standard_Publisher_Report?format=csv

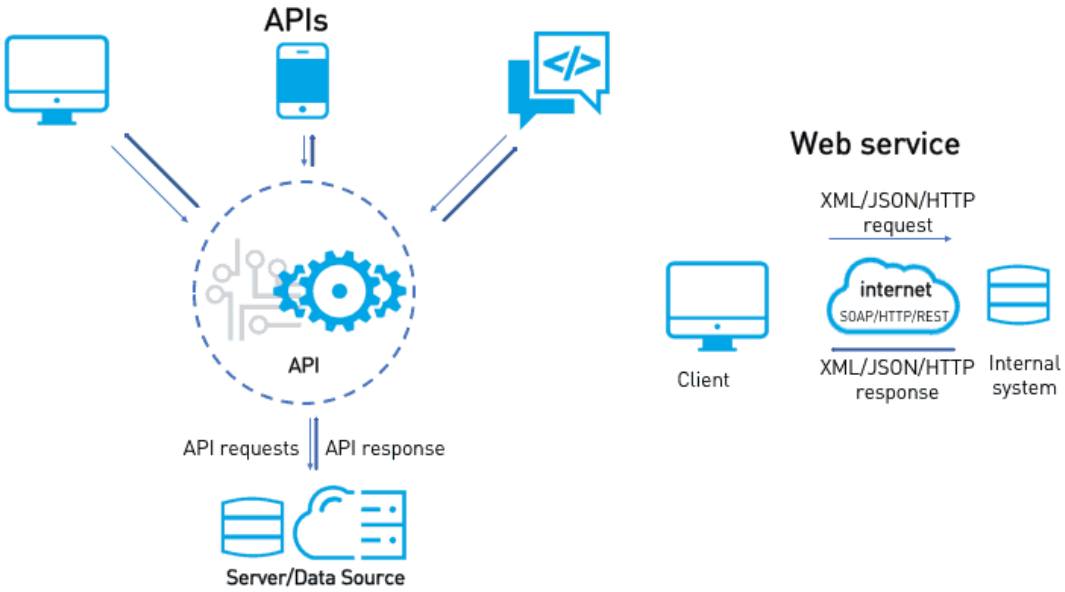
There may be more methods for API testing then the ones that are described here. We are mainly interested in the 4 methods described below:

- **GET**- The GET method is used to extract information from the given server using a given URI. While using GET request, it should only extract data and should have no other effect on the data.
- **POST**- A POST request is used to create new entity. It can also be used to send data to the server, for example, customer information, file upload, etc. using HTML forms.
- **PUT**- Create a new entity or update an existing one.
- **DELETE**- Removes all current representations of the target resource given by a URI.

Web Service

Web service serve as a means of communication. The only difference between an API and a Web service is that a Web service facilitates interaction between two machines over a network. An API acts as an interface between two different applications so that they can communicate with each other.

In case of Web applications, the API used is web based. A Web service is merely an API wrapped in HTTP. An API does not always need to be web based. A Web service is designed to have an interface that is depicted in a machine-processable format usually specified in Web Service Description Language (WSDL). Typically, HTTP is the most commonly used protocol for communication. Web service also uses SOAP, REST and XML-RPC as a means of communication. A Web service always needs a network for its operation whereas an API doesn't need a network for its operation.



Types of Web service testing

There are two major types of web services:

1. **SOAP Web Services**: SOAP (Simple Object Access Protocol) is an XML-based protocol for accessing web services. Its interface is described in a machine-processable format called WSDL (Web Service Definition Language) document. A web service is described by using a standard, formal XML notion that provides all necessary details like message format, transport protocols, and location to interact with the web service.
2. **REST Web Services**: REST (Representational State Transfer) is a style of software architecture. The data format is described by using JSON schema notation, and it requires the use of the HTTP transport protocol.

Source: https://www.getpostman.com/docs